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

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Michael O. Leavitt
Governor
Lowell P. Braxton
Division Director

October 8, 1998

Mark Wayment, Mine Manager
White Oak Mining & Construction
Scofield Route
Helper, Utah 84526

Re: Culvert Removal, White Oak Mining & Construction, White Oak Mine #1, ACT/007/001-98C, File #2, Carbon County, Utah

Dear Mr. Wayment:

The referenced amendment has been reviewed by Senior Reclamation Specialists Mike Suflita and Paul Baker. Their analyses are provided for your review and response.

TECHNICAL ANALYSIS:

OPERATION PLAN

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:

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.

RECOMMENDATIONS:

The application should not be approved in its current form. The applicant needs to provide more details about how the slope would be reclaimed.

TECHNICAL ANALYSIS:

OPERATION PLAN

Diversions

Regulatory Reference R645-301-742.300

Analysis:

The proposed plan to plug the input to C-23-24 included an analysis of the impact of adding the design flow of the culvert to the ditch, D-21. The analysis showed a freeboard of 1.1 inch in the ditch downstream of the culvert inlet. While this keeps the flow in the ditch, the slightest obstruction could cause flows to leave the ditch. The application included calculations for the riprap lined ditch below the concrete lined ditch and for a rock check dam to help control sediment. All revised calculations were checked and compared to the original plan and appear appropriate.

Comparison of the drainage areas for the two adjacent culverts shows that, although C-22 and C-23 are both 24 inches in diameter, the drainage area of C-22 is about one-fourth that of C-23. Since C-23 is being eliminated, it would be less detrimental for its runoff to flow into the remaining C-22. This would function as a "safety valve" in the event flows left the concrete lined ditch and flowed into C-22, a desirable condition.

A field trip was made on 9/3/98 to assess site conditions. Vicki Miller, the mine's Resident Agent accompanied this reviewer. The following conditions were noted and documented with photographs, which are attached:

1. The inlet to culvert C-22-24 is partially plugged with rocks and debris and needs cleaning. The triangular area adjacent to the culvert inlet, between the road and cliff, contributes sediment to runoff and the area needs to be rippedraped.
2. The concrete lined ditch is in immediate need of repair all along the road, and especially below the inlet to the culvert to be removed, to prevent further deterioration.
3. The entire ditch, from Eccles Creek up to the mine site, needs maintenance to clean up and remove rock and debris which has accumulated along and in the ditch.

4. The area below the culvert to be eliminated is completely full of accumulated sediment and needs to be cleaned out immediately. This should be included as part of the reclamation of the culvert.

Findings:

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

R645-301-742.300, clean out and maintain clean, the inlet to all culverts, especially in this case, C-22-24. Install riprap over the triangular area above and below the inlet to C-23-24, between the cliff and edge of the drainage ditch. Perform ditch maintenance to remove debris in and along the ditch must begin at the inlet to the culvert that carries all of Eccles Creek, C-21-48, and continue up the entire road.

R645-301-534.330 and .340, repair of the concrete ditch all along the roadway. The repairs must bring the ditch up to the same quality standard as before the deterioration occurred.

Road Drainage

Regulatory Reference R645-301-742.420

The proposed design shows showed a freeboard of 1.1 inch in the ditch downstream of the culvert inlet. The regulations require road drainage ditches to "be designed to prevent uncontrolled drainage over the road surface and embankment". While this is the case, the slightest obstruction could cause flows to leave the ditch. The situation below the point where the culvert inlet would be plugged has the road sloping up from the ditch and a cliff on the other side of the ditch. Thus, if flows were to exceed design, there would be minimal impact. See attached photos and comments. It is crucial that this length of the ditch be maintained to be free of debris which could obstruct the ditch.

Findings:

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

R645-301-742.300 and 742.420, clean out and maintain clean, the inlet to all culverts, especially in this case, C-22-24. Install riprap over the triangular area above and below the inlet to C-23-24, between the cliff and edge of the drainage ditch. Ditch maintenance to remove debris in and along the ditch must begin at the inlet to the culvert that carries all of Eccles Creek, C-21-48, and continue up the entire road.

R645-301-534.330 and .340, repair of the concrete ditch all along the roadway. The repairs must bring the ditch up to the same quality standard as before the deterioration

occurred.

Sediment Control Measures

Regulatory Reference R645-301-732.100 and 742.100

Analysis:

The siltation structure at the bottom of culverts C-22 and C-23 are completely filled with sediment and are about to overtop the straw bales. See attached photos. This continues up to and including the lower end of the culvert to be removed. This sediment must be removed, the area cleaned up, and new straw bales installed. It is logical to include this as part of the restoration of the area where the culvert is removed.

Findings:

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

R645-301-732.100 and 742.100, removal of all sediments in the siltation structure below the culvert to be removed. The area must be cleaned up and new straw bales installed.

RECOMMENDATION:

Prior to approval, the Applicant must provide the items outlined above in accordance with the referenced regulations.

ADDED RECOMMENDATION:

During the field visit some potential problems were noted at the two culverts up the road from the proposed work area. These are culverts C-24-24 and C-25-36. At both culverts there are fabric tubes attached to the culvert outlets. These tubes are removed in the winter and reinstalled in the spring, apparently to prevent freezing. The wires holding the tube on C-25-36 are not functioning as intended. Originally the wires were attached to trees which held up the tube. The trees have been washed out and fallen and are now pulling DOWN on the tubes.

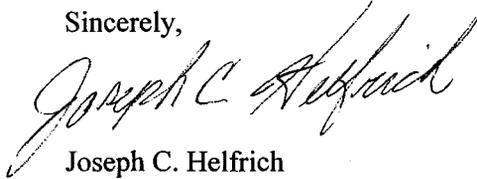
Both culverts would be greatly improved by adding steel culvert to replace the fabric tubes currently in place. Protection of the channel is essential, but the tubes present ongoing maintenance problems and costs. They are at risk of being torn off during storm events. The resulting damage and sediments generated off site would very likely result in issuance of a Notice of Violation.

The Division would strongly recommend that the Operator replace the fabric tubes with steel culvert of the same length or somewhat longer. The present inadequate fastening of the tubes must be corrected regardless.

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Removal of the culvert is approved in light of seasonal changes and recent site clean-up efforts. Your response to the technical analyses by October 17, 1998 is appreciated. If you have any questions please call.

Sincerely,



Joseph C. Helfrich
Permit Supervisor

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cc: Vicky Bailey, EarthFax
Dale Harbor, USFS
Price Field Office

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