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

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October 1, 1999

TO: File

THRU: Daron Haddock, Permit Supervisor *10024*

FROM: Paul Baker, Reclamation Biologist *1993*

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

**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.

There are several technical issues that need to be resolved before the application can be approved.

**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.

Section 112.300 of the application says ownership and control information is in Appendix 1-1, but Appendix 1-1 references Appendix 1-7 of Part "A" of the Horse Canyon mining and reclamation plan

for ownership and control information. Section 112.340 says identifying information about affiliated coal mining and reclamation operations is in Appendix 1-2, but this appendix simply references Appendix 1-9 of Part "A" of the Horse Canyon plan for this information.

The application needs to clarify the relationships of the companies that own or are affiliated with the applicant. Appendix 1-7 of the Horse Canyon plan (Part "A") contains lists of shareholders and officers and directors for the applicant and its shareholder, Coal Resources, Inc., together with the dates the officers and directors assumed their positions, addresses, and their Social Security Numbers. 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. It appears the other companies listed in Appendix 1-7 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.

No employer identification number is shown for Coal Resources, Inc. 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 1-9 of the Horse Canyon plan contains employer identification numbers for most of these companies. However, it appears this information is incomplete since, based on the information in Appendix 1-7, UtahAmerican Energy is apparently owned by Coal Resources, Inc., and the application does not include this entity's EIN.

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 1-9 of the Horse Canyon plan and Section 112.340 of the current application, 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 coal 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 owns surface land contiguous to the proposed permit area addition. This is not reflected in the text.
2. SITLA commented in a letter dated April 9, 1999, that they administer lands in certain

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parts of the existing and proposed addition to the permit area and in contiguous areas. Two areas not properly identified on Plate 5-3 are in the S $\frac{1}{2}$  SW $\frac{1}{4}$  of Section 4, and the NE $\frac{1}{4}$  SW $\frac{1}{4}$  of Section 25, Township 16 South, Range 14 East. SITLA administers all subsurface rights in the former area, but it does not administer coal rights in the latter.

The application shows MSHA identification numbers for both the Horse Canyon and Lila Canyon Mines, but it says the refuse pile identification number has yet to be issued. The applicant will 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**, Ownership and control information in the application is unclear. 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. 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.

## **VIOLATION INFORMATION**

Regulatory Reference: R645-301-113

#### **Analysis:**

According to the application, neither UtahAmerican Energy nor any subsidiary, affiliate, or persons controlled by or under common control with them has had a federal or state permit suspended or revoked in the past five years, and these same entities have not forfeited a performance bond or similar security. The application says Appendix 1-3 contains a list of violations received by affiliated companies for the past three years, but Appendix 1-3 says these violations are listed in Appendix 1-8 of the Horse Canyon mining and reclamation plan. It appears from this information there is one violation that has yet to be terminated and that administrative proceedings are ongoing.

Information in this and the ownership and control section will need to be checked in the applicant violator system, but it appears the application contains the required information to comply with R645-301-113.

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**Findings:**

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

**RIGHT OF ENTRY**

Regulatory Reference: R645-301-114

**Analysis:**

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.

According to the application, UtahAmerican Energy has subleased 5544.01 acres of federal coal from Intermountain Power Agency (IPA). This was executed on August 24, 1998, and UtahAmerican Energy bases its right to enter on language contained in the leases and quoted in the application. The Bureau of Land Management approved the subleases on February 16, 1999.

Table 1-1 shows the legal descriptions and acreages for the federal leases. The total permit area, including both permit area "A" and permit area "B," would be 6461.79 acres. This acreage figure is consistent in two sections of the application and with information in correspondence from the applicant, but Section 411.130 says, "Within the permit area, all of the 9320 acres are managed by the BLM. . . . 910 acres are privately owned and 800 acres are owned by the State of Utah." These figures need to be consistent.

Parts of Sections 33 and 34, Township 15 South, Range 14 East, are in the current Horse Canyon permit area, and, according to Plate 5-4, they contain unleased federal coal. Therefore, while they may be considered part of the current permit area, the applicant has no right to mine these areas.

