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# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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May 10, 1999

TO: File

THRU: Daron Haddock, Permit Supervisor

FROM: Paul Baker, Reclamation Biologist

RE: Lila Canyon Significant Revision to the Horse Canyon Mining and Reclamation Plan, UtahAmerican Energy, Inc., Horse Canyon Mine, ACT/007/013-SR98A, Folder #2, Carbon County, Utah

*Handwritten initials: KORA, PAB*

## SUMMARY:

UtahAmerican Energy, Inc., has submitted a significant revision to the plan for the Horse Canyon Mine. A new mine would be built in Lila Canyon to access coal reserves to the south of the current Horse Canyon permit area.

In the sections of the application dealing with ownership and control and right of entry, the applicant has chosen to include land ownership information for both permit area "B," the proposed addition to the permit area, and for permit area "A," the existing Horse Canyon permit area. Therefore, to be consistent, this review considers the completeness and adequacy of land ownership, legal descriptions and right of entry information for both of these areas.

The applicant needs to clarify many of the plans presented in this application. The application is inadequate with regard to wildlife habitat protection and enhancement, and the reclamation plan needs to be refined. Additional vegetation baseline information is needed for some parts of the proposed disturbed area.

It is recommended the application not be approved at this time.

## TECHNICAL ANALYSIS:

## **ADMINISTRATIVE INFORMATION**

## **OWNERSHIP AND CONTROL INFORMATION**

Regulatory Reference: R645-301-112

**Analysis:**

The applicant is UtahAmerican Energy, Inc., a Utah corporation. The application gives the name, address and telephone number of the applicant and its resident agent and includes the employer identification number for the applicant. UtahAmerican will pay the abandoned mine reclamation fee.

Appendix 1-1 contains lists of shareholders and officers and directors for the applicant and a parent company, Coal Resources, Inc., together with the dates the officers and directors assumed their positions, their addresses, and their Social Security Numbers. Coal Resources, Inc., is a shareholder of the applicant, and it appears Coal Resources, Inc., is owned by Energy Resources, Inc. It is also possible Coal Resources is owned by Mill Creek Mining Co. which is owned by Energy Resources, Inc. The application needs to make these relationships clear. It appears the other companies listed in Appendix 1-1 are tied to the applicant by common officers, directors, or stockholders. Because of the uncertainty about the relationships of the various companies, it is also uncertain whether the application needs to show the officers and directors of other companies.

The application is required to contain the names and certain identifying information for each person that owns or controls the applicant or previously owned or controlled the applicant within the past five years. Section 112.340 has a list of companies, and Appendix 1-2 contains employer identification numbers for most of these companies. However, it appears this information is incomplete since, based on the information in Appendix 1-1, UtahAmerican Energy is apparently owned by Coal Resources, Inc. No employer identification number is shown for Coal Resources, Inc.

The application is also required to include the names, addresses, permit numbers, regulatory authorities, employer identification numbers, and MSHA numbers together with dates of issuance for coal mining and reclamation operations owned or controlled by the applicant or by any person that owns or controls the applicant. This information is in Appendix 1-2, but no permitted operations are shown for the following entities: Coal Resources, Inc.; PennAmerican Coal, Inc.; AmCoal Holdings, Inc.; Mill Creek Mining Company; Pinski Corporation; American Coal Sales Company; West Virginia Resources, Inc.; Pennsylvania Transloading, Inc.; Sunburst Resources, Inc.; Ohio Valley Resources, Inc.; and Spring Church Coal Company. It is not known whether these companies have associated coal mining and reclamation operations, and the application needs to state whether they do or do not have permits. If any of them does, all required information needs to be included in the application.

The applicant has chosen to include land ownership information for both permit area "B," the proposed addition to the permit area, and for permit area "A," the existing Horse Canyon permit area. Therefore, to be consistent, this review considers the completeness and adequacy of land ownership, legal descriptions and right of entry information for both of these areas.

Section 112.500 of the text and Plates 4-1, 5-3, and 5-4 show surface and mineral

ownership in and contiguous to both the existing permit area and the proposed addition. The following items need to be corrected on the maps or in the text:

1. According to Plates 4-1 and 5-3, W. Marsing Livestock and IPA both own surface land contiguous to the proposed permit area addition. This is not reflected in the text.
2. Plate 5-4 indicates IPA owns fee coal in an area contiguous to the existing permit area, but this is not identified in the text.
3. The text mentions that Plates 4-1 and 5-3 show surface ownership and that Plate 5-4 shows subsurface ownership, but the plates simply say "permit area and ownership." They do not identify whether they are showing surface or subsurface ownership, and this makes it more difficult to use the maps. The maps should be labeled to show what information they contain.
4. Plate 5-4, the subsurface ownership map, has some areas identified as "IPA Surface" and others as "IPA Surface and Mineral." The boundaries are unclear in some areas, and it makes the map very difficult to read. It would be much simpler if all surface ownership was shown on one map and all subsurface ownership was on another.
5. Plate 5-4 shows areas in the NW $\frac{1}{4}$  SE $\frac{1}{4}$ , Section 12 (in the proposed addition to the permit area) and the NE $\frac{1}{4}$  SW $\frac{1}{4}$  of Section 25 (contiguous to the proposed addition to the permit area), Township 16 South, Range 14 East, where the mineral estate is owned by the State of Utah. This is consistent with the text but is inconsistent with information from the Bureau of Land Management and the School and Institutional Trust Lands Administration (SITLA).
6. SITLA commented in a letter dated April 9, 1999, that they administer lands in other parts of the existing Horse Canyon permit area. The areas identified in the letter but not properly shown on the maps or in the text are:

Township 16 South, Range 14 East

- Section 2: All, surface and subsurface
- Section 4: S $\frac{1}{2}$  SW $\frac{1}{4}$ , Subsurface

The application incorrectly lists the Department of Natural Resources, Division of Sovereign Lands and Forestry as a landowner. SITLA commented that they now administer the land formerly controlled by the Department of Natural Resources Division of Sovereign Lands and Forestry.

The application shows an MSHA identification number, and it says a refuse pile identification number has yet to be issued. The MSHA number shown, 42-00100, is actually the number for the Horse Canyon Mine. A new number will need to be obtained for the new mine, and the application needs to clarify that the number shown is for the Horse Canyon Mine. The

applicant will also need to obtain an MSHA identification number for the refuse pile.

According to this section of the application, there are no lands, interests in lands, options, or pending bids on interests held or made by the applicant for lands contiguous to the proposed addition to the permit area. Plates 4-1 and 5-3 shows federal leases to the south of the proposed addition to the permit area that are labeled "area of future mining."

**Findings:**

Information provided in the application 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:

**R645-301-112.310**, The application is required to show the ownership or control relationship of the persons that own or control the applicant, including percentage of ownership and location in organizational structure. The information in the application is very unclear. Additional information about officers and directors and coal mining and reclamation operations may be needed.

**R645-301-112.500 and -112.600**, Land ownership information in Table 1-1 and Plates 4-1, 5-3, and 5-4 needs to be consistent and accurate. Also, these plates need to be labeled to identify what they are showing. It is strongly suggested that one plate be used for all surface ownership and one for all subsurface ownership rather than mixing these categories as the applicant has done. Minimally, Plate 5-4 needs to clearly show the boundaries of areas where IPA owns the surface and where they own both the surface and mineral rights. Also, the Utah School and Institutional Trust Lands Administration commented that they administer certain parcels of land in the current permit area, and the application does not show this.

**R645-301-112.500**, The application incorrectly lists the Department of Natural Resources, Division of Sovereign Lands and Forestry as a landowner. The Utah School and Institutional Trust Lands Administration commented that they administer the land.

**R645-301-112.700**, The MSHA number shown in the application is for the Horse Canyon Mine. The applicant needs to make this clear, and new numbers for the mine, refuse pile, and other structures requiring MSHA approval will need to be included in the application when they become available.

consistency, the application should show all acreages for the entire proposed permit area, including permit areas "A" and "B."

Table 1-1 does not show lease information for any of Sections 33 and 34, Township 15 South, Range 14 East. Plate 5-4 indicates they contain federal coal.

The application needs to contain right of entry information for fee coal within the permit area, including the proposed addition.

According to Plate 5-4 and other plates, the surface facilities would be built in Section 15 of Township 16 South, Range 14 East. The land is managed by the Bureau of Land Management, but it is not in the federal coal leases. The application includes a letter from the Bureau of Land Management indicating applications for rights of way for certain facilities have been received, but the application does not include required right of entry information for these areas.

