



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

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September 9, 1999

David Miller, Mine Manager  
Lodestar Energy, Inc.  
HC 35 Box 370  
Helper, Utah 84526

Re: Deficiencies in Culvert Removal Amendment, Lodestar Energy Inc., White Oak Mine, ACT/007/001-AM99B, Folder # 2, Carbon County, Utah

Dear Mr. Miller:

The Division received your application to revise the White Oak Mine Permit Application Package(PAP) by removing a culvert on August 20, 1999. Our review of the information has identified a number of deficiencies in the application that will need to be taken care of before we can approve it. Following are problems that were identified.

**R645-301-333**, The amendment must specify how, to the extent possible, using the best technology available, the operator will minimize disturbance and adverse impacts to the wildlife and the environment during reclamation of the hillside. Obtaining soil from the surrounding half-culvert topography will unnecessarily create additional disturbance to the steep hillside.

**R645-301-233**, The Division recommends using the soil from the existing topsoil stockpile, or import soil from another source. If soil is imported, the soil must be sampled and tested according to the Division's Guidelines for Topsoil and Overburden.

**R645-301-331**, The applicant needs to provide more detail about the hillside stabilization plan. The application needs to show how the area will be backfilled and what material will be used. It is likely additional mechanical erosion control methods will be needed similar to the log check dams next to the heavily eroded areas. Also, the seed mix proposed should be revised to include species that are most likely to stabilize the slope.

**R645-301-331**, There is a small wetland that has been covered with sediment from the

Culvert Removal  
ACT/007/001-99B  
September 9, 1999  
Page 2

slope. The applicant should show how vegetation will be reestablished in the area.

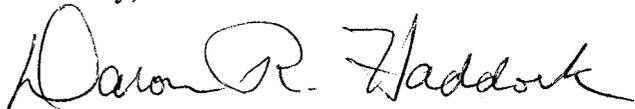
**R645-301-742.300**, The applicant must provide the following: use of imported fill that contains rock to fill the eroded ditch, plans of where and how to retain sediment at the base of the remaining culvert, improved design of the rock dam sediment basin, improved straw bale installation.

**R645-301-121.200**, The applicant must correct typographic errors in the submittal.

A copy of our technical analysis is enclosed to provide more detail and aid you in responding to the deficiencies. In order for us to keep this in our review loop, please provide your response by no later than September 24, 1999.

If you have any questions about the requirements, please call me at (801) 538-5325.

Sincerely,



Daron R. Haddock  
Permit Supervisor

tm  
enclosure  
cc: Vicky Miller (Earthfax)  
Price Field Office  
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State of Utah  
Division of Oil, Gas and Mining  
Utah Coal Regulatory Program



Technical Analysis and Findings  
White Oak Mine  
ACT/007/001-AM99B  
Removing culvert on haul road  
September 9, 1999

## INTRODUCTION

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit or a permit change and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

Often the technical review of an application finds that the application contains some deficiencies. The deficiencies are discussed in the body of the TA and are identified by a regulatory reference which describes the minimum requirements that must be met in order to satisfy them. In this TA we have summarized the deficiencies at the beginning of the document to aid in responding to them. Once all of the deficiencies have been adequately addressed, the TA will be considered final for the permitting action.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

## SUMMARY OF DEFICIENCIES

- R645-301-333**, The amendment must specify how, to the extent possible, using the best technology available, the operator will minimize disturbance and adverse impacts to the wildlife and the environment during reclamation of the hillside. Obtaining soil from the surrounding half-culvert topography will unnecessarily create additional disturbance to the steep hillside.
- R645-301-233**, The Division recommends using the soil from the existing topsoil stockpile, or import soil from another source. If soil is imported, the soil must be sampled and tested according to the Division's Guidelines for Topsoil and Overburden.
- R645-301-331**, The applicant needs to provide more detail about the hillside stabilization plan. The application needs to show how the area will be backfilled and what material will be used. It is likely additional mechanical erosion control methods will be needed similar to the log check dams next to the heavily eroded areas. Also, the seed mix proposed should be revised to include species that are most likely to stabilize the slope.
- R645-301-331**, There is a small wetland that has been covered with sediment from the slope. The applicant should show how vegetation will be reestablished in the area.
- R645-301-742.300**, The applicant must provide the following: use of imported fill that contains rock to fill the eroded ditch, plans of where and how to retain sediment at the base of the remaining culvert, improved design of the rock dam sediment basin, improved straw bale installation.
- R645-301-121.200**, The applicant must correct typographic errors in the submittal.