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.

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.

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**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**, Acreage figures in the application need to correspond.

**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.

**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:**

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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.

A certificate of liability insurance is in Appendix 8-2 & 8-3. This certificate does not meet Division requirements, and parts of the certificate in the application are not legible. Other items are:

1. The certificate holder named must be the Division of Oil, Gas and Mining.
2. The description of operations must provide the name of the mine and the mine number.
3. The insurance policy must be "first provider" insurance, that is, the insurance must pay without a deductible, all claims up to the legal requirements of the regulations (\$300,000 per occurrence and \$500,000 aggregate).

Appendix 1-5 contains copies of the newspaper advertisement and proof of publication.

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.

## **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 promoter 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.

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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. Any information that would enable a person to locate any of the cultural resource sites should be made confidential.

## **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, and the following discussion concerns this report. Figure 1 in this study shows sampling locations in two vegetation communities, pinyon/juniper and shrub/grass.

There is inadequate information in the application for the Division to be able to determine whether the reference areas can be accepted. 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. The vegetation study needs to include the entire area proposed to be disturbed, and it also needs to include enough samples that the Division is assured the data adequately represents the community. Also, the application needs to contain enough information to make a statistical comparison between the proposed disturbed and reference areas.

Appendix A of the Vegetation Information Guidelines gives sampling methods that should be used for baseline vegetation inventories, and the minimum sample size for the sampling method used is the highest of either 15 or the number obtained from a formula in the guidelines. Achieving this sample size is required for bond release sampling and recommended for baseline sampling. Although the minimum sample size is not required for baseline sampling, there need to be enough samples that valid statistical analyses can be done on the data and that the Division can be assured there is enough data to quantify the vegetation resources. Meeting the minimum sample size in the guidelines would ensure adequate samples were taken.

The report says 1000 samples were taken in each vegetation type. According to the methodology described in the report, this is incorrect: 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. This could

potentially be enough samples if:

1. The samples included the entire disturbed area, and,
2. The study contained enough statistical data to allow a comparison of the proposed disturbed area with the proposed reference areas.

The primary variable of concern is vegetation cover. (Lichens and cryptogams are not macrophytes and are not generally classified as "vegetation" in the context of the coal rules.) The report shows the number of "hits" on each species, which can be translated into percent cover, but it does not show the amount of cover in each transect. The amount of cover in each transect is needed to show the variabilities, standard deviations, and standard errors and to make statistical inferences.

The 1998 report in Appendix 3-2 says two-tailed t-tests with a two-sample equal variance were performed on each data set to determine similarity between the proposed 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. While similarity of species composition is important in comparing the proposed disturbed and reference areas, there are other aspects that need to be compared, and vegetation cover needs to be compared statistically.

A regression comparison of the reference areas and the areas proposed to be disturbed may be appropriate as a type of similarity index, but it does not compare the primary parameter of concern which is vegetative cover. The application needs to show the vegetative cover values for the proposed disturbed and reference areas are statistically equal using a two-tailed t-test.

Where a species was not encountered in either the proposed disturbed or reference area for a community, it should not be used in the regression analysis. These "0-0" values tend to skew the data, and they invalidate the analysis.

Sampling in the proposed disturbed area was confined to the lower part of the area that would be disturbed; there are no samples in about two-thirds of the proposed disturbed area. The entire shrub/grass community may have been included in the sampling protocol since it appears from Plate 3-2 that the shrub/grass community is confined to the northwest portion of the proposed disturbed area. However, since Figure 1 shows neither the vegetation community boundaries nor the boundary of the proposed disturbed area, it is impossible to make this determination.

It does not appear the entire pinyon/juniper area was included in the area sampled. Samples in this vegetation type were confined to about one-third of the proposed disturbed area that would be in this community according to Figure 1 and Plate 3-2. The chance of this happening with randomly placed transects is about one in sixty thousand.

