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

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May 31, 2001

TO: Internal File

THRU: Priscilla W. Burton, Reclamation Soils Specialist and Team Lead

FROM: Paul B. Baker, Reclamation Biologist

RE: Mining of Barrier Coal, Lodestar Energy, Inc., White Oak Mine, C/007/001-SR01A

**SUMMARY:**

On February 2, 2001, the Division received a proposal from Lodestar Energy, Inc., to surface mine coal in the vicinity of the White Oak Mine surface facilities. Mining would occur in areas that are currently disturbed but also extend into areas that are not now disturbed but which are in within the disturbed area boundary.

There are no proposed changes to the biology sections, but the plan needs to be revised. In particular, the reclamation plan for Whisky Creek needs to better reflect current technology.

The plan does not contain comments from the land owners about the postmining land use, and these comments are critical, particularly concerning whether a road should be retained through the mine facilities area and down Whisky Canyon.

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**TECHNICAL ANALYSIS:**

**GENERAL CONTENTS**

**IDENTIFICATION OF INTERESTS**

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645 -301-112

**Analysis:**

The applicant and operator are Lodestar Energy, Inc., and the application includes the applicant's address, telephone number, employer identification number, and resident agent. It also shows who will pay the abandoned mine reclamation fee and lists the applicant's officers. Appendix 1-1 shows when the officers assumed their positions as required in R645-301-112.330.

All of the Lodestar Energy stock is owned by Lodestar Holding, Inc., which is owned by IRACOAL, Inc. Appendix 1-1 includes the names, addresses, social security numbers, and starting dates of the officers and directors of these companies. It also shows appropriate identification information for affiliated coal mining and reclamation operations. Some of the ownership and control information is new, and it needs to be checked in the Applicant/Violator System.

Tables 112.500 and 112.600 and Maps 112.500 and 112.600 of the current "PAP" show land ownership information. The tables are not duplicated in the application, and the pagination and text are not such that the application would fit into the plan. This needs to be corrected.

Section 100 of the Division's copy of the "PAP" contains outdated ownership and control information for White Oak Mining and Construction Company. It is possible this was supposed to be removed when the permit was transferred to Lodestar, but the Division needs to receive instructions to take it out. Lodestar should also ensure it is removed from their copy of the "PAP."

**Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-112.500 and R645-301-112.600**, The text and pagination of Chapter 1 of the application are not such that the application can be inserted into the existing mining and reclamation plan. This needs to be corrected.

**R645-301-112**, Section 100 of the "PAP" contains outdated ownership and control information that should be removed.

## **VIOLATION INFORMATION**

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645 -300-132; R645 -301-113

### **Analysis:**

According to the application, neither the applicant nor any of its subsidiaries or affiliates has had a federal or state permit suspended or revoked in the last five years, nor have they forfeited a reclamation bond or similar security deposited in lieu of bond. Recent violations issued to the applicant are shown in Appendix 1-1.

### **Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations.

## **RIGHT OF ENTRY**

Regulatory Reference: 30 CFR 778.15; R645 -301-114

### **Analysis:**

The proposed project is within the existing disturbed area on surface land owned by Milton and Bessie Oman. The coal is owned by Carbon County. Appendix 1-2 of the current mining and reclamation plan contains more detailed right of entry information.

The land owner for the surface facilities area is Milton A. Oman, Ltd. In the current plan, the lease with the surface owner in the facilities area only allows underground mining and construction of facilities for underground mining. The application includes a supplemental agreement allowing surface mining as part of the reclamation process.

### **Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations.

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## LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

### Analysis:

According to the current mining and reclamation plan, the permit area is not in an area designated as unsuitable for coal mining and reclamation activities. There are no occupied buildings within 300 feet and no cemeteries within 100 feet of the operations. State Road 96 is within 100 feet of the loadout. None of these is near the currently-proposed surface mining operations.

The current mining and reclamation plan includes maps showing the permit area boundaries, and the application shows the limits of the proposed operation within the existing disturbed area boundaries.

### Findings:

Information in the proposal is adequate to meet the requirements of this section of the regulations.

## PERMIT TERM

Regulatory References: 30 CFR 778.17; R645-301-116.

### Analysis:

The permit term would not change under the current proposal. The permit is due to expire in August 2004.

### Findings:

Information in the proposal is adequate to meet the requirements of this section of the regulations.

## **PUBLIC NOTICE AND COMMENT**

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

### **Analysis:**

Since the Division determined this to be a significant revision, the applicant advertised the proposal in the *Price Sun Advocate*. Proof of publication is in Appendix 1-3. The advertisement was first published March 27, 2001, and the last publication was April 17, 2001. The public comment period expired May 17, 2001, and the Division received no comments.