Plate 5-4 shows the mineral estate in the NW $\frac{1}{4}$  SE $\frac{1}{4}$  of Section 12, Township 16 South, Range 14 East, as belonging to the State of Utah. According to Table 1-1, this is part of federal coal lease U-014218, and, according to the Bureau of Land Management, the table is correct.

The "Ownership and Control" section of this review discusses two areas where SITLA commented that they administer lands in the current permit area. They also commented that UtahAmerican Energy presently has no applications, leases, permits, rights of way, or rights of entry with SITLA to conduct any activities on or within these lands.

The applicant needs to present complete right of entry information for all parts of the current permit area and proposed addition to the permit area.

#### **Findings:**

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

**R645-301-114**, The applicant needs to show the Bureau of Land Management has approved the subleases from IPA to UtahAmerican Energy.

**R645-301-114**, To be consistent, the applicant needs to supply right of entry information in this application for fee coal within the existing permit area. Also, Table 1-1 lists federal coal leases and gives legal descriptions of these leases, but it does not include legal descriptions for Sections 33 and 34, Township 15 South, Range 14 East.

**R645-301-114**, Acreage figures in the application need to correspond. The application gives at least three different figures for the number of acres of federal land and various figures for the total acreage of the proposed permit area.

**R645-301-114**, The application needs to include right of entry information for the portions of the proposed revised permit area in the E $\frac{1}{2}$  SE $\frac{1}{4}$  and SW $\frac{1}{4}$  of Section 15 of Township 16 South, Range 14 East, the proposed facilities area.

**R645-301-114**, Plate 5-4 indicates the mineral estate in the NW $\frac{1}{4}$  SE  $\frac{1}{4}$ , Section 12, Township 16 South, Range 14 East, belongs to the State of Utah. According to the Bureau of Land Management and Table 1-1, this is incorrect.

**R645-301-114**, The applicant needs to provide complete right of entry information for the entire existing and proposed addition to the permit area.

## **UNSUITABILITY CLAIMS**

Regulatory Reference: R645-301-115

### **Analysis:**

According to the application, the proposed addition to the permit area is not in an area designated as unsuitable for mining, and the applicant is not aware of petitions to designate the area as unsuitable. Mining operations will not be conducted within 300 feet of an occupied dwelling, but they would be within 100 feet of an Emery County road.

The application says UtahAmerican Energy has received permission from Emery County to construct mining facilities and conduct mining operations within 100 feet of the road and refers to a letter in Appendix 1-4, but the letter in this appendix is from the applicant requesting permission to mine within 100 feet of the road. There is no letter from the county.

### **Findings:**

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

**R645-301-115**, The application needs to contain approval from the public road authority authorizing mining and reclamation operations within 100 feet of a public road.

## **PERMIT TERM, INSURANCE, PROOF OF PUBLICATION, AND FACILITIES USED IN COMMON**

Regulatory Reference: R645-301-116 and -117

### **Analysis:**

The permit term for which the applicant is applying is five years. The beginning of construction is planned for 1999 with mining operations ending in 2023. This assumes adjacent federal leases can be acquired.

The certificate of liability insurance is in Appendix 8-2, but the certificate in this appendix does not meet regulatory requirements. The policy needs to include coverage for blasting, and the cancellation clause needs to be modified to show 45 days notice for cancellation. In the cancellation clause, the word "endeavor" and the phrase "but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives" need to be removed or crossed out.

The Department of Water and Power for the City of Los Angeles is named as the certificate holder. The certificate holder needs to be the State of Utah, Division of Oil, Gas and Mining.

Appendix 1-5 contains a copy of the proposed newspaper advertisement. Proof of publication will need to be included in the application when advertising is completed.

No facilities or structures would be used in common with another coal mining and reclamation operation.

### **Findings:**

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

**R645-301-117.100**, The certificate of insurance needs to be changed to be in compliance with Division requirements.

**R645-301-117.200**, When it becomes available, the newspaper advertisement for this significant revision will need to be included in the application.

## **ENVIRONMENTAL RESOURCE INFORMATION**

### **HISTORIC AND ARCHAEOLOGICAL RESOURCE INFORMATION**

Regulatory Reference: R645-301-411.140

#### **Analysis:**

Appendix 4-1 of the application contains information from three cultural resource surveys, including one done specifically for the proposed facilities area. There are several cultural resource sites in the vicinity, but only an isolated artifact was found in the proposed disturbed area. One site is listed on the National Register of Historic Places. It is a tree in Horse Canyon inscribed by Sam Gilson, a prominent rancher and pervader of the uses of gilsonite.

The information in the application is considered adequate; however, the maps and any other information that would allow a person to locate any of the sites should be kept confidential. Also, there is a statement near the end of Section 411.140 indicating an archaeological survey was to be conducted in the spring of 1998 and the results included later. This statement should be changed since the application includes a copy of the report for this survey.

There are no cemeteries in or within 100 feet of the proposed addition to the permit area, and it contains no units of the National System of Trails or Wild and Scenic Rivers system.

#### **Findings:**

Information provided in the application is considered adequate to meet the requirements of this section of the regulations. However, any information that would enable a person to locate any of the cultural resource sites should be made confidential. Also, there is a statement toward the end of Section 411.140 indicating a cultural resources survey was to be done in the spring of 1998 and the results included when available. These results are included in the application, so the statement in Section 411.140 needs to be modified.

## **VEGETATION INFORMATION**

Regulatory Reference: R645-301-321

#### **Analysis:**

Appendices 3-1 and 3-2 contain vegetation information about the Horse Canyon and "South Lease" areas. Additional information is in the existing Horse Canyon plan. These studies were done in 1981, 1982, 1983, 1985, and 1998. With the exceptions of a study by Patrick Collins in Appendix VIII-1 in the current Horse Canyon plan and a 1998 vegetation inventory in

Appendix 3-2 of the application, the application does not show who conducted the studies as required in R645-301-120.

The 1998 vegetation inventory was site-specific to the proposed disturbed area and nearby proposed reference areas. Figure 1 in this study shows sampling locations in two vegetation communities, pinyon/juniper and shrub/grass. Sampling in the proposed disturbed area was confined to the lower part of the area that would be disturbed. There are no samples in over half the proposed disturbed area, and while this is possible in random sampling, it is unlikely.

The report says 1000 samples were taken in each vegetation type. Each transect is considered a sample, not each point; therefore, only ten samples with 100 points in each were taken for the four different areas sampled.

Appendix A of the Division's Vegetation Information Guidelines gives sampling methods that should be used for baseline vegetation inventories. The minimum sample size to be used with the point method is the highest of either 15 or the number obtained from a formula in the guidelines. This sample size is required for bond release sampling and recommended for baseline sampling. There need to be enough samples for baseline sampling that statistical analyses can be done.

As discussed above, only ten samples were taken in each area in the study described in Appendix 3-2, and not all of the proposed disturbed area appears to have been included in the sample. Therefore, the applicant needs to take samples in the areas not included in the previous sample and supply this information in the application. It appears from Plate 3-2 that the shrub/grass community comprises a much smaller proportion of the proposed disturbed area than the pinyon/juniper community, and it is possible this community was adequately sampled. Adequate samples may also have been taken in the pinyon/juniper reference area. However, it is impossible for the Division to make this determination without any statistical information or raw data.

The report says two-tailed t-tests with a two-sample equal variance were performed on each data set to determine similarity between the disturbed areas and the reference areas. The report goes on to say there was a 95% similarity in species composition between the proposed disturbed and reference areas for the shrub/grass vegetation type and 96% similarity for the pinyon/juniper areas.

The Division requires that certain aspects of the reference area and proposed disturbed area be similar, including soils, vegetation cover, aspect, slope, species composition, and productivity. There is inadequate information in the application for the Division to be able to determine whether the reference areas can be accepted.

While cover values for the proposed disturbed and reference areas appear to be similar, there is not enough information to calculate whether they are statistically equal. The report in

Appendix 3-2 says the species compositions are similar in the proposed reference and disturbed areas, but there is no indication cover values were compared statistically.

It is not clear how the t-test was applied to determine similarity of species composition. To show similarity through a regression analysis, the regression line would need to be compared to a line with a slope of one and x- and y-intercept at the origin. The information in the application shows slopes and y-intercepts, but the application does not statistically compare them to a slope of one and x- and y-intercepts of zero. Nevertheless, it appears the proposed reference and disturbed areas are very similar, and there is no reason to suspect that complete data and analyses will show otherwise.