The Division is not confident the samples truly represent the pinyon/juniper community of the proposed disturbed area. A Division representative visited the site in June 1999 and was able to list over twice as many species as are shown in the vegetation report. Also, the soils and topography changes in certain areas and changes in the vegetation would not be reflected in the report. It is for these reasons that additional sampling needs to be done in the proposed disturbed pinyon juniper community.

Table 3 in the report in Appendix 3-2 is titled "Vegetation Inventory for Shrub/Grass and Pinyon/Juniper Areas," and it has subheadings "Disturbed Area" and "Reference Area." This is confusing: Is the information for the shrub/grass or for the pinyon/juniper community or for some combination? Since Table 4 on the next page shows vegetation cover for pinyon/juniper areas, it appears the information in Table 3 is for the shrub/grass community.

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

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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.

The Division has received a letter from Mr. Cook, now retired from the NRCS, giving production estimates for the grass/shrub reference area, the pinyon juniper proposed disturbed area, and the pinyon/juniper reference area. It does not show productivity information for the grass/shrub proposed disturbed area. All of this productivity information needs to be included in the application. The application also needs to contain copies of the data sheets for the productivity estimates and site ratings.

Mr. Cook rated the three areas as being in good range condition, but it is unusual for an area with 38% relative cover from cheatgrass to be considered in good range condition. There are a few possible explanations for this. One is that although cover from cheatgrass was high, production may have been low, and production is the parameter used in range condition assessments. The other possible explanation is that the cover and range condition estimates were done in different years, and the condition could have changed.

#### **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. 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.

## **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 critical winter range for mule deer and elk and habitat for Rocky Mountain bighorn sheep. Nearby areas are inhabited by pronghorns. The text discusses the types of habitats where these species occur and certain aspects of their life histories.

Raptor surveys were conducted in the area in 1990, 1998, and 1999. 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.

The text says results of the 1999 raptor survey are in Appendix 3-5, but these results are apparently not in the application. Section 323.300 says an active nest was found in the 1999 survey in the left fork of Lila Canyon within the one mile buffer zone. Because different nests have been identified in this area, it is not known which nest was active.

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 text mentions a prairie falcon scrape found in the east half of section 9, but it is not shown on any of the maps. Although it appears the mine would probably not affect this scrape, the application should show where it is since the text mentions it.

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. Because of the difficulty using the current maps, it is preferred that nest locations be shown on a single map.

The maps in the application showing raptor information are not acceptable for the following reasons:

1. Plate 3-1 does not show all of the raptor nests shown on maps in Appendix 3-5. It does not include contours that would allow the Division to better determine whether the mine would be visible from the nests. It also needs to show the location of the proposed disturbed area in relation to the nest sites.
2. The map in Appendix 3-5 labeled "Lila Point" includes contours, but it does not include all nests apparently within the area. Also, it does not show the location of the proposed surface facilities, and, even if it did, the scale is such that it would be difficult to make accurate measurements to assess how far the nests are from the facilities. (With this map and the one discussed below, there is no scale, but one can determine the approximate scale using section lines. The scale is about 1"=2500'.)
3. The markings on the map at the end of Appendix 3-5 are mostly illegible, and there is no

legend to indicate what the marks represent. It appears this map is from an earlier raptor survey, possibly 1990, but this is not clear. Assuming the marks represent nest sites, it is not possible to determine how far they are from the proposed surface facilities because the surface facilities are not shown on the map and because the map is of such a large scale that it would be difficult to make accurate measurements.

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 may be affected by subsidence. This requirement is supported by R645-301-322.100.

According to Section 322.220, the entire permit area plus an area within 1 mile of the proposed surface facilities were surveyed for raptor nests.

The applicant commits to conduct raptor surveys one year prior to all proposed (assume proposed) new construction or potentially disruptive mining activity. This should be done in all suitable habitat within a one mile radius of these activities.