### **Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations.

## **FILING FEE**

Regulatory Reference: 30 CFR 777.17; R645-301-118..

### **Analysis:**

According to Division directive Adm-003, the filing fee is only collected for new mines, so the applicant is not required to submit the filing fee.

### **Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations.

## **ENVIRONMENTAL RESOURCE INFORMATION**

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

## **HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.12; R645-301-411.

### **Analysis:**

The application includes no new historic or archaeological resource information. The current mining and reclamation plan contains a copy of a report detailing survey work done in 1980. The survey included the current disturbed area where no cultural resource sites were found.

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**Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations.

**VEGETATION RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.19; R645-301-320.

**Analysis:**

Much of the disturbed area was disturbed before vegetation measurements were taken. Drawing R645-301-323.100 shows vegetation communities in the area. Near the mine surface facilities are aspen, spruce/fir, and grass/forb/elderberry communities. Vegetation cover and productivity information for these communities is included in Appendix 321.

Riparian areas are not shown on Drawing R645-301-323.100, and Appendix 321 includes no vegetation cover information for the riparian areas in the permit area. Even though riparian areas are not shown on the map and are not included in the vegetation cover information, it is clear there are riparian areas in the permit area and adjacent areas. Table 321.100A lists all species found in the permit area by habitat type, and riparian is one of the habitat types listed.

The application needs to contain certain baseline vegetation information for the Whisky Creek riparian area. At a minimum, it needs to contain a list of species growing near the creek. It may also be necessary to gather complete baseline cover, density, and productivity information. This would be used to establish a baseline revegetation success standard.

The revegetation success standard in the current mining and reclamation plan is basically the Whisky Creek watershed upgradient from the mine. Prior to receiving this proposal, the Division felt the undisturbed Whisky Creek riparian area would serve as an adequate success standard for the area to be reclaimed. However, it appears the areas to be disturbed will now be somewhat different than remaining undisturbed portions of the creek. Unless another suitable standard, i.e. reference area, can be found, the Division needs complete baseline information for the area to be disturbed.

Information in the plan about other vegetation communities is adequate for the Division's purposes.

**Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-321**, The applicant needs to include baseline vegetation information for the riparian community in Whisky Creek. The extent of the information needed will depend on whether the applicant can find a suitable reference area, but it could vary from a list of species occurring in the area to complete cover, density, and productivity information.

## **FISH AND WILDLIFE RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 784.21; R645-301-322.

### **Analysis:**

#### **Wildlife Information**

Fish and wildlife information is in Appendix 321. The plan includes macroinvertebrate data for the South Fork of Eccles Creek, Eccles Creek both above and below Whisky Creek, the mouth of Eccles Creek, Mud Creek above Eccles Creek, and Mud Creek below Eccles Creek. The information includes community tolerance quotients for the various sampling times for these sites, but there is enough variability between the different sampling times it is impossible to judge whether there are any differences between the streams. The study indicates there had been some significant impacts on the community between 1976 and 1979 and even in just one year between 1979 and 1980. It also says there were stresses evident that would probably lead to future changes in the macroinvertebrate communities. It would be very interesting to make these same measurements now to see if there have been effects over the last twenty years, but the Division has no reason to require further macroinvertebrate studies at this time.

A raptor survey was done from the ground in 1980, and helicopter surveys have been done in the 1990's and most recently on May 22, 2001. The 1980 survey found Cooper's hawk and goshawk nests, but neither of these was near the mine surface facilities. Two raptor nests have been found in the helicopter surveys, but these nests are in the southeast part of the permit area. No nests have been found near the disturbed area.

There are several other bird species that nest in the area although none of these species are classified as being of high federal interest. Nearly all bird species are protected, however.

The area contains critical summer range for elk and deer and summer range for moose, but the only winter range is for moose in the riparian areas. There is habitat for several other mammal species. It is unlikely elk and deer actually use the area near the current disturbed area as calving and fawning habitat because of the activity at the mine. Otherwise, however, the aspen-covered slopes near Whisky Creek would be good habitat.

Some areas adjacent to Whisky Creek appear to have small wetlands, but, according to representatives of the Division of Water Rights, the Army Corps of Engineers normally only

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asserts jurisdiction over areas like this when the wetlands are larger or the overriding concern for protection is the wetlands. In this case, the primary concern is for Whisky Creek and to restore it and its small floodplain.