In the regression analyses, the species not encountered in either the proposed reference area or the proposed disturbed area should not be used. These numbers skew the data and are not meaningful: numerous species, orange trees, for example, are found in neither area and could, theoretically, be used in the analysis.

The comments in this review about the analyses for species composition also apply to the comparisons of woody species. However, woody species densities appear to be more different between the proposed disturbed and reference areas than the cover values. The Division needs more information before it will be able to decide whether these differences can be accepted.

Vegetative cover in the proposed disturbed pinyon/juniper community was 19.7%, and it was 24.3% in the proposed reference area. Predominant species were Utah juniper, Salina wild rye, pinyon, and green rabbitbrush. No cheatgrass was encountered.

Cover values were 43.0% and 42.7% for the proposed disturbed and proposed reference areas in the shrub/grass community. Species composition consisted primarily of cheatgrass, green rabbitbrush, and Salina wild rye. Cheatgrass or downy brome, an exotic annual, provided about 41% and 38% relative cover for the proposed disturbed and reference areas, respectively. The amount of cheatgrass indicates there has been previous disturbance, possibly from fire.

The 1998 vegetation study indicates cover from lichens was 7.2% in the shrub/grass community and 7.9% in the pinyon/juniper community of the proposed disturbed area. While lichens are not classified as vegetation, they can be an important part of the ecosystem and can contribute to vegetation productivity and erosion control. The proposed grass/shrub and pinyon/juniper reference areas had 5.8% and 2.7% cover from lichens, respectively.

The 1998 vegetation study in Appendix 3-2 indicates a *Ferocactus* sp. was found in the shrub/grass proposed disturbed and reference areas. The only species of *Ferocactus* listed in *A Utah Flora* grows in limestone and dolomite outcrops and gravels in Washington County. It would be very unusual to find this species in Emery County.

Another anomaly identified as being in the area is Engelmann spruce. *A Utah Flora* indicates this species has been collected from elevations as low as 7500 feet, but the mine site is

at about 6000 feet. When additional vegetation data is collected, the applicant or its representative should check the identification of the plants classified as Engelmann spruce.

The information in the other vegetation studies in Appendix 3-2 is useful for its description of vegetation resources in the general area. The vegetation communities described in this appendix correspond generally to the communities shown on Plate 3-2 but do not match exactly. Major vegetation communities in the proposed addition to the permit area are pinyon/juniper, sagebrush, and saltbush/wild rye. Plate 3-2 also shows a fairly significant escarpment area, and it is assumed this area has little vegetation.

The application is required to contain productivity estimates for the area proposed to be disturbed and associated reference areas (if that is the method to be used to determine revegetation success). Appendix 3-7 contains a letter from George Cook of the Natural Resources Conservation Service with productivity estimates for two shadscale/grass and for two grass/shrub communities. It is unclear from the letter where these estimates were done. Most of the proposed facilities area has a pinyon/juniper community, but there is no productivity estimate for a pinyon/juniper community.

**Findings:**

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

**R645-301-131,** All technical data submitted in the permit application must be accompanied by the names of persons or organizations that collected and analyzed the data, dates of the collection and analysis of the data, and descriptions of the methodology used to collect and analyze the data. This information is not complete for some studies in Appendices 3-1 and 3-2.

**R645-301-321,** The applicant needs to provide vegetation information adequate to statistically compare the area that would be disturbed with a reference area or range site or adequate to use as a baseline success standard. This includes an adequate number of samples to compare proposed disturbed and reference areas statistically. The entire proposed disturbed area needs to be included in the sample. There are also some problems with the regression analyses that need to be corrected. In addition, the applicant should provide a discussion of other aspects important in comparing the proposed disturbed and reference areas, such as slope, aspect, and soils.

**R645-301-321,** The applicant needs to check plants identified as *Ferocactus* sp. and Engelmann spruce. If the identifications are correct, the plants would be state records for elevation and range.

**R645-301-321.200**, The application needs to contain vegetation productivity information for the areas that would be disturbed. Appendix 3-7 contains productivity information, but it is unclear whether the information is for the proposed mine site. Most of the proposed disturbed area has a pinyon/juniper community, and there is no productivity information for a pinyon/juniper area.

## **FISH AND WILDLIFE RESOURCE INFORMATION**

Regulatory Reference: R645-301-322

### **Analysis:**

#### **Wildlife Information**

Section 322.220 and Plate 3-1 contain wildlife information. The proposed disturbed area contains yearlong habitat for mule deer and Rocky Mountain bighorn sheep. Other parts of the proposed addition to the permit area contain critical deer range and winter habitat for elk, and nearby areas are inhabited by pronghorns. The text discusses the types of habitats where these species occur and certain aspects of their life histories.

The text indicates the proposed disturbed area is critical deer and elk winter range and habitat for Rocky Mountain bighorn sheep. This is not clear from Plate 3-1. The map needs to show the boundaries for the different categories of habitats for each species. For example, it should show critical deer winter range, high priority deer winter range, critical deer summer range, and so forth.

Raptor surveys were conducted in the area in 1990 and 1998. Plate 3-2 shows locations of three nests in or near Lila Canyon, and Appendix 3-5 contains further information, including two maps showing nest locations. Wildlife Resources commented that the 1998 raptor survey documented three nests at the mouth of Lila Canyon. It is assumed that other nests previously found in this area could not be found in 1998.

It is impossible to tell how the nest locations shown on the three maps in the application correlate. Only one of the nests shown on Plate 3-1 appears to be in the same location as a nest shown on the 1998 survey map included in Appendix 3-5. The other two nests appear to be in different locations. However, this is unclear because Plate 3-1 does not give enough detail of the topography.

The applicant needs to include all available information about raptor use of the area, including locations of nest sites and whether they were used in the year surveyed. It is preferred that nest locations be shown on a single map because of the difficulty using the current maps. Maps are required to include all the types of information that are set forth on U.S. Geological Survey maps of the 1:24,000 scale series. This includes contours, and contours are not shown on

Page 14  
ACT/007/013-SR98A  
May 10, 1999

Plate 3-1. The maps should also show the location of the proposed surface facilities. The Division needs this information to know the topography of the area in relation to both the surface facilities and the nests.

Additionally, the maps showing raptor nest locations need to include an overlay of the mine workings. With this information, the Division and applicant can tell which nests are likely to be affected by subsidence. This requirement is supported by R645-301-322.100.

It is unknown whether all potential habitat in the proposed permit area was surveyed. The applicant needs to show those areas that have been checked for raptor nests.

The application says on page 8 of Chapter 3 that there is no current raptor survey. This statement should be eliminated or modified. A raptor survey was done in 1998.

It will be necessary for the applicant to continue to conduct raptor surveys in the future, at least for areas that could be affected by mining operations, including subsidence and disturbance from the surface facilities. The application needs to include a plan to monitor nesting habitat that could be affected by the mining operations.

Portions of the facilities area are within the one-half-mile buffer zone for at least two and possibly as many as seven raptor nests (it is impossible to tell because of the difficulties discussed above). From the maps, it is clear that the mine would be visible from at least two of these nests, but the application needs to discuss the disposition of all of these nests and indicate whether the facilities area would be visible from them. The applicant will need to coordinate its monitoring of these nests with the Division, the Fish and Wildlife Service, and the Division of Wildlife Resources.

The application says the intermittent stream channels lack riparian vegetation, so many birds of high federal interest would not inhabit the area. It says the lack of trees and large shrubs precludes use by woodpeckers and flycatchers, and the stream channel does not contain invertebrates or fish.

While the number of bird species in the area is almost certainly limited by the lack of riparian areas, there are flycatchers and numerous other birds that inhabit pinyon/juniper and shrub/grass areas. The statement in the plan indicating flycatchers are precluded from the permit area should be modified.

In addition to this information, the application references a Division of Wildlife Resources publication entitled "Fauna of Southeastern Utah and Life Requisites Regrading their Ecosystems." This publication is available to the Division, and it contains general information about species that inhabit the area.

### **Threatened and Endangered Species**

Table 3-1 lists eleven listed threatened or endangered species that may occur in Utah, but the list is incomplete. The species of concern are only those that have potential of being affected by the proposed mine, so it is not necessary to have a list of all species in the state. Either the table needs to be deleted or it needs to show, as it purports, all listed species in Utah.