The discussion in the application concerning the disposition of raptor nests is not adequate. The application says an active golden eagle nest was found in the left fork of Lila Canyon in the 1999 survey and that consultation with the Fish and Wildlife Service is scheduled for the fall of 1999. Line of site and potential mitigation will be discussed at that time.

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—whether or not they have recently been active-- and indicate whether the facilities area would be visible from them. This is information that should be available before consulting with the Fish and Wildlife Service. 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.

Since the intermittent stream channels lack riparian vegetation, many birds of high federal interest would not inhabit the area.

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 eight listed threatened or endangered species the application says may occur in Emery county or that could be affected by the mine. Appendix 3-3 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 letter says, and the Division agrees, Table 3-1 needs to either include a complete list of species that could occur in Emery county or it needs to be eliminated and the application reference Appendix 3-3 for a list of species. In the latter case, the application needs to specifically mention that the southwestern willow flycatcher may also have potential of being in Emery county.

The possibility of each species on the Fish and Wildlife Service list occurring in the proposed addition to the permit area or being affected by the mine is addressed in the following discussion.

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.

The proposed addition to the permit area does not contain habitat for southwestern willow flycatchers. The application documents there are no perennial water sources or riparian areas in either the current permit area or the proposed addition, and according to verbal information from the applicant's consultant, there are few, if any, willows or similar riparian-type vegetation associated with the seeps and springs in the proposed addition to the permit area. There may have been a few willows or shrubs, but there were no dense patches as would be required by southwestern willow flycatchers.

The application needs to contain a discussion similar to the preceding paragraph discussing the likelihood of southwestern willow flycatcher habitat being in the proposed addition to the permit area. Although the application says there are no riparian areas or streams, it needs to discuss other areas, such as those around seeps and springs, that could potentially contain this habitat.

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. Peregrine falcons are no longer listed as threatened or endangered.

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. As discussed in the fish and wildlife protection part of this review, the mine is expected to use about 21.3 acre-feet of water annually, including water lost through mine ventilation. Mitigation is required when the annual depletion exceeds 100 acre-feet.

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.

It is understood the applicant's consultant searched for the Despain footcactus and Wright fishhook cactus and did not find them. This needs to be documented in the application together with information about when the search was performed and who did it. The July 29, 1999, letter from Environmental Industrial Services in Appendix 3-4 does not give this information.

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**, The Fish and Wildlife Service commented, and the Division agrees, that Table 3-1 either needs a complete listing of threatened and endangered species that occur in Emery county or it needs to be eliminated. If eliminated, the application should mention the Fish and Wildlife Service believes there is potential habitat for the southwestern willow flycatcher in Emery county.

**R645-301-322**, The applicant needs to confirm whether habitat for the southwestern willow flycatcher exists in the proposed addition to the permit area. While there is no indication this habitat is present, and while this is discussed in this analysis, the application needs to contain this documentation.

**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. The map(s) need(s) to be of a small enough scale that the Division can make accurate measurements. 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 topography. It also needs to discuss potential effects from the proposed mine.

**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. Grazing allotment boundaries are shown on Plate 4-2, and wildlife habitat is shown on Plate 3-1. Production in the grazing allotments in terms of animal unit months is shown in Table 4-3.

In Section 410, the application says there are no agricultural activities in the permit area other than grazing, but Section 411.110 says no agricultural activities have been or are currently being performed in the permit area. Grazing is an agricultural activity, so the statement in Section 411.110 needs to be modified.

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 says the land management policy has not changed for these areas during the EIS process.

The application needs to contain documentation of the current management strategy for the areas recently added as wilderness study areas. This information may not yet be available, but it needs to be included in the application as soon as possible. The Internet site shown in the application does not discuss how the areas will be managed. The application contains a copy of the 1993 environmental assessment prepared for management of the Turtle Canyon Wilderness Study Area, and it says underground mining would be acceptable in this area. However, there is no information about what activities will be allowed by the Bureau of Land Management in the new areas.

There has been some previous mining activity in Lila Canyon, but it is unknown how much coal was mined. The road on the bottom of Lila Canyon 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.