### Threatened and Endangered Species

There are no threatened or endangered species known to occur in the immediate area although bald eagles could potentially migrate through. There are several state sensitive species with some likelihood of being in the area, including the American marten, Townsend's big-eared bat, northern goshawk, Williamson's sapsucker, three-toed woodpecker, Sonoran mountain kingsnake, and the Utah milk snake. The current mining and reclamation plan discusses these species and the likelihood that they are in the mine area. A discussion about these species follows.

According to the Utah Conservation Data Center, the permit area contains limited value habitat for the American marten. They occur in the montane ecological association, but since they tend to live in remote areas, it is unlikely they would be near the mine or would be adversely affected by the proposed operation.

Townsend's big-eared bats roost and hibernate in caves, mines, and old buildings, so although the area contains the type of habitat in which they live, the proposed mining would probably not adversely affect them.

Northern goshawks often nest in aspens or conifers in or near riparian areas. The area contains this type of habitat, but no goshawk nests have been found during raptor surveys of the area. Because goshawks tend to stay away from human activity, it is unlikely they would nest near the mine.

Williamson's sapsuckers are found primarily in the mountainous areas of the eastern two-thirds of Utah where it is an uncommon breeder. On its breeding grounds, the habitats used by this species are middle- to high-elevation coniferous forests and mixed deciduous-coniferous forests containing aspens. The foods of this species include insects, especially ants, and the sap of conifers and aspens. Although the Division has not attempted to contact an expert to positively determine whether the area near the mine site contains habitat for this species, the habitat described is essentially what occurs near the mine. The plan says, however, that Williamson's sapsuckers have not been found in the area.

Although habitat for three-toed woodpeckers is in the general area, the area that would be disturbed does not contain habitat for this species. Three-toed woodpeckers prefer forests of Ponderosa pine and other conifers at lower elevations than the disturbed area. They commonly nest and forage in burned areas.

Both the Sonoran mountain kingsnake and the Utah milk snake occur in montane areas and could be in the permit area. According to the mining and reclamation plan, no snake dens have been found in the area, and the applicant commits to report them if they are found.

**Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations.

**LAND-USE RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.22; R645-301-411.

**Analysis:**

Before any mining, the land use for the loadout and mine areas was rangeland. A sawmill was located in the office area. The plan includes information about productivity in relation to the grazing use.

All of the permit area in Carbon County is zoned for recreation, forestry, and mining except for one 160-acre area zoned as "Critical Environmental." The portion of the permit area in Emery County is all zoned for recreation, forestry, and mining.

The plan contains information about previous mining activity in the area. There have historically been several mines in the vicinity, including one near the loadout. There was no previous mining activity at the White Oak Mine site.

**Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations.

**MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

**Archeological Site Maps**

The archaeological report in Appendix 411.140 includes a map showing the locations of historic sites found during the survey. None of these would be affected by the proposed operation. The information is considered adequate to address the requirements of this section of the regulations.

**Cultural Resource Maps**

Drawing R645-301-411.100 is a premining land use map and shows county zoning classifications and other land uses in the general area. According to this map, there are no public

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Rivers System within the permit and adjacent areas. There are also no cemeteries within 100 feet of the permit area.

### **Vegetation Reference Area Maps**

Drawing R645-301-323.100 is a map of the vegetation communities in the permit area, and it also shows two specific reference areas near the mine complex (in addition to a reference area near the loadout). While this would be acceptable, it is in conflict with the text of the plan which indicates a large area could be used as a reference area. According to page R-32 of 37 and Table R-2, revegetation success will be judged on the basis of comparison with reference areas. For the mine complex, the reference areas are those areas devoid of man's activities which have at least a 100-foot buffer zone from disturbed areas. Specific reference areas will be chosen using a statistically based method from a grid of areas in proximity to the disturbed area and with similar characteristics, such as elevation, slope and aspect. Either the text or the map needs to be modified to be consistent.

### **Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-323**, The text that discusses the locations of the reference areas needs to be consistent with Drawing R645-301-323.100 which shows specific reference area locations.

## **OPERATION PLAN**

### **PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES**

Regulatory Reference: 30 CFR784.17; R645-301-411.

### **Analysis:**

The area proposed to be mined does not contain any known cultural resources, so no protection plan is needed. A standard permit stipulation requires the applicant to stop all activities and notify the Division if any cultural resources are found.

### **Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations.

## AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244.

### Analysis:

The application says the applicant is submitting a Notice of Intent to the Bureau of Air Quality, presumably to amend the existing Air Quality Approval Order.

While R645-301-422 simply requires that the application contain a description of coordination and compliance efforts undertaken with the Division of Air Quality, the Division needs to be assured the requirements of the Clean Air Act are being met. The application needs to include a copy of the Notice of Intent or, when it is approved, the Air Quality Approval Order.