The application contains a letter from the Fish and Wildlife Service listing threatened and endangered species that occur in Emery County. The Division received comments from the Fish and Wildlife Service dated April 14, 1999, indicating the listed endangered southwestern willow flycatcher is now included as a species potentially in Emery County.

The Fish and Wildlife Service commented that the applicant needs to assess vegetation in the proposed addition to the permit area to determine whether southwestern willow flycatcher habitat exists. According to their letter, breeding habitat is typified by areas of dense willow or willow mixed with a variety of riparian shrubs and small trees. While the application documents there are no perennial water sources or riparian areas, willows and other vegetation normally associated with riparian areas often occur near seeps and other sources of enhanced soil water. Therefore, the applicant needs to confirm whether these types of vegetation exist in the area.

Bald eagles are fairly common winter residents of Utah, and they could visit the area. However, they generally like to roost in large trees that do not exist in the proposed disturbed area. Therefore, it is unlikely they will be adversely affected.

Peregrine falcons have recently been found nesting in a few places in the Book Cliffs and Wasatch Plateau although raptor surveys have failed to locate them in the proposed addition to the permit area. The applicant will need to continue to look for them in future raptor surveys.

Four fish species of the Upper Colorado River drainage have been listed as threatened or endangered, and although the mine would not affect them directly, water usage has been determined to adversely affect these species. This issue is discussed in the section of this review discussing the fish and wildlife protection plan.

Black-footed ferrets have historically been found in eastern Utah, but there have been no confirmed sightings in recent years. If any were in the area, it is most likely they would be affected by road construction.

(Information in the following discussion on the distribution of plants is from *A Utah Flora* or is verbal information from Bob Thompson, a botanist with the Forest Service.)

Barneby reed-mustard (*Schoenocrambe barnebyi*) grows at elevations of about 5600 to 5700 feet on the Chinle formation. The proposed disturbed area is at a higher elevation, and it does not contain the Chinle formation. Therefore, the area is not considered habitat for this species.

The reported elevation range for Jones cycladenia (*Cycladenia humilis* Var. *jonesii*) overlaps the proposed disturbed area, but it grows in sandy gypsiferous soils derived from the Cutler, Summerville, and Chinle formations, and these are not found in the proposed addition to the permit area.

Last chance Townsendia (*Townsendia aprica*) grows in salt desert shrub and pinyon-juniper communities on clay or clay-silt exposures of the Mancos Shale. It has been found mainly in the Fremont Junction area and not on the east side of the San Rafael Swell.

The Maguire daisy (*Erigeron maguirei*) has only been found in a few places in the San Rafael Swell and in Capitol Reef National Park in canyon bottoms in the Wingate and Navajo Sandstone formations. There is essentially no possibility this species could occur in the proposed addition to the permit area.

Three cactus species are included on the Fish and Wildlife Service list. The San Rafael cactus or Despain footcactus (*Pediocactus despainii*) is very difficult to find and grows in open pinyon/juniper communities in and on the edges of the San Rafael Swell. This is the type of habitat in the proposed disturbed area, and, according to Bob Thompson of the Forest Service, there is potential this species could occur in the area.

According to Mr. Thompson, the Wright fishhook cactus (*Sclerocactus wrightiae*) also has potential of occurring in the area. It grows in salt desert shrub and shrub/grass to juniper communities in soil derived from Mancos Shale and other formations.

One of the applicant's consultants indicated verbally personnel from his company searched for these plants and did not find them. The information was apparently included in the Environmental Analysis. The application needs to document that this search was performed and give results.

The Winkler cactus (*Pediocactus winkleri*) is a tiny plant that grows in salt desert shrub communities at lower elevations than those in the proposed disturbed area. Its distribution is more to the west, and it is unlikely it occurs in the proposed addition to the permit area.

### **Findings:**

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

**R645-301-322**, Table 3-1 purports to show federally listed threatened or endangered species that may occur in Utah, but it only show a portion of the listed species. The applicant needs to either delete this table or list all species potentially occurring in Utah.

- R645-301-322**, The applicant needs to confirm whether habitat for the southwestern willow flycatcher exists in the proposed addition to the permit area.
- R645-301-322**, Plate 3-1 shows big game habitat in the area, but it needs to distinguish between different types of habitat, such as critical deer winter range, critical deer summer range, etc.
- R645-301-322**, The maps showing wildlife habitat need to contain the information provided on USGS 1:24,000 scale maps, including contours. At least one of the maps showing raptor nests should show the area of the proposed facilities, and information on nest locations should be consolidated onto one map. Also, a map needs to include an overlay of the mine workings to better show which nests could be affected by subsidence.
- R645-301-322**, The application needs to discuss the raptor nests near the proposed facilities area and show whether they are visible from the mine or if they are shielded by vegetation or the topography. It also needs to discuss potential effects from the proposed mine.
- R645-301-322**, The applicant needs to affirm whether all potential raptor nesting habitat in the proposed addition to the permit area has been surveyed for nests.
- R645-301-322**, The statement that there is no current raptor survey should be modified. There is a survey from 1998
- R645-301-322**, The applicant needs to include a plan for continued monitoring of raptor nesting habitat that could be affected by the mining operations.
- R645-301-322**, The application indicates the lack of riparian areas precludes the presence of flycatchers. There are flycatcher species, and several other birds, that inhabit pinyon/juniper and shrub/grass habitats, so this statement should be modified.
- R645-301-322**, It appears the applicant's consultant searched for and did not find Despain footcactus (*Pediocactus despainii*) and the Wright fishhook cactus (*Sclerocactus wrightiae*) in the proposed disturbed area. This needs to be documented in the application.

## LAND USE RESOURCE INFORMATION

Regulatory Reference: R645-301-411

### **Analysis:**

Premining land uses of the proposed addition to the permit area include grazing, wildlife habitat, coal mining, and limited recreation. The application says no agricultural activities have been or are currently being performed in the permit area; however, grazing is considered an agricultural activity. Grazing allotment boundaries are show on Plate 4-2, and wildlife habitat is show on Plate 3-1. Production in the grazing allotments in terms of animal unit months is shown in Table 4-3.

According to the application, Lila Canyon is within an area identified by the Bureau of Land Management as the Range Valley Mountain Habitat Management Plan Area. A habitat management plan was adopted in 1991 to provide management for various wildlife and for access management.

The proposed addition to the permit area does not support a wide variety of land uses because of the limited access and remote location, rugged topography, limited soils, and lack of rainfall and surface water. Water rights are discussed in Chapter 7, and water uses include stock watering and various uses for coal mining.

The land is zoned by Emery County for mining and grazing. A small portion of the proposed permit area addition overlaps with the Turtle Canyon Wilderness Study Area.

The Bureau of Land Management's 1999 Utah Wilderness Inventory identifies areas with wilderness character in addition to the previously-identified wilderness study areas. One of these areas overlaps the proposed addition to the permit area and is very close to, and may even overlap, the proposed disturbed area. The application needs to discuss the results of this inventory and indicate the management plans the Bureau of Land Management has for the designated area and surrounding areas.

There has been some previous mining activity in Lila Canyon, but it is unknown how much coal was mined. The road was built in the 1950's to provide access for coal exploration. There is a sealed portal in the left fork of the canyon where the Sunnyside Seam was exposed and coal mined, and the coal was probably transported back through the Horse Canyon Mine. It is believed mining occurred during the 1970's or early 1980's. If mining occurred during this time period, it should have been regulated under Title V of SMCRA.

### **Findings:**

Information provided in the application is not considered adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply

the following in accordance with:

**R645-301-411**, The application says there are no agricultural activities within the proposed addition to the permit area, but grazing is considered an agricultural activity. This needs to be corrected.

**R645-301-411**, The Bureau of Land management's 1999 Utah Wilderness Inventory indicates part of the proposed addition to the permit area has wilderness characteristics, including land immediately adjacent to and possibly overlapping the proposed disturbed area. The application needs to identify this and discuss the Bureau of Land Management's management plans for the area.

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

Regulatory Reference: R645-301-411.141, R645-301-323

### **Archaeological Site and Cultural Resource Maps**

The locations of cultural and historic resources in the area are shown on Plate 4-3 and on maps in Appendix 4-1. This information is adequate but needs to be kept confidential.

### **Vegetation Reference Area Maps**

Two proposed reference areas are shown on Figure 1 of the Lila Canyon Vegetation Inventory report in Appendix 3-2. This map needs to include a north arrow and a scale. It should also show the boundaries of the proposed disturbed area and of vegetation communities.