Table 4-2 itemizes acreage figures in both the current Horse Canyon permit area and the proposed addition to the permit area. Section 411.130 says all of the 9320 acres within the permit area are managed by the Bureau of Land Management, and it says 910 acres are privately owned and 800 acres are owned by the State of Utah. These figures in Section 411.130 are inconsistent with those shown in Table 4-2. A deficiency under R645-301-114 addresses this problem.

#### **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**, In one section, the application says there are no agricultural activities within the proposed addition to the permit area; however, 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 provide documentation of the Bureau of Land Management's management plans for the area.

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## **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.

### **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.

## **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

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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. As more information becomes available, the application will need to discuss management strategies for the new areas being considered for wilderness classification.

**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 and a copy of the Intent to Approve from the Division of Air Quality. 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, and the Intent to Approve says up

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to 1,500,000 tons of coal could be mined in a rolling twelve month period. Section 523 of the application indicates production should be between 1,000,000 and 1,500,000 tons per year for the first five years but that production could peak at 4,500,000 tons. Therefore, the application is consistent with the Air Quality Intent to Approve for the first five years. Any increase in production after five years would require amendments to both the Air Quality Approval Order and the mining and reclamation plan.

**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 Air Quality has issued its Intent to Approve. Contrary to the application, Appendix 4-3 does not contain a copy of the Air Quality Permit (or Approval Order).

**INTERIM STABILIZATION**

Regulatory Reference: R645-301-331

**Analysis:**

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.

The second paragraph in Section 331 says the disturbed drainage area contains approximately 40 acres but that less than 22 acres will actually be removed from production as a result of the mine. The remaining 18 acres will be available for continued wildlife use. This section is confusing. Although areas planted with interim vegetation may have some value to wildlife, the entire disturbed area will essentially be lost for wildlife habitat through the life of the mine.

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, but the Division has attempted to review the revegetation plan with the information available.

Table 3.4/3.5 is a seed mix for interim and final reclamation. According to a footnote, grass or forbs only would be used for interim revegetation. Forbs alone would not be expected to provide adequate cover to control erosion, and the seeding rate for the grasses alone is low. The Division makes the following recommendations for this seed mix:

1. Include both grasses and broadleaf forbs.
2. Reduce the seeding rate for yellow sweet clover and flax.
3. Add a rhizomatous grass that is adapted to the area. Based on the precipitation data available, it appears the most adapted species would be western wheatgrass and thickspike wheatgrass.

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 clarify the use of the terms affected area and disturbed area. Also, the discussion in the second paragraph of Section 331 about how much land might be available for wildlife use is confusing and may be unnecessary.

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

**R645-301-331**, Grasses or forbs only would be seeded for interim revegetation, but the broadleaf forbs would not provide adequate erosion protection and the seeding rate is minimal for the grasses alone. Both should be used together, and the Division recommends certain changes to the seeding rates and species being seeded.

#### **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, but this statement is not correct and needs to be modified. "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. This definition says nothing about the significance of the land for these uses. 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. In response to the previous technical analysis, the applicant added a statement that it has been demonstrated that subsidence has little direct impact on wildlife or vegetation with the exception of escarpment failure and disruption of surface or ground water. This statement does not satisfy the requirements of the stipulation because it does not show how the applicant will monitor the effects of mining on vegetation.

#### **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. These statements need to be modified. Operational impacts, such as collisions with mine-associated vehicles, loss of habitat during the life of the mine, wildlife disturbance, and fragmentation of nearby habitat, may be more difficult to quantify but are greater than construction impacts.

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. The wildlife education program needs to specifically include instructions to remove wildlife carcasses well off the road to avoid collisions with scavenging raptors.

The applicant needs to make a definitive commitment regarding firearm and off road vehicle use in its area of control. 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. In Section 333.200, the application says the employee education program will include instructions on legal requirements for firearm and off road vehicle use.