In addition, R645-301-424 requires that all plans for surface coal mining and reclamation activities with projected production rates of 1,000,000 tons of coal per year or less will include a plan for fugitive dust control practices as required under R645-301-244 and R645-301-244.300. The fugitive dust control plan in the current mining and reclamation plan applies only to the current underground operations and not to the mining activities as proposed. Therefore, the applicant needs to develop and include a fugitive dust control plan.

### Findings:

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-422**, The applicant needs to show its coordination and compliance efforts with the Division of Air Quality. This should include a copy of the Notice of Intent and, when approved, the Approval Order.

**R645-301-424**, The application needs to include a fugitive dust control program for the proposed surface mining activities.

## FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

### Analysis:

#### Protection and enhancement plan

The fish and wildlife protections plan has not been changed in this proposal. According to the current plan, the Division of Wildlife Resources takes macroinvertebrate and habitat

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measurements and fish samples annually. The plan leaves open the possibility of future sampling in other creeks in the area but does not commit to it.

According to a representative of Wildlife Resources, they have not taken samples in Eccles Creek in several years although he said it would be good to have this information to compare to data from previous samples. The plan needs to be modified to correctly indicate the current status of monitoring in Eccles Creek.

The plan contains several commitments about personnel training, reclamation habitat enhancement, and avoiding disturbances to streams and riparian areas. The plan says smaller areas of riparian habitat in Whisky Canyon will not be disturbed by the applicant's operations. The current proposal is to disturb the Whisky Creek riparian area, so the commitment to not disturb this area needs to be modified. Otherwise, the Division considers the protection plan to be adequate.

**Endangered and threatened species**

The Division needs information about how much water the proposed mining operations would use. Through water depletions, the mine has the potential of adversely affecting four threatened and endangered fish species of the upper Colorado River. The current mining and reclamation plan has some discussion about effects of underground mining on both water quality and the amount of water available. It does not appear the proposal contains information about how much water the proposed surface mining operations would use.

There is little or no likelihood of adversely affecting any other listed threatened or endangered species, but, as discussed in the environmental resource information section of this review, there is a chance Williamson's sapsuckers, a sensitive species, could be in the area. Nearly all birds are protected by either state or federal law, so "taking" them, through killing them directly, by destroying an active nest, or other means, is illegal. Probably the easiest way to avoid this problem is to do the mining outside the nesting season, but the application does not include a mining schedule. Because the applicant does not yet have approval for the mining operation, it may be difficult to establish a schedule, but it should be possible to commit to not beginning the operation or tree cutting associated with it between about April and July. If this is not possible, the Division will need to consider other protection and mitigation options that might be available.

**Bald and golden eagles**

Although bald eagles could occasionally fly through the area and some may winter in the Scofield area, the proposed operations are not expected to have effects on bald eagles. No golden eagle nests have been found in either helicopter or ground surveys in the immediate area although it is possible there are some nests nearby. The two raptor nests found in 1998 near Boardinghouse Canyon were classified as red-tailed hawk and unidentified buteo nests.

According to the mining and reclamation plan, a representative of the Fish and Wildlife Service examined the power poles in the permit area and found no threat to bald or golden eagles.

### **Wetlands and habitats of unusually high value for fish and wildlife**

It appears there are small wetlands associated with Whisky Creek, but, as discussed in the resource information section of this technical analysis, they are not large enough to be regulated by the Army Corps of Engineers. Nevertheless, the applicant will need to restore them as far as possible in the reclamation process.

Other habitats of unusually high value will either not be damaged, would be protected by following commitments in the existing mining and reclamation plan, or will be protected by following commitments the Division is requiring.

### **Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-333**, The mining and reclamation plan needs to be modified to show what aquatic monitoring is occurring in Eccles Creek.

**R645-301-333**, The current mining and reclamation plan contains a commitment to not disturb the riparian areas near Whisky Creek, and this needs to be modified to be consistent with the current proposal.

**R645-301-333**, The proposal needs to include information about how much water the proposed operations would use. Depending on the amount of water to be used, the Division might need to require certain mitigation.

## **VEGETATION**

Regulatory Reference: R645-301-330, -301-331, -301-332.

### **Analysis:**

It appears the only interim revegetation for the proposed project would be done on the topsoil storage pile although it might also be possible to revegetate the spoil pile. Based on information in the application, spoil and topsoil would be stockpiled at the beginning of the operation then redistributed about twelve to fourteen months later.