Although Plate 3-2 shows vegetation communities of the proposed permit area, it does not contain the level of detail needed for the proposed disturbed area. It is difficult to compare this plate with the surface facilities map with any confidence and know where the facilities would be. Section 323.400 says Plate 3-2 identifies each vegetation reference area, but this map does not show reference areas. Either this statement or the plate needs to be corrected.

### **Findings:**

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

**R645-301-323**, The application needs to contain maps showing the reference areas and vegetation communities in relation to the proposed surface facilities. The maps need to contain information as required in R645-301-140.

**R645-301-323**, Section 323.400 contains a statement that Plate 3-2 identifies each vegetation reference area, but this plate does not show the reference areas. Either the text or the plate needs to be corrected.

In addition, cultural resources maps need to be made confidential.

## **OPERATION PLAN**

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

Regulatory Reference: R645-301-140

#### **Analysis:**

The proposed addition to the permit area contains no known cultural resources listed or eligible for listing in the National Register of Historic Places, public parks, or units of the National System of Trails or the Wild and Scenic Rivers system. Therefore, no protection plan is needed.

The Turtle Canyon Wilderness Study Area overlaps with the proposed addition to the permit area in the following locations:

Township 16 South, Range 14 East  
Section 13, E $\frac{1}{2}$  NW $\frac{1}{4}$ , NE $\frac{1}{4}$   
Section 24, NE $\frac{1}{4}$  NW $\frac{1}{4}$ , N $\frac{1}{2}$  NE $\frac{1}{4}$

Township 16 South, Range 14 East  
Section 19, SE $\frac{1}{4}$  SW $\frac{1}{4}$ , Lots 3 and 4  
Section 30, SW $\frac{1}{4}$  NE $\frac{1}{4}$

The policy of the Bureau of Land Management is to not allow surface occupancy in wilderness study areas any more than absolutely necessary and only in cases where there are valid existing rights. The applicant has not proposed surface-disturbing activities in these areas, and considering the topography, the Bureau of Land Management feels it is unlikely exploration, ventilation shafts, or other disturbance would be practical. If the applicant proposes surface-disturbing activities in these areas, they will be scrutinized very carefully.

The Bureau of Land Management has prepared two environmental analyses discussing the anticipated effects of subsidence in these areas. If subsidence is expressed on the surface, it is likely to consist of a lowering of the land elevation with some surface cracks, and there could be some disruption of the hydrologic balance. Overall, however, the Bureau of Land Management felt the effects of undermining these areas would be small.

The "Land Use Resource Information" section of this analysis discusses the 1999 Utah Wilderness Inventory.

**Findings:**

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

## **AIR POLLUTION CONTROL PLAN**

Regulatory Reference: R645-301-420

**Analysis:**

The application says Appendix 4-3 contains the Air Quality Permit from the Utah Bureau of Air Quality. Appendix 4-3 has a cover letter from Utah American Energy for the Air Quality Notice of Intent. Since Appendix 4-3 does not contain a copy of the Air Quality Permit as stated in the application, the application is incorrect. Until the Air Quality Permit is received and put in the appendix, the application should indicate the applicant has applied for the permit but that it has not yet been received. Also, the regulatory authority enforcing the Clean Air Act has been changed from the Utah Bureau of Air Quality to the Utah Division of Air Quality, and the application should be updated.

The letter in Appendix 4-3 from Jay Marshall to the Division of Air Quality says the applicant is requesting approval for a throughput of up to 2,000,000 tons per year. Section 523 of the application indicates the applicant intends to be producing 4,000,000 tons of coal in the third year of production. Before the Division issues a permit, the applicant needs to have an Air Quality Approval Order in place that will not be obsolete before the permit expires in five years.

**Findings:**

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

**R645-301-420,** The text of the application needs to show the applicant has submitted a Notice of Intent with the Division of Air Quality and that the Air Quality Permit will be inserted when it becomes available.

**R645-301-420,** The application indicates the applicant has applied for an Air Quality Approval Order that would be obsolete after two years. The applicant needs to have an Approval Order that will not be outdated before the permit expires in five years.

## INTERIM STABILIZATION

Regulatory Reference: R645-301-331

### Analysis:

This regulation requires the application to include a description of the measures taken to disturb the smallest practicable area at any one time. Different parts of the application have different acreage figures, but it appears the disturbed area would be between about 39 and 48 acres. The applicant needs to justify whether this entire area is needed or if it would be possible to better consolidate the surface facilities.

Section 331 says, "The permit effected [sic] area is approximately 40.77 acres of which only 39.86 acres will be disturbed." The definition of affected area in R645-100 includes all areas above underground workings, so it does not appear the applicant has used the correct term in Section 331. The applicant needs to explain this statement and reconcile the acreage figures with those shown in Sections 542.200, 333, Appendix 5-8, and elsewhere.

All incidental disturbances that will not be used as part of the operations will be revegetated with an interim seed mix. Table 3-5 is an interim seed mix that includes three introduced and four native species.

According to Section 357.220, the lowest parts of the mine plan area, described as the areas with the greatest disturbance and assumed to be the proposed disturbed area, receive nine inches of annual precipitation while the upper elevations receive 14 to 16 inches. According to Section 724.411, the proposed mine site is in an area with annual precipitation of about 12 inches.

It is impossible to determine whether the revegetation plan is adequate when the application contains conflicting information such as this. However, using the more conservative value of nine inches, most of the species in the interim seed mix are not adapted to the site according to the *Interagency Forage and Conservation Planting Guide for Utah*. Intermediate wheatgrass needs at least 14 inches of precipitation, western wheatgrass needs 12 inches, bluebunch wheatgrass does best with 10-14 inches, basin wild rye needs 14 inches, and yellow sweet clover needs at least 15 inches. The planting guide does not give precipitation figures for the other two species in the interim seed mix, but it says slender wheatgrass does best in mountain brush and higher ranges.

The *Interagency Forage and Conservation Planting Guide for Utah* recommends the following grasses for planting in Wyoming big sage/grass communities receiving eight to twelve inches of precipitation: crested wheatgrass, Russian wild rye, thickspike wheatgrass, bluebunch wheatgrass (already in the mix but should have at least ten inches of precipitation), Indian ricegrass, needle and thread grass, green needlegrass, Indian ricegrass, bottlebrush squirreltail, and galleta.

Section 331 refers to the revegetation plan in Section 340 for further information about revegetation methods. The details of this plan are discussed under "Revegetation" below.

**Findings:**

Information provided in the proposal 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 consider whether it would be possible to better consolidate the surface facilities and disturb a smaller area. Minimally, the application needs to discuss how the disturbance has been minimized.

**R645-301-331**, Different sections of the application contain conflicting acreage figures for the proposed disturbed area. This needs to be corrected and the definition of various terms used in the application, such as affected area and disturbed area, clarified.

**R645-301-724.400**, The application contains conflicting precipitation information, and this needs to be resolved.

**R645-301-331**, It appears many of the species in the interim seed mix in Table 3-5 may not be adapted to the site, so the seed mix needs to be revised.

**SUBSIDENCE**

Regulatory Reference: R645-301-332

**Analysis:**

According to the application, the main potential effects of subsidence would be escarpment failure and disruption of surface and ground water. It appears there are at least two and possibly four eagle nests in the area that would be subsided even though the applicant has committed to protect these nests. This is discussed in detail in the section of this analysis dealing with the fish and wildlife protection plan.

Section 525.100 says no renewable resource lands exist within the proposed permit area and adjacent areas. "Renewable Resource Lands" are defined in R645-100 as aquifers and areas for the recharge of aquifers and other underground waters, areas for agricultural or silvicultural production of food and fiber, and grazing lands. Grazing is identified as a land use in the proposed addition to the permit area, and there is at least some recharge to aquifers. Therefore, the area does fall within the definition of renewable resource lands.

According to the application, ground water will probably be intercepted in the course of mining, but it is not known whether it is perched or an active recharge aquifer. If the mine was to discharge water, it could benefit wildlife, at least through the life of the mine.

The mitigation for losses of wildlife habitat through subsidence could include habitat enhancement to increase production of selected forage species, and development of off-site water sources, such as guzzlers.

Subsidence cracks are occasionally large enough to be dangerous for wildlife, livestock, and people that might be in the area. The applicant has committed in Sections 525.160 and 525.231 to restore to the extent technologically and economically feasible material damage to the surface lands. This commitment is in accordance with regulatory requirements and is considered adequate.