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. In the event water in the pond contains materials hazardous to wildlife, it would be removed and the pond monitored to ensure no negative effects on wildlife.

According to the application, the Lila Canyon Mine has agreed to mitigate loss of wildlife habitat as well as the potential loss of habitat use during construction. This mitigation is under advisement with Wildlife Resources and the Bureau of Land Management. The mitigation is expected to offset adverse effects on bighorn sheep, mule deer, elk, and chukars.

This commitment is considered acceptable, but the mitigation plan will need to be included in the application. Wildlife Resources indicates there are bighorn sheep that spend all year in the Lila Canyon area, and use by sheep is expected to be curtailed following construction. Wildlife Resources also

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 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. According to information in the Probable Hydrologic Consequences statement, the total annual water use is expected to be 21.3 acre-feet. Since the mine is not expected to use more than 100 acre-feet, 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.

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 for nests that will probably not be used during the life of the mine. 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.

Section 323.300 of the application says a consultation with the Fish and Wildlife Service and Wildlife Resources is scheduled for the fall of 1999. Line of sight and potential mitigation will be discussed during this meeting, and the results will be incorporated in Appendix 3-5. This is the type of coordination needed, but until the application contains a complete protection or mitigation plan, it remains deficient.

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.

Section 358.200 also contains a commitment to safeguard any escarpment that has been identified as a nest site for raptors; however, comparing Plate 5-5 with Plate 3-1 and the maps in Appendix 3-5, it appears at least one nest would be undermined. Because of the difficulty in reading the maps, it is not certain where the nests are located in relation to the proposed mining. This is the reason for requiring a map showing both the mine plan and nest locations (see requirements under R645-301-

322). The commitment to safeguard escarpments that contain nests is adequate if it is reflected in the mine plan.

It appears no listed or proposed threatened, endangered, or sensitive species are in the area or would be adversely affected by mining. As discussed under R645-301-322, the application needs additional information about what surveys were done, but there are no indications any of these species is present.

R645-301-358.510 requires that the operator ensure that power lines used for or incidental to coal mining and reclamation operations within the permit area be designed, constructed and maintained to minimize electrocution hazards to raptors. The application contains a commitment to this effect. The Fish and Wildlife Service recommends application of power line designs such as those in the Avian Power Line Interaction Committee's "Mitigating Bird Collisions with Power Lines: the State of the Art in 1994," or "Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 1996," prepared for the Edison Electric Institute/Raptor Research Foundation, Washington, D. C.

#### **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. The "Protection and Mitigation Plan" section of this review discusses this issue further.

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, there are no 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,** 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. These statements need to be modified since the major impacts on wildlife from the mine will be associated with operations.

**R645-301-333,** The wildlife education program needs to specifically include instructions to remove wildlife carcasses well off the road to avoid collisions with scavenging raptors.

**R645-301-333,** The applicant needs to make a definitive commitment regarding firearm and off road vehicle use in its area of control.

**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 effects on critical big game and other habitat and show how negative effects will be minimized. Wildlife Resources suggests the applicant install at least one artificial watering device, such as a guzzler, to benefit chukars in the area.

**R645-301-333**, The applicant has committed to consult with the Fish and Wildlife Service and Division of Wildlife Resources concerning the eagle nests near the proposed facilities. The application needs to contain the results of this consultation, including protection and mitigation plans.

**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 it appears the area near at least one nest would be subsided. The applicant needs to show how nests in the subsidence areas would be protected. Additionally, it is very difficult using the maps in the application to determine where nests are located in relation to the proposed mining activities, but this problem is addressed under R645-301-32 n this review.

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.

**Findings:**

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

**REVEGETATION**

Regulatory Reference: R645-301-341

**Analysis:**

**Revegetation Plan**

Table 3-3 in Chapter 3 is a general reclamation timetable, and an explanation of some terms is given in Appendix 5-8. This timetable shows phases of reclamation, and there are some problems that should be resolved.