In Section 331, the plan refers to Sections 341.100 and 341.200, presumably for the interim revegetation plan. The plan does not have Sections 341.100 and 341.200, but Section

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340 refers to the "MRP" volume for the revegetation plan. The revegetation plan in this volume is for final reclamation although it would be appropriate for most long-term interim revegetation. The seed and planting mixes are not well suited to short-term interim revegetation like what would be needed for the proposed project. Handsets (seedlings) are not needed for short-term (twelve to fourteen months) revegetation. Seed of many of the species in the final revegetation plan is expensive, and while these species might provide good cover for erosion control, it would be possible to obtain similar or better erosion control with a separate seed mixture designed for this situation.

The Division recommends the applicant use a seed mixture more suited to short-term interim revegetation. Grain seed, such as barley, is relatively inexpensive, and it grows very rapidly to provide good erosion control, assuming there is adequate rainfall for it to become established. The applicant could use about 80 pounds per acre of grain followed by application of about one ton per acre of straw. It is important that the grain seed be tested seed and purchased from a seed dealer rather than from an individual farmer. In addition, the mulch should be certified as noxious weed free. Although the Division cannot make these requirements, purchasing good quality seed and noxious weed free straw is far less expensive than trying to control weeds, and the Division *does* have the authority to require that weeds be controlled.

**Findings:**

Information in the proposal is adequate to meet the requirements of this section of the regulations; however, the Division highly recommends the applicant develop an interim revegetation plan rather than using the plan for final revegetation. The Division also highly recommends the applicant only use certified and tested products to avoid contamination with noxious weed seed.

## RECLAMATION PLAN

### POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

**Analysis:**

The applicant is proposing no changes from the premining land uses.

The postmining land uses are grazing and wildlife habitat, and regulation R645-301-412.120 requires a detailed grazing management plan for areas that have been surface mined. The applicant needs to include this plan.

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Regulation R645-301-412.200 requires that the application include comments from the land owner and surface management agencies about the postmining land use. The current mining and reclamation plan has a comment that any information related to land owner or surface manager comments is available for review at the office of Valley Camp of Utah. The revision proposal includes a statement that the applicant is in the process of obtaining the land owner's priorities relating to roadway access to the property and the reinstallation of a road through the surface mining area of the barrier coal.

The modified agreement between Milton A. Oman, Ltd., and the applicant says:

Lessor [Milton A. Oman, Ltd.] will construct or reconstruct an access road as a connection between the Access Road (also known as the Whisky Canyon haulroad) and the gas pipeline access road, from South Fork Canyon to Whisky Creek Canyon, which will provide continued access to the Property for the Lessor. Lessor agrees to sign, at Lessee's [Lodestar's] request, any and all documents required for Lessee to obtain the consent of all appropriate regulatory agencies for leaving such access road and the Whisky Creek Canyon haulroad as permanent roads not to be reclaimed as part of the final reclamation of the Property.

This agreement makes it clear the one landowner desires a road from above the mine coming on to the surface facilities area, but there is not justification for leaving this short section of road. The application needs to show why the road from above the facilities area needs to be extended 1200 feet only to dead end where the haulroad is being reclaimed. There is also no long-term maintenance agreement.

Milton A. Oman, Ltd., is also willing to allow the road up Whisky Creek Canyon, but the application does not justify the road below the mine being left. In other words, it does not indicate for what purpose the road would be used if it remained following reclamation, it does not show that the road is necessary considering that there is other access to the canyon, and it does not show the desires of other entities over whose land the haulroad crosses. Although the applications alludes to the possibility the main part of the haulroad might remain for the postmining land uses, it commits to reclamation. Lacking adequate information for retaining the road, the Division anticipates the haulroad will be reclaimed.

**Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-412.120**, The application is required to contain a detailed grazing management plan for areas that are surface mined and that have a grazing postmining land use.

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**R645-301-412.200**, The application needs to include comments about the postmining land use from the land owners or the surface land management agencies.

**R645-301-412**, The "White Oak Mine Site Final Reclamation Contours" map and the agreement with Milton A. Oman, Ltd., indicate there will be a 1200-foot section of road across the reclaimed area. The application does not contain adequate justification for having this road for a postmining land use. The application would need to provide information from the land owners showing why the road would be needed and would also need to include maintenance and liability agreements.

## **PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES**

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

### **Analysis:**

The existing mining and reclamation plan includes no specific wildlife habitat enhancement measures other than the concept of spreading around rocks and brush and other woody debris on the reclaimed area to provide habitat enhancement. This is discussed in the revegetation section of this review. The primary wildlife habitat needs in this general area are to provide adequate forage and cover and to maintain water supplies. If the applicant follows the revegetation plan, the number of confers in the reclaimed area would be reduced compared to adjacent spruce/fir areas, and this should benefit most wildlife species.