A standard stipulation on federal leases is that the lessee monitor the effects of underground mining on vegetation. The applicant needs to include a plan to do this.

#### **Findings:**

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

**R645-301-332**, Section 525.100 indicates there are no renewable resource lands within the proposed addition to the permit area; however, according to the definition of renewable resource lands and information in the land use chapter of the application, the proposed addition to the permit area does include renewable resource lands.

**R645-301-332**, The applicant needs to show how the effects of underground mining on vegetation will be monitored.

## **FISH AND WILDLIFE PROTECTION PLAN**

Regulatory Reference: R645-301-333

#### **Analysis:**

##### **Protection and Enhancement Plan**

In Section 333, the application says the major impacts to wildlife in and around the mine will be the loss of habitat during construction. It also says most wildlife will either accept the mine or adjust behavior to coexist with the operation.

The Fish and Wildlife Service commented that the mine's disturbance would kill most burrowing animals and others that are less mobile. It would also result in habitat fragmentation and dislocation of some animals to less desirable or already-occupied areas. Although wildlife can coexist with mining operations, animals may be forced to adjust their behaviors and may be otherwise stressed in ways that reduce their chances for survival.

The applicant has committed to train mine employees annually on environmental awareness. This will include wildlife protection measures, such as avoidance during stress periods, caution in driving, and recognition of threatened or endangered species.

In Section 323.300, the application indicates there could be possible restrictions on firearms on the mine site as well as restrictions on off road vehicle use. The applicant should make a definitive commitment to enforce these restrictions.

All suitable water encountered during mining will be discharged in a manner that it becomes available to wildlife. The applicant will need to ensure the water rights allow for this use and that the water quality is suitable. The water rights listed in Table 7-2 indicate the uses are for "mining" and "other." Ensuring that water quality is suitable should be possible through testing required for the discharge permit.

The application discusses the possible benefits of water in the sediment pond to wildlife. Because of the various contaminants that flow into sediment ponds, it is very unlikely water in the pond will benefit wildlife. In fact, the pond should be checked daily for any signs of wildlife harmed by the water.

The application and comments from the Division of Wildlife Resources indicate there are bighorn sheep that spend all year in the Lila Canyon area, and the application says use by sheep is expected to be curtailed following construction. However, the application does not discuss how these animals will be protected and their habitat maintained as far as possible. The Division suggests the applicant cooperatively plan mitigation efforts with Wildlife Resources.

The Division of Wildlife Resources commented that Lila Canyon, and more particularly the water sources up the canyon, are heavily used by chukars, and they feel the mining operations will affect these birds. They suggested the applicant install some watering structures of a suitable design and said these water sources would greatly benefit chukars and other area wildlife. This is a reasonable mitigation measure and is considered within the definition of "best technology currently available" to enhance wildlife habitat.

### **Endangered and Threatened Species and Bald and Golden Eagles**

The Probable Hydrologic Consequences statement in Appendix 7-3 indicates the mine would use about 19.7 acre-feet of water annually. Appendix 7-3 indicates 500,000 cubic feet per minute (cfm) of air will be exhausted from the mine with 657,000 gallons of water lost annually through evaporation; however, Section 523 says 900,000 cfm will be exhausted at full

production. If the evaporation rate remains the same with the increased exhaust rate, the amount of water lost through evaporation would be increased to 1,182,600 gallons per year and the total amount of water used would increase to 21.3 acre-feet. This discrepancy needs to be resolved.

The Fish and Wildlife Service has determined that water depletions from the Upper Colorado River Basin may affect four listed threatened or endangered fish species. Mitigation is required when the annual depletion exceeds 100 acre-feet. Since the mine is not expected to use that much water, no mitigation should be required.

The Fish and Wildlife Service commented in a letter dated April 14, 1999, that there should be an evaluation of effects on the Colorado pikeminnow (formerly the Colorado squawfish) of a water discharge line to the Price River. This discharge line was apparently proposed early in the planning process for the mine, but it is no longer being planned.

It is impossible to fully evaluate potential effects on raptors without enough information about the nests in the vicinity of the mine. However, the Division has obtained an enhanced version of the 1998 raptor survey map from the Division of Wildlife Resources, and there are about three golden eagle nests within 250 yards of the proposed disturbed area. One of the nests is only about 260 feet from the proposed disturbed area. It appears the proposed facilities are in clear view of the nests, and, because of the proximity, it is almost certain they would not be used during the life of the mine.

In Section 358.200, the applicant commits to conduct a raptor survey to ensure that no bald or golden eagles, their eyries, or their young would be adversely affected by mining -related activities. This statement needs to apply to all raptors, not simply bald and golden eagles.

The applicant commits to establish a one-half mile buffer zone of no disturbance during critical nesting periods. While this is adequate to protect eggs and chicks from abandonment, it is not adequate as a mitigation or enhancement plan. It is possible the applicant will need to obtain "take" permits from the Fish and Wildlife Service, particularly for those nests close to the proposed facilities area. The Fish and Wildlife Service recommends the applicant use the publication *The Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* (Romin and Muck, 1999) to design protection and mitigation procedures..

Section 358.200 also contains a commitment to safeguard any escarpment that has been identified as a nest site for raptors, and this commitment would be adequate if it was reflected in the mine plan. However, Plate 5-5 shows subsidence in areas where at least two nests are located. Also, it is not known if all potential habitat in the subsidence zone has been surveyed for nests. The applicant needs to show how nests in the subsidence zone will be protected.

The application needs information about proposed and listed threatened and endangered species, and until this information is available, it is impossible to determine what effects there might be. However, it appears there are no listed species in the proposed permit area.

### **Wetlands and Habitats of Unusually High Value for Fish and Wildlife**

The application says the proposed disturbed area contains critical winter range for deer and elk, but it does not contain a specific protection or enhancement plan. Other operators have mitigated for similar disturbances by working with the Division of Wildlife Resources to enhance habitat on nearby lands.

According to the application, there are no wetlands or riparian areas within the proposed addition to the permit area. While there are a few springs in the area, it does not appear there are any perennial drainages.

#### **Findings:**

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

**R645-301-333**, Section 323.300 discusses possible restrictions on firearms and off road vehicle use. The applicant should commit to enforcing legal requirements of firearm and off road vehicle use by employees in the mine area.

**R645-301-333**, The application discusses possible benefits to wildlife of water in the sediment pond, but the converse is more likely. This discussion needs to be modified, and the applicant needs to commit to check the pond on a daily basis for signs of wildlife being harmed by the water.

**R645-301-333**, There is a discrepancy between Appendix 7-3 and Section 523 in the amount of air that would be exhausted from the mine. This affects the calculations of the amount of water that would be lost through evaporation, and the discrepancy needs to be resolved.

**R645-301-333**, The Division of Wildlife Resources commented there are bighorn sheep that spend the entire year in Lila Canyon, and the mine will adversely affect these animals. In addition, the area is heavily used by chukars, and this use would also be negatively affected. The applicant needs to show how it will mitigate for these effects or how they will be minimized. Wildlife Resources suggests the applicant install at least one artificial watering device, such as a guzzler.

**R645-301-333**, There are golden eagle nests very close to the proposed surface facilities that almost certainly would not be used if the mine is built. The commitment in the plan to not disturb the area during crucial nesting periods would protect eggs or chicks from being abandoned, but it does not compensate for the loss of nests and nesting habitat. The applicant needs to propose protection or mitigation methods to be used for these nests and any others that may be in the area. It is

likely the applicant will need to obtain "take" permits from the Fish and Wildlife Service.

**R645-301-333**, The application says a raptor inventory will be conducted to ensure that no bald or golden eagles or adversely affected by mining, but this statement needs to apply to all raptors.

**R645-301-333**, The applicant has committed to not subside escarpments that contain eagle nests, but this commitment is not consistent with the mine plan. The applicant needs to show how nests in the subsidence areas would be protected.

**R645-301-333**, The applicant needs to include a specific protection and enhancement plan for critical big game habitat in the area of the proposed surface facilities.

Additional protection or enhancement plans may be needed once the Division receives further information about raptor nests and listed and proposed threatened or endangered species in the vicinity of the proposed surface facilities.

While the access road and power lines will probably not be regulated by the Division, the Division of Wildlife Resources and Fish and Wildlife Service commented on these facilities. It is very important that power lines be designed and constructed in accordance with the most current technology to avoid electrocutions. The poles will be used by golden eagles, ferruginous hawks, and other raptors.