## TECHNICAL ANALYSIS

### OPERATION PLAN

#### TOPSOIL AND SUBSOIL

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

#### Analysis:

Following removing the half-round culvert that extends down the hillside below the Belina Haul Road, the hill slope will be repaired and reclaimed. Reparations will be done using heavy equipment where possible; however, White Oak states that the majority of the reclamation work will be done by hand.

There is a lack of soil resources for repairing the eroded and damaged hill slope. No soil was salvaged during installation of the half-round culvert. White Oak has proposed two options for soil resource to fill the footprint left by the culvert. The two topsoil options include:

- Topsoil from the small stockpile salvaged during site expansion in the late 1980's
- Topsoil from the surrounding topography alongside the hillside, culvert depression.

White Oak's preference is to use the surrounding soils to fill and blend the depression into the surrounding topography, which would unnecessarily create a much greater area of disturbance on the steep out slope.

It is much easier to revegetate a disturbed topsoil stockpile than to revegetate a much larger area of disturbance on the steep out slope hillside below the Belina haul road. The Division recommends using the soil from the existing topsoil stockpile, or import soil from another source. If soil is imported, the soil must be sampled and tested according to the Division's Guidelines for Topsoil and Overburden.

#### Findings:

Information provided in the application is not considered adequate to meet the requirements of this section of the regulations. The applicant must provide the following in accordance with:

**R645-301-333**, The amendment must specify how, to the extent possible, using the best technology available, the operator will minimize disturbance and adverse impacts to the wildlife and the environment during reclamation of the hillside. Obtaining soil from the surrounding half-culvert topography will unnecessarily create additional disturbance to the steep hillside.

**R645-301-233**, The Division recommends using the soil from the existing topsoil stockpile, or import soil from another source. If soil is imported, the soil must be sampled and tested according to the Division's Guidelines for Topsoil and Overburden.

## TECHNICAL ANALYSIS

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### INTERIM REVEGETATION

Regulatory Reference: R645-301-331

#### Analysis:

The applicant has proposed to plug a culvert along the haul road and remove the half round culvert leading from the road to the bottom of the slope. There has been erosion on the slope, and there is sediment deposited at the bottom of the slope. Previous attempts to control erosion have apparently included installation of log check dams and erosion control matting.

After water has been diverted away from the culvert, the culvert, the half round culvert, and previously-placed erosion control blankets will be removed. The slope will be repaired using heavy equipment when possible, and the remainder will be done by hand. After being backfilled and compacted, the area will be seeded and covered with erosion control matting material. The seed mix will include the grasses and forbs in the mix for northeast-facing slopes as described in the reclamation plan.

The application needs to better describe how the slope will be backfilled. It needs to show what kind of soil material is on the slope and what would be used to fill the gully.

In the area where log check dams were installed, additional backfilling may not be necessary; however, for the seed to germinate and become established, some scarification is needed. The applicant should avoid destabilizing the slope, but, without at least raking the surface, seedlings would have difficulty becoming established.

The applicant needs to propose additional measures to stabilize the parts of the slope where the most severe erosion has occurred. As discussed above, it appears the log check dams have been reasonably successful, and a method like this needs to be incorporated in the plan. Better technologies have probably been developed in recent years, and the applicant should determine what method would work best in this situation.

While the seed mix would provide some erosion protection, it was designed both for erosion control and to provide forage for wildlife and livestock. The application needs to include a seed mix designed more specifically for erosion control. The Division recommends the applicant use western wheatgrass, Kentucky bluegrass, slender wheatgrass, yarrow, Rocky Mountain penstemon, and Wood's rose from the mix in the plan. Other species presently growing on the adjacent hillside include orchardgrass, thickspike wheatgrass, smooth brome, and an aster, probably Pacific aster.