The plan for restoring the Whisky Creek channel does not comply with R645-301-358.400. The current mining and reclamation plan and the proposal indicate the channel will be riprapped with no meanders, in-stream structures, or other improvements. Regulation R645-301-358.400 requires that the operator conducting coal mining and reclamation operations to avoid disturbances to, enhance where practicable, restore, or replace, wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes.

In the past, the Division has allowed riprapped channels, but there are several methods of providing greater diversity and more riparian vegetation in and adjacent to the channel. Some of the methods that might be used include soft armoring, such as bioengineering and erosion control mats; in-stream structures like drop structures, pools, and riffles; and revegetation compatible with the construction methods. Much of the exact design would need to reflect existing conditions. Because the area appears to contain small wetlands, the reclamation design needs to include wetland restoration.

**Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-342**, The application and the current mining and reclamation plan need to be modified to incorporate stream channel designs that meet the requirements of R645-301-342 and R645-301-358.

**CONTEMPORANEOUS RECLAMATION**

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

**Analysis:**

The proposed surface mining operation would be completed in 14 to 20 months. During this time, all but certain surface facilities would be removed. Plate 5-1C shows the general sequence of mining operations on the site, and Table R-3 is a generalized reclamation timetable. The applicant has not requested a variance from the requirement that revegetation occur as contemporaneously as practicable with mining operation.

The application is not required to contain a commitment to adhere to the requirements of R645-301-352, but the Division enforces this regulation as a performance standard. In addition, regulation R645-301-553 requires that rough backfilling and grading follow coal removal by no more than 60 days or 1500 linear feet. Revegetation treatments must be applied on all lands as soon as possible after mining and in the first normal season for seeding and planting.

**Findings:**

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

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## REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

### Analysis:

#### Timing

The application would not change any of the existing revegetation plan, and the current mining and reclamation plan does not clearly indicate when seeding would be done. It does, however, say that transplants will be installed in the spring after other vegetation has established enough that there is enough forage for wildlife on the reclaimed area so they are less tempted to eat new seedlings.

The applicant needs to specify when the area would be seeded. Fall is the normal seeding time in most of Utah, especially at higher elevations.

Rather than waiting until other vegetation is established, transplants should be planted as soon after seeding as practical. Although this could lead to some damage from wildlife, there is probably more of a risk that shrub plantings will fail because of competition from established grasses. The Division recommends planting in the fall, but most transplants can be planted either in the fall or spring. Fall planting seems to work particularly well because seedlings can take full advantage of moisture available in the spring. Cuttings, however, are best planted as early as possible in the spring. With proper care, such as stripping leaves, they can be planted later in the season.

#### Mulching, seeding, and other soil stabilizing practices.

##### *Mulching*

The soils section of this technical analysis discusses surface preparation techniques. These are vital both for erosion control and for vegetation establishment.

The proposed surface mining operation will generate some slash and other woody debris that should be used on newly-graded areas. Depending on the exact sequence of operations, this material could either be stockpiled then spread later or it could be spread on graded areas as it is generated. Portions of the stream have a lot of woody debris, and some of this material could be used in reclaiming Whisky Creek. This is consistent with the current mining and reclamation plan in which the applicant commits to use brush, downed trees, rocks, etc., to place on the recontoured surface to achieve a more natural appearance and to enhance the habitat.

The mulching sequence described in the mining and reclamation plan says mulching will occur after earthwork is completed and soils have been tested. This seems to indicate it would

occur before seeding which is not the normal sequence unless the mulch is actually a soil conditioner. This does not appear to be the case in this instance.

On page R-25 of 37 of the current mining and reclamation plan and page R-24 of 37 of the application say slopes greater than 10h:1v and less than 3h:1v will be mulched with straw or other inert organic material. Slopes greater than 3h:1v will be hydromulched, and, if required, pinned hemp matting will be installed on the steeper slopes. Later on these same pages, however, the plan and application say all seeded areas will be hydromulched. This inconsistency needs to be corrected, but, as discussed below, the Division feels certain mulching techniques would provide better erosion and sediment control and allow better revegetation than others.

This site has enough precipitation that it is important for good mulching methods to be used to control erosion. In the experience of the Division and other mine operators, one of the best mulching methods is a combination of straw and wood fiber mulch. After seeding, straw is applied at a rate of one to two tons per acre after which the area is hydromulched with about 500 pounds per acre of wood fiber mulch combined with a tackifier. This combination has the effect of an erosion control mat without the installation and maintenance difficulties and the expense.

Other methods, such as an erosion control mat or straw held to the ground with plastic netting, should also work well, but the Division does not feel hydromulch fits within the category of the best technology currently available to control erosion and sedimentation.