Many big game animals are killed in collisions with vehicles used to haul coal, and it is vital that drivers be instructed on the importance of maintaining proper speeds and watching for wildlife. Any animals killed must be taken well off the road to avoid scavengers, including eagles, being hit. They should also be reported to Wildlife Resources.

## **RECLAMATION PLAN**

### **LAND USE RECLAMATION PLAN**

Regulatory Reference: R645-301-412

#### **Analysis:**

The postmining land uses will be the same as premining land uses. This will be accomplished through the reclamation plan presented in other sections of the application. Support activities to achieve the postmining land use will include site monitoring; remedial actions, such as regrading, reseeding, and replanting; and fencing as necessary to restrict access and grazing.

The postmining land use is in accordance with the Bureau of Land Management's management plans. Appendix 4-2 contains a letter from the Bureau of Land Management stating the postmining land use for the area is wildlife habitat, grazing, and incidental recreation.

Section 412.200 contains a statement that resumption of the original land use at the mine site should not need approval of the land management agency. This comment should be deleted, and in its place, the applicant should reference the letter from the Bureau of Land Management in Appendix 4-2.

### **Findings:**

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

**R645-301-412**, Section 412.200 contains a statement that resumption of the original land use at the mine site should not need approval of the land management agency. This comment should be deleted, and in its place, the applicant should reference the letter from the Bureau of Land Management in Appendix 4-2.

## **REVEGETATION**

Regulatory Reference: R645-301-341

### **Analysis:**

#### **Revegetation Plan**

Table 3-3 in Chapter 3 is a general reclamation timetable. The same timetable is in Table 3-2 in Chapter 5. This timetable shows phases of reclamation, and no explanation for these phases could be found in the text. The phases shown include "Phase 1 (Earthwork) Lower Area," "Seeding and Mulching/Earthwork Road/Portal," and "Seeding and Mulching (Lower Area 2) Completion of Upper Area." The text needs to discuss where these areas are and the exact reclamation sequence.

Table 3-3 indicates seeding and mulching could begin as early as September 1, but seeding should be delayed until as late in the fall as possible. The application does not give enough detail of the reclamation sequence to determine how late in the year it would be feasible to seed.

After mining has ended, buildings will be demolished and the site graded to approximate original contour on all areas except, according to Appendix 5-8, the rock ledges. The Division must apply the requirements of R645-302-270 to any area not being returned to approximate

original contour. If the applicant truly desires an exemption from the approximate original contour restoration requirements, this regulation must be fully addressed.

In Chapter 2, the application discusses soil salvage, storage and redistribution. The soils strongly influence the biology performance standards of vegetation diversity and erosion control. The application indicates soils would be stored in a single storage pile and redistributed to a uniform thickness of eight inches.

The soils on the slopes tend to be coarser and more resistant to erosion than those in flatter areas. Mixing the soils would lead to more erosion on the slopes. Also, the area would not have the same diversity of soils as presently exists, so there would be less diversity of habitats for plants and a less diverse plant community. The applicant needs to show how soils will be segregated and redistributed in a manner that will allow achievement of the vegetation performance standards of diversity and erosion control.

Also in the soils section, the application discusses reclamation of the coal refuse storage area and the area where material from the rock slopes would be placed. The material from the rock slopes is coal mine development waste and must be handled the same as coal refuse. These areas need to be covered with at least four feet of the best available nontoxic, noncombustible material to achieve revegetation in accordance with the R645-301-350 performance standards.

Section 341.220 says the area will first be graded to approximate premining conditions. The soil will then be ripped to a depth of eighteen inches and disced. Next, topsoil will be distributed to a depth of eight inches. Tillage will continue until the size of the average soil clods on the surface is less than one inch.

Continuing to till the soil until soil clods are this small is not necessary or desirable in this kind of site. It might be necessary to break up the very largest clods, but this usually happens naturally as topsoil is redistributed.

The second paragraph under the heading "Erosion" in Appendix 5-8 says it is imperative that the area be pock marked as it is recontoured. Section 244.200 also discusses gouging. The Division agrees pock marking the area or gouging it is essential. Gouging is a form of water harvesting that increases the amount of precipitation that goes into the soil and becomes available for plant growth. This site is dry enough that a form of water harvesting is considered essential for successful reclamation.

According to Section 341.220, the surface will be covered with 2000 pounds per acre of alfalfa or native grass hay which is crimp-disced into the soil. The area will then be seeded and fertilized. Although this section does not discuss gouging, discing hay into the soil would destroy most of the gouges and negate their effects.

The reclamation sequence in Section 341.220 does not discuss gouging or pocking, and Appendix 5-8 does not discuss applying alfalfa or native grass hay as a soil amendment.

Therefore, the application is not consistent, and the Division is unsure what reclamation methods the applicant intends to use.

Section 244.200 describes the gouges as being about eighteen by twenty-four inches and eight inches deep. These are absolute minimum measurements. Gouges should normally be at least twelve inches deep.

The applicant needs to describe how the gouges will be placed. The soil can be gouged so that virtually the entire area is covered by gouges, or the gouges can be spaced some distance apart. Covering the entire area is the most effective.

The seed mixture for final reclamation is shown in Table 3-4. It consists of eighteen species, sixteen of which are native to the area. The two introduced species are yellow sweet clover and alfalfa, and the Division recommends the applicant eliminate yellow sweet clover or reduce the seeding rate for this species. While it has been used at several reclamation sites in the past, there are indications it may have allelopathic properties, and it is known to persist in many areas.

The other species are acceptable, but without reliable precipitation figures, it is impossible to be certain whether they are adapted to the site. When the Division has more reliable precipitation data, it may be necessary to adjust the seed mix.

The three dominant grasses found in the vegetation study are not included in the seed mix. Some believe that bluebunch wheatgrass, a palatable but grazing-intolerant grass, has been replaced in this area by the less palatable Salina wild rye. Therefore, it is probably more appropriate to include bluebunch wheatgrass, as the applicant has done, than Salina wild rye.

The warm season grasses, such as galleta and blue grama, are sometimes difficult to establish, but they should still be included in the seed mix since they are among the more important grasses in the area. Sand dropseed was not found in the vegetation survey, and it could be eliminated from the seed mix.

Needle and thread grass is a desirable species that was found in the area although it is not a dominant species. Seed of this species is normally available commercially, and it establishes from seedings. The Division recommends it be included in the seed mix.

The seeding rate shown in Table 3-4 is high, about 176 seeds per square foot for broadcast seeding. The *Interagency Forage and Conservation Planting Guide for Utah* recommends broadcast seeding at a rate of about 50-100 seeds per square foot.

The application says the preferred seeding method will be to use a rangeland drill with shrub species possibly being broadcast seeded to avoid plugging the drill. Broadcast seeding would be done by hand or using a rotary seeder, and a light cover of soil would be spread over all broadcast seeds.

Drill seeding tends to reduce surface roughness which the Division considers vital for this site. Unless the applicant can show that surface roughness will not be reduced when using this seeding method, a different technique should be used.

The application says straw mulch will be spread on all inaccessible areas using a blower or by hand and that the mulch will be anchored by crimping. An optional method will be to hydromulch with 2000 pounds per acre of wood fiber mulch and 60 pounds per acre of a tackifier.

The application does not say what mulching method or rate will be used in accessible areas. It also does not say at what rate the straw mulch would be applied. If an area is inaccessible and would have straw applied, it would also be inaccessible to equipment needed to crimp the straw. In addition, crimping, like drill seeding, is likely to reduce the effects of gouging. The applicant needs to clarify the mulching methods and rates.

The Division recommends the applicant use straw mulch on the entire area and anchor it with hydromulch applied at a reduced rate and a tackifier. This method has proven successful at other mines in Utah.

There will be no irrigation, and no pest or disease control measures are planned. The Division does not anticipate irrigation will be necessary as long as water harvesting methods are used. There are no serious pest control problems in the area of which the Division is aware, so, hopefully, no control measures will be necessary.

The application says in Section 357.301 the Lila Canyon Mine would like to reserve the right to apply for augmentation of reclaimed areas without jeopardizing or extending the bond liability period on a site specific case scenario. The regulations in R645-301-357 are designed to allow a limited amount of reseeding and other work for specific purposes without lengthening the extended liability period. These regulations define the limits of these practices where they are not considered augmentative. Augmented seeding is not allowed without lengthening the extended liability period; therefore, the statement in 357.301 must be modified.