1. It is not clear what "Lower Area 2" is.
2. A logical sequence would be to complete reclamation activities beginning at the top of the site and working down. According to Table 3-3, earthwork would be done first in the lower area then on the road and pad. With this sequence, it might be necessary to build an access road across the regraded area and to grade this area again.
3. It is not clear where and in what sequence seeding and mulching listed for September 1, 2025, and September 30, 2025, would occur.
4. Table 3-3 indicates seeding and mulching could begin as early as September 1, but seeding of most species should be delayed until as late in the fall as possible.
5. Blue grama and galleta are two of the dominant grasses, and they are both warm season grasses. Other mines have had a great deal of difficulty getting these species to be established on reclaimed sites, and this may be because they are often seeded in the fall. Mines in New Mexico and Arizona usually seed these species in the summer to take advantage of late summer rains. The applicant needs to show how warm season grasses will be established, and it is recommended these species be seeded in the summer with the rest of the seed mix being applied in the fall.

Following demolition, the area would be regraded to approximate original contour. Cut areas will be restored as yard fill is removed, and other areas will be backfilled and regraded using material from the adjacent pads. Fill will be placed in cuts in 18-24 inch lifts and compacted sufficiently to achieve structural stability. These areas will then be ripped 18 inches deep and disced. Topsoil will be redistributed in a uniform thickness of eight inches. According to Appendix 5-7, the refuse pile will be covered with 24 inches of subsoil before placing the eight inches of topsoil.

The topsoil redistribution plan is not adequate for reestablishing vegetation that meets the performance standards. The applicant proposes to distribute an average of eight inches of soil over the entire area at reclamation. Below this soil would be regraded fill.

There needs to be adequate topsoil and subsoil salvaged and protected to allow for revegetation to the performance standards in R645-301-350. Most species growing in the area need more than eight inches of growth medium to survive in this setting. The baseline soils information shows rooting depths of up to 48 inches. Deeper rooting depths are critical for continued water and nutrient extraction during periods of drought, and where less soil is available, productivity, density, and cover would be limited by these factors.

Any soils not salvaged and protected would be subject to contamination from mine operations, compaction, and mixing with unsuitable materials. Some of the deeper subsoils, below the roots, have very high (>65%) rock contents, and some are derived from marine shales that could severely limit vegetation establishment and growth. If these materials were in the rooting zone, it would be difficult or impossible to achieve revegetation success.

Surface preparation would include gouging to a depth of about eight inches. While this is a very desirable technique that has been used successfully at other Utah mines, the bottoms of the gouges would not have any topsoil if only eight inches of soil was put back.

Section 553.230 indicates only three inches of soil will be placed in some areas before being ripped and pocked. If three inches of soil was manipulated this much, it would be mixed in with the material below it to the point it would lose any value as topsoil. This plan is not acceptable.

Coal mine waste, including underground development waste, needs to be covered at least four feet deep with the best available nontoxic and noncombustible material unless physical and chemical analyses show revegetation success standards are met with less cover. To use coal mine waste as part of the four feet of cover, the applicant would need to demonstrate that this material is better as a growth medium than the subsoils on the site. Lacking physical and chemical analyses of the coal mine waste and lacking a demonstration that the coal mine waste is the best available growth medium, the applicant must show how these areas will be covered at least four feet deep with topsoil and subsoil.

Following topsoil redistribution, the soil will be tilled until the size of the average 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 surface preparation, seeding, and mulching plans are not consistent throughout the application and are not presented in a way that it is possible to discern exactly what the plan is.

1. Appendix 5-8 and Section 244.200 both discuss gouging, but Chapter 3 does not. The Division agrees gouging is a desirable technique that has worked well at other Utah mines and is probably essential for establishing vegetation at Lila Canyon, but it is not clear how gouging would relate to other surface preparation methods. Chapter 3 says the surface will be covered with 2000 pounds per acre of alfalfa or native grass hay that will be crimp disced into the soil. Chapter 3 also discusses ripping the soil 18 inches deep.