#### *Seed mixtures*

The upland seed and planting mixes in the plan are generally acceptable but need some revisions. The Division also has some suggested changes.

The conifer species found in the area are blue spruce, white fir, subalpine fir, and Douglas fir. The planting mix for north- and east-facing slopes includes Engelmann spruce. Since Engelmann spruce is not present in the area, it should be replaced by subalpine fir.

Alfalfa, yellow sweet clover, and cicer milkvetch are not native to the area and should be eliminated from the seed mixes unless the applicant can show they are desirable and necessary to achieve the postmining land use. All three have advantages, but, particularly at a site like White Oak, they could come to dominate the vegetation.

Mallow ninebark is in the planting mix for north- and east-facing slopes, and while it is apparently present in spruce/fir areas, it is not one of the more common species. It could be eliminated.

Some of the species in the planting list for south- and west-facing slopes, such as serviceberry and Wood's rose, are adapted to drier areas, such as sagebrush communities. The areas adjacent to the mine do not contain sagebrush communities, so these species might not grow in the reclaimed area. Although the applicant can keep the commitment in the plan the way it is, it would be best to only plant these species in areas where it appears sagebrush communities will become established.

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TECHNICAL MEMO

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There is no specific seed mix for the riparian area. Instead, the plan and application say certain shrubs and trees will supplement the regular mixtures. A revision to this plan was to have been done in 1993 after a field visit, but this never happened. The Division has some information based on a field visit conducted in 2001 and recommends some species that should be used. A more complete revegetation plan would be based on confirmed plant identifications in the baseline information.

Some species that should be planted in the riparian area, are already on the list for planting on north- and east-facing slopes. These include Kentucky bluegrass, slender wheatgrass, mountain brome, sweet anise, blue spruce, white fir, and subalpine fir. Other species present in the area include gooseberry currant (*Ribes montigenum*), western coneflower (*Rudbeckia occidentale*), fireweed (*Epilobium angustifolium*), yarrow (*Achillea millefolium*), and geranium (*Geranium* sp.). There were also two species of sedges that were not well enough developed to be identified. Some of these species, particularly the sedges, need to be included in the seeding or planting mix. Some species may not be available commercially, but it may be possible to obtain plugs from adjacent areas.

#### *Planting methods*

The planting methods in the current mining and reclamation plan do not change in the application. Grasses and forbs will be drill seeded, hydroseeded, or broadcast seeded. Slopes less than 10h:1v will be broadcast seeded, and slopes between 10h:1v and 5h:1v will be hand broadcast. Slopes steeper than 3h:1v will not be hydroseeded. The seeding rates shown with the seed mixes are for broadcast seeding.

The seeding methods section is somewhat confusing and should be clarified. Although the plan says some areas will be drill seeded and that a different seeding rate will be used for these areas, it does not specify either where drill seeding will be used or what the seeding rate will be. The plan does not show what seeding method will be used on slopes steeper than 5h:1v except that it will not be hydroseeding.

The Division recommends simplifying the plan by stating that all areas will be broadcast seeded. Broadcast seeding includes hydroseeding. The Division recommends against drill seeding because it tends to decrease surface roughness and because it tends to increase the number of grasses and decrease diversity at the expense of shrubs and broadleaf forbs.

Regulation R645-301-342.230 requires that selected plants be grouped and distributed in a manner which optimizes edge effect, cover, and other benefits to fish and wildlife. Neither the plan nor the application includes a commitment to do this or information about how it will be done. Detailed plans are not needed, but some general guidance would be useful. As mentioned previously, serviceberry and rose would be best planted in areas where sagebrush is likely to grow. Elderberries tend to grow in areas with some subsurface water, but the rest of the species to be planted on west through south aspects have less specific requirements. They can be placed in fairly large clumps, and for aesthetic purposes, these clumps should be placed to hide any

terraces or other areas that do not appear natural. On north through east aspects, mountain lover should be planted with clumps of conifers with the other species in more open areas.

*Irrigation and pest control*

Musk thistle is a state-designated noxious weed, and it is a serious problem in the mine area. The application says that, prior to any earth moving activity, all areas affected by noxious weeds will be sprayed. It is likely musk thistle will invade the newly-revegetated area. There could also be some problems with whitetop, another noxious weed. It is crucial that the applicant develop a more thorough weed control program in anticipation of these weeds being in the reclaimed area.

The current mine plan contains an irrigation plan for the haul road. The mine receives enough precipitation that the Division considers the probability of revegetation success without supplemental irrigation to be very high. The Division would be willing to allow the applicant to remove the irrigation plan. This is not a deficiency.