### **Success Standards**

In this section, the application says the reference area for the mine site disturbance was established adjacent to the existing facilities during the summer of 1985. It appears this is a reference to the current Horse Canyon mining and reclamation plan. If the applicant intends to use the reference area at the Horse Canyon Mine, the application needs to include all pertinent data to compare the reference area with the proposed disturbed area.

As discussed in the "Vegetation Resource Information" section of this analysis, there is inadequate information to determine whether the reference areas shown in Appendix 3-2 can be approved as success standards for vegetation cover or other vegetation parameters. The applicant needs to propose methods for measuring diversity, seasonality, and erosion control and success

standards for these parameters.

The Division is required in R645-301-356.230 to consult with the Division of Wildlife Resources and gain approval for the tree and shrub density standard for success. The standard set in consultation with Wildlife Resources is 1500 per acre. This standard needs to be included in the application.

The numbers of woody plants in the proposed disturbed pinyon juniper area are skewed because over half are *Leptodactylon pungens*, a subshrub. In the shrub/grass disturbed and reference areas, about two-thirds of the woody plants are green rabbitbrush, a small shrub that is not particularly desirable for forage. For these reasons, the standard was based more on the species expected to become established in the area than on the existing vegetation.

### **Field Trials**

The application says the methods outlined have a proven performance based on the successful reclamation of the Horse Canyon Mine.

At this time, the Division does not anticipate it will be necessary to establish field trials. As the applicant clarifies the reclamation plan, the Division may decide revegetation methodologies need to be tested.

### **Wildlife Habitat**

The application says the sediment pond will be maintained through the life of the operation and bond liability period at which time it will be allowed to pass through normal pond succession until such time as the pond will be removed when effluent criteria are met at about year six following reclamation. This statement contradicts itself and at least one other section of the application. If the pond is to be maintained through the bond liability period, it will be functional after at least ten years, rather than six, following the last augmented seeding, irrigation, or other work. Stating that the pond will be allowed to pass through normal succession implies it will be allowed to silt in rather than being maintained.

Sections 761 and 763.100 indicate the sediment pond will remain in place until the stability and vegetation requirements for Phase II Bond Release are met and that this will be a minimum of 2 years after the last augmented seeding. At this time, the pond will be removed and the area reclaimed. As discussed above, Section 342 says the pond will remain for at least six years. The hydrology section of the application says nothing about allowing the pond to go through succession.

There is little doubt that a water source in this area would serve as a wildlife habitat enhancement. However, it is not known whether the pond would actually contain water a significant part of the year and would thus serve as an enhancement. It is also not known whether the water quality would be suitable for wildlife use. Even if it does contain water, the

enhancement would only be temporary.

The applicant needs to clarify how long the pond will be allowed to remain and what maintenance will be done. Before the pond can be considered an enhancement, the applicant needs to demonstrate that water in the pond would be suitable for wildlife use.

As discussed above, Wildlife Resources feels the applicant should install a watering device in the area. The applicant should investigate whether additional methods would serve to enhance wildlife habitat after reclamation.

The species in the seed mixture, with the required changes, will potentially provide good forage and cover for wildlife. The application indicates the grouping of the plants will be in a manner which optimizes edge effect cover and gives other benefits to fish and wildlife. Because there will be no transplanting, the plants will not necessarily be grouped unless they happen to grow that way. The comments in the application about optimizing the edge effect should be eliminated unless the applicant provides specific means by which this will be accomplished.

**Findings:**

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

**R645-301-341.100**, The applicant needs to clarify the reclamation timetable in Tables 3-3 in Chapter 3 and 3-2 in Chapter 5. There are terms used in these schedules that are not explained elsewhere in the application.

**R645-301-341.110, R645-301-354**, Tables 3-3 and 3-2 indicate seeding and mulching could begin as early as September 1. Seeding should be delayed until as late in the fall as possible, preferably until November.

**R645-301-553**, Appendix 5-8 indicates all areas will be returned to approximate original contour except the rock ledges. Unless the applicant obtains a variance, all areas must be returned to approximate original contour.

**R645-301-341**, The applicant needs to show how soils will be segregated and redistributed in a manner that will allow achievement of the vegetation performance standards of diversity and erosion control.

**R645-301-341**, Areas of coal mine waste disposal need to be covered with at least four feet of the best available nontoxic, noncombustible material to achieve revegetation in accordance with the R645-301-350 performance standards.

**R645-301-341**, Section 341.220 says tillage will continue until the size of the average

soil clods on the surface is less than one inch. This is likely to unnecessarily compact the soil, and it reduces soil structure. It may be necessary to break up the largest clods, but continuing to till the soil until soil clods are less than one inch diameter is not necessary or desirable in this kind of site.

**R645-301-341**, The applicant needs to resolve inconsistencies in the reclamation methods shown in Section 341.220 and Appendix 5-8. According to Section 341.220, the surface will be covered with 2000 pounds per acre of alfalfa or native grass hay which is crimp-disc'd into the soil, but this is not mentioned in Appendix 5-8. Appendix 5-8 discusses gouging but Section 341.220 does not.

**R645-301-341**, The Division considers water harvesting, such as gouging, to be an essential component of reclamation at this site. Any reclamation methods inconsistent with leaving a rough surface need to be modified or eliminated. In Appendix 5-8, the applicant commits to gouging the site, and crimp discing mulch and drill seeding are likely to reduce the gouges so they will not be as effective as they need to be.

**R645-301-341**, Assuming gouging will be the water harvesting method used, the applicant needs to describe how the gouges will be placed.

**R645-301-341.210**, Blue grama and galleta are important warm season grasses in the proposed disturbed area, and they need to be included in the seed mix for final reclamation.

**R645-301-341.210**, The seeding rate shown in Table 3-4 is excessive. The *Interagency Forage and Conservation Planting Guide for Utah* recommends a broadcast seeding rate of 50-100 seeds per square foot.

**R645-301-341.230**, The application does not say what mulching method or rate will be used in accessible areas. It also does not say at what rate the straw mulch would be applied. If an area is inaccessible and would have straw applied, it would also be inaccessible to equipment needed to crimp the straw. The applicant needs to clarify the mulching methods and rates.

**R645-301-341**, The application says in Section 357.301 the Lila Canyon Mine would like to reserve the right to apply for augmentation of reclaimed areas without jeopardizing or extending the bond liability period on a site specific case scenario. Augmented seeding is not allowed without lengthening the extended liability period; therefore, the statement in 357.301 must be modified.

**R645-301-341.250**, The application says the reference area for the mine site disturbance was established adjacent to the existing facilities during the summer of 1985. It appears this statement is referring to the current Horse Canyon mining and

reclamation plan. If the applicant intends to use the reference area at the Horse Canyon Mine, the application needs to include all pertinent data to compare the reference area with the proposed disturbed area.

**R645-301.341.250**, As discussed in the "Vegetation Resource Information" section of this analysis, there is inadequate information to determine whether the reference areas shown in Appendix 3-2 can be approved as success standards for vegetation cover or other vegetation parameters.

**R645-301-341.250**, The applicant needs to propose methods for measuring diversity, seasonality, and erosion control, and success standards for these parameters.

**R645-301-341.250**, The applicant needs to include the woody plant density success standard of 1500 per acre established in consultation between the Division and the Division of Wildlife Resources.

**R645-301-342**, In Section 342, the application says the sediment pond will be maintained through the life of the operation and bond liability period at which time it will be allowed to pass through normal pond succession until such time as the pond will be removed when effluent criteria are met at about year six following reclamation. This statement contradicts itself and other parts of the application and needs to be modified. The applicant needs to clarify how long the pond will be allowed to remain and what maintenance will be done. To leave the pond as wildlife habitat enhancement, the applicant would need to demonstrate that water in the pond would be suitable for wildlife use.

**R645-301-342**, The applicant needs to investigate whether other enhancement measures could be used at this site during the reclamation phase of operations. The application should contain a discussion of potential enhancement measures.

**R645-301-342**, Comments in the application about optimizing the edge effect should be eliminated unless the applicant provides specific means by which this will be accomplished.

The Division recommends the applicant eliminate yellow sweet clover from the seed mix or reduce the amount that would be planted. Also, the Division recommends the applicant include needle and thread grass in the seed mix.

Because precipitation figures in the application are inconsistent, the Division cannot be certain whether the species in the seed mix are adapted to the site. Some changes may be needed when the Division has reliable precipitation data.

Page 37  
ACT/007/013-SR98A  
May 10, 1999

**RECOMMENDATIONS:**

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

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