Crimp discing and ripping could be done before gouging but would reduce the effectiveness of the gouges if done afterward. Discing and ripping are probably unnecessary if the area is gouged. The applicant needs to clearly state the order in which these operations will occur.

2. Section 341.220 says the area will be either broadcast or drill seeded. Shrub species may be broadcast to avoid clogging the drill. Drill seeding is not compatible with gouging, and it also tends to favor grasses and decrease diversity. The revegetation section of Appendix 5-8 only mentions hydroseeding and does not mention drill seeding
3. Section 341.230 says straw mulch will be used on all inaccessible areas and that it will be anchored by crimping. If an area is inaccessible and would have straw applied, it would also be inaccessible to equipment needed to crimp the straw. 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. In addition, crimping, like drill seeding, is likely to reduce the effects of gouging. The applicant needs to clarify the mulching methods and rates. Chapter 3 says an optional mulching method would be to hydromulch with 2000 pounds per acre of wood fiber, and Appendix 5-8 discusses hydromulching with wood fiber but does not mention using straw. Section 244.200 says wood fiber mulch will be applied at a rate of 2000 pounds per acre, but it does not mention straw. The Division recommends applying straw at a rate of about 2000 pounds per acre followed by wood fiber hydromulch and tackifier to anchor the straw.

Section 244.200 discusses gouging and 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 application needs to indicate the measurements shown are minimum sizes rather than average or typical.

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 3-4/3.5. It consists of fifteen species, eleven of which are native to the area. The introduced species are yellow sweet clover, small burnet, prostrate kochia, and Russian wild rye.

The applicant needs to either justify these introduced species as being desirable and necessary to achieve the postmining land use or eliminate them from the seed mix. R645-301-353.120 says reestablished vegetation will be comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved postmining land use and approved by the Division. The Division feels these species are probably not necessary to achieve the postmining land use. While some of these species have been used at reclaimed coal mines, there have generally been specific reasons for doing so.

The previously-proposed seed mix included bluebunch wheatgrass, but this desirable native species has been eliminated from the mix. This species fills a niche similar to that of the less palatable Salina wild rye which is one of the dominant grasses at the site, and the Division recommends it be

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included in the mix.

Seed of blue grama is readily available commercially, and this species should be included in the mix.

The seeding rate shown in Table 3-4 is high, about 256 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.

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 Table 3-3. There are terms used in this schedule that are not explained elsewhere in the application. Also, it is not clear where and in what sequence seeding and mulching listed for September 1, 2025, and September 30, 2025, would occur.

**R645-301-341.110, R645-301-354**, Table 3-3 indicates seeding and mulching could begin as early as September 1. Seeding of most species should be delayed until as late in the fall as possible, preferably until November. Seeding of warm season grasses should be done in the summer.

**R645-301-341**, The applicant needs to show how sufficient quantities of soil will be salvaged and redistributed to allow achievement of the revegetation performance standards. The Division finds specifically that it is necessary to remove, stockpile, and redistribute subsoil to achieve revegetation success, and the plan proposed by the applicant would not allow for adequate vegetation establishment. Some of the deeper subsoils, below the roots, have very high rock contents, and some are derived from marine shales that could severely limit vegetation establishment and growth. If these materials were in the main rooting zone, it would be difficult or impossible to achieve revegetation success.

**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, Chapter 2, 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 and Chapter 2 discuss 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**, The application gives an approximate size for gouges, but the size shown is the minimum that should be used. The application should specify that the size shown will be the minimum size used.
- 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 is an important warm season grass in the proposed disturbed area, and it needs to be included in the seed mix for final reclamation. Bluebunch wheatgrass is approximately an ecological equivalent of Salina wild rye, the dominant grass at the site. It should also be included in the seed mix.
- R645-301-341.250**, The proposed seed mixture includes introduced species that may not be desirable and necessary for achieving the postmining land use. The applicant needs to either eliminate these species from the seed mix or justify using them.
- 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.

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**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.

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.

**RECOMMENDATIONS:**

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