**Standards for success**

According to page R-32 of 37 and Table R-2 of the current mining and reclamation plan, revegetation success will be judged on the basis of comparison with reference areas. For the mine complex, the reference areas are those areas devoid of man's activities which have at least a 100-foot buffer zone from disturbed areas. Specific reference areas will be chosen using a statistically based method from a grid of areas in proximity to the disturbed area and with similar characteristics, such as elevation, slope and aspect.

While this is an unusual approach for establishing reference areas, it is acceptable as long as the precise areas chosen can be rated by the Natural Resources Conservation Service as being in fair or better range condition at the time of making comparisons for final bond release.

The text and maps in the current plan show different areas that will be used as reference areas. The section of this review discussing maps, plans, and cross sections of environmental resource information addresses this issue and includes a deficiency intended to rectify the problem.

The Division is confident it will be possible to find appropriate areas to use as standard for success for upland areas, but it is uncertain whether there are adjacent upgradient riparian areas that could be used as success standards. It may be necessary to apply the baseline information method as a success standard for the riparian areas unless the applicant can locate an undisturbed area similar in aspect, soils, vegetation, and slope to the riparian area proposed to be disturbed. The "Vegetation Resource Information" section of this technical analysis contains a deficiency requiring additional vegetation information, but the extent of the information needed depends on whether a suitable area can be found. The applicant needs to confirm whether upgradient riparian habitat similar to what exists in the area proposed to be disturbed can be found in the area.

TECHNICAL MEMO

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To judge whether vegetation is adequate to control erosion, the applicant will place erosion pins on slopes at the time of reseeding. These pins will be used as a guide to overall erosion characteristics of the reclaimed area. Any rills or gullies that disrupt the postmining land use or vegetation reestablishment, or that cause or contribute to a violation of water quality standards will be filled, regraded, revegetated, or otherwise stabilized.

The plan does not discuss revegetation success standards for some of the other parameters in the performance standards, such as diversity and compatibility with the postmining land use. It also does not mention seasonality, but since it does not appear there are any warm season species in the area, the standard can simply be that all reestablished species will be cool season species.

There are numerous ways of measuring diversity, and the Division suggests the applicant establish a few methods and standards rather than just one. One option would be to use a simple method like establishing a minimum number of species in life form classes (trees, shrubs, broadleaf forbs, grasses) with greater than a certain frequency. This standard could be based on either baseline data or the numbers found when sampling for final bond release.

**Findings:**

Information in the application is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following in accordance with:

**R645-301-341.100**, The applicant needs to specify when the area would be seeded. Fall is the normal seeding time in most of Utah, and especially at higher elevations

**R645-301-341.100**, The plan says transplants will not be planted until other vegetation becomes established, but the competition from established vegetation would make it very difficult for the transplants to become established. Transplants should be planted as soon as feasible after seeding.

**R645-301-341.230**, The mulching and seeding sequence described in the plan seems to indicate mulching would occur before seeding. This is not the normal timing of these operations, and it should be clarified.

**R645-301-341.230**, The mulching methods described in the plan are not consistent, and this needs to be corrected. In addition, the Division does not feel the mulching methods to be the best technology currently available to control erosion and sedimentation.

**R645-301-341.210**, The planting mix for north- and east-facing slopes includes Engelmann spruce, but Engelmann spruce is not found in the area. It should be replaced by subalpine fir. Alfalfa, yellow sweet clover, and cicer milkvetch are not native to the area and should be eliminated from the seed mixes unless the applicant can show they are desirable and necessary to achieve the postmining land use.

**R645-301-341.210**, The application needs to include a revegetation plan specifically for the Whisky Creek riparian area, and it needs to be based on species currently growing in this area.

**R645-301-341.220**, The applicant needs to clarify the seeding methods.

**R645-301-341.220**, The application needs to discuss ways of grouping shrubs and trees to increase the edge effect for wildlife.

**R645-301-341.240**, Musk thistle is a noxious weed and is a serious problem in areas adjacent to the mine. This weed will quickly invade the reclaimed area, and the applicant needs to develop a weed control plan.

**R645-301-341.250**, The applicant needs to confirm whether riparian habitat similar to what exists in the area proposed to be disturbed can be found in the area designated as a reference area. It should also confirm whether this habitat would be appropriate as a revegetation reference area. If not, a new success standard, such as a baseline standard, needs to be established.

**R645-301-341.250**, The application needs to contain revegetation success standards for diversity and erosion control.

**RECOMMENDATIONS:**

The application should not be approved until the deficiencies discussed in this memorandum have been adequately addressed.