At the bottom of the hill is an area that has been covered by sediment. This area has alternate sediment control measures to keep the sediment from going off site, and the sediment needs to be cleaned out. There is little or no vegetation in this area, but it was almost certainly a wetland. Wetland vegetation from adjacent areas is likely to invade the area, but the process would proceed much more quickly with some seeding or planting. The applicant should propose methods for restoring the wetland.

#### Findings:

## TECHNICAL ANALYSIS

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

**R645-301-331**, The applicant needs to provide more detail about the hillside stabilization plan. The application needs to show how the area will be backfilled and what material will be used. It is likely additional mechanical erosion control methods will be needed similar to the log check dams next to the heavily eroded areas. Also, the seed mix proposed should be revised to include species that are most likely to stabilize the slope.

**R645-301-331**, There is a small wetland that has been covered with sediment from the slope. The applicant should show how vegetation will be reestablished in the area.

### DIVERSIONS

Regulatory Reference R645-301-742.300

#### Analysis:

The proposed plan indicates a preference to use surrounding soils adjacent to the disturbed area to blend into the depression. This would destroy existing vegetation and result in an even larger disturbance on a steep slope that is difficult to revegetate. Numerous unsuccessful past attempts have made this plain. The Division would MUCH prefer the use of imported soils to fill in the eroded gully and the unvegetated area beside the gully. Ideally the imported material will have substantial rock content similar to the surrounding area. Rock content has resulted in self-armoring of the adjacent gully to the west.

To limit exposure to erosion, the existing log structures and the soil they retain should be left in place. Then imported fill soil can be placed between the logs to smooth out the slope when the gully is filled. The topsoil storage pile is much easier to revegetate, so soils could be obtained from the pile to fill in the disturbed area depressions. Soils could also be obtained elsewhere, subject to testing and approval by the Division.

Use of straw bales at the top of the slope to divert water away from the newly seeded area is a good idea. Similarly, straw bales at the bottom to control erosion from the newly revegetated area will be beneficial. The use of soil stabilization matting will work, however, only if manufacturer installation instructions are followed closely. In the past it appears matting was used and it bridged over depressions in the ground and /or was eroded underneath the matting. Installation is crucial to matting success and this must be done correctly. The riprap at the inlet area of C-22-24 is very good and will reduce erosion.

Leaving existing sediment deposits at the bottom of the slope and revegetating them is acceptable. The entire barren area must be revegetated. In addition, there needs to be another silt collection basin constructed at the bottom of the slope. This is necessary since the culvert west of the removed one is still in use and collecting water. Thus, silt will continue to flow down to the bottom of the slope and must be prevented from entering Eccles Creek. The applicant needs to provide plans of where and how to retain this sediment.

## TECHNICAL ANALYSIS

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Installation of a rock check dam at the bottom of ditch D-21 is essential to remove sediment from the runoff water. It's location is appropriate and the design with a designated outfall is good. There should be riprap at the outfall to prevent erosion in the ditch below the dam. Clean out and maintenance of the ditch and sediment behind the dam is necessary and is included in the plan. There is, however, a limitation to the use of a loose rock check dam. That is, the sediment-laden water goes right through such a structure. This is evident from the structure in place there presently. The dam needs to stop the water and provide sufficient retention time to let the sediment drop out. The applicant needs to improve the water holding characteristics of the check dam. Fine material from the surrounding parking area has been put on the dam, but that washed out. Perhaps some gravel-sized rock between the larger rocks would solve the problem. Similarly, the straw bales in place presently are not recessed into the ground and are not "chinked" between bales to prevent water from going under and around the bales. They don't retain sediment. The straw bale "dike" needs to be upgraded to be effective in preventing sediment loss through them. That's also true of the straw bale dams up the ditch from the rock check dam.

There are a couple of typographic problems with the submittal. There are no page numbers and the first paragraph of the first page refers to drawing R645-301-231.300 and it appears it should be -231.310.

### Findings:

The proposed plan does not meet minimum regulatory requirements. Prior to approval, the Applicant must provide the following in accordance with the requirements of:

**R645-301-742.300**, use of imported fill that contains rock to fill the eroded ditch, plans of where and how to retain sediment at the base of the remaining culvert, improved design of the rock dam sediment basin, improved straw bale installation.

**R645-301-121.200**, correction of typographic errors in the submittal.