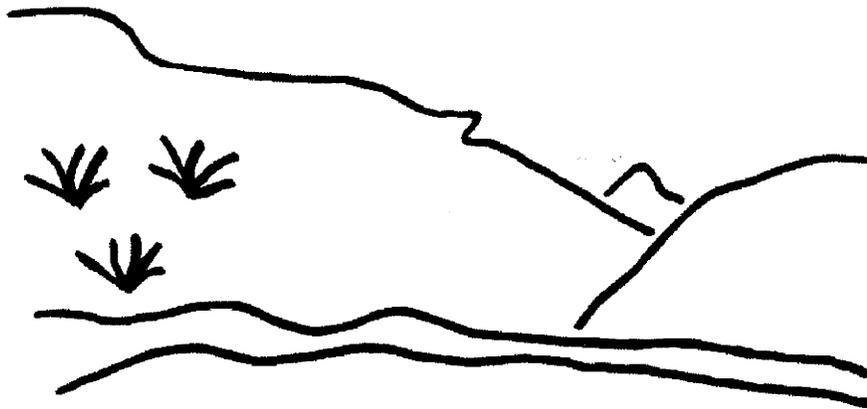


# State of Utah



## Utah Oil Gas and Mining

### Coal Regulatory Program

Horse Canyon Mine  
Lila Canyon Extension  
C/007/0013, Task #2304  
September 21, 2005

Mine #: C0070013  
File: Outgoing  
Record # 0020;  
0021; 0022; 0023;  
0024; 0025

Doc Date 9-21-05



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**TECHNICAL ANALYSIS DESCRIPTION**

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## **TECHNICAL ANALYSIS DESCRIPTION**

The Division ensures that coal mining and reclamation operations in the State of Utah are consistent with the Coal Mining Reclamation Act of 1979 (Utah Code Annotated 40-10) and the Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87). The Utah R645 Coal Mining Rules are the procedures to implement the Act. The Division reviews each permit or application for permit change, renewal, transfer, assignment, or sale of permit right for conformance to the R645-Coal Mining Rules. The Applicant/Permittee must comply with all the minimum regulatory requirements as established by the R645 Coal Mining Rules.

The regulatory requirements for obtaining a Utah Coal Mining Permit are included in the section headings of the Technical Analysis (TA) for reference. A complete and current copy of the coal rules can be found at <http://ogm.utah.gov>

The TA is organized into section headings following the organization of the R645-Coal Mining Rules. The Division analyzes each section and writes findings to indicate whether or not the application is in compliance with the requirements of that section of the R645-Coal Mining Rules.

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September 21, 2005

**TECHNICAL ANALYSIS DESCRIPTION**

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## INTRODUCTION

The Horse Canyon Mine is located in the Book Cliffs coalfield in Emery County, Utah near the towns of East Carbon and Sunnyside. The Division refers to the existing Horse Canyon Mine's Mining and Reclamation Plan (MRP) as Part A and to the Lila Canyon Extension application as MRP - Part B. The permit area of Part A is approximately 1,330 acres, and the permit area of Part B is approximately 4,700 acres for a total of 6,030 acres.

UtahAmerican Energy, Inc. (UEI, the Permittee) proposes to develop new surface facilities near the mouth of Lila Canyon in order to mine coal in six federal leases. The federal leases are contained within the "North Block Logical Mining Unit" as approved by the United States Bureau of Land Management (BLM) January 1, 1994.

The Cedar and Lila Point 7.5 Minute Quad maps, produced by the Geological Survey of the U.S. Department of the Interior (USGS, 1985) show the topography of Horse and Lila Canyons, located on the western slope of the vast and largely undeveloped Tavaputs Plateau. The proposed MRP - Part B permit area overlaps a small portion of the Turtle Canyon Wilderness Study Area (WSA), but the WSA does not include any of the disturbed area. The proposed Lila Canyon portal is five miles from State Highway 6 and is immediately adjacent to an unimproved road (Plate 1- 1).

Mention of previously identified wilderness inventory units has been removed from the MRP- Part B, subsequent to the April 2003 "Stipulation and Joint Motion to Enter Order Approving Settlement and To Dismiss the Third Amended And Supplemented Complaint" (2:96CV0870 B) in the United States District Court District of Utah, Central Division.

The permit application is a Significant Permit Revision, so publication of a notice for public comment is required. Because of the long time period between the Division's April 2003 TA and the Permittee's February 2004 response, the Division considered the permit application to be inactive and required the Permittee to publish again. Notice was printed in both the Sun Advocate and the Emery County Progress in April 2004.

Unless specifically stated, all references to sections and volumes in this Technical Analysis refer to the MRP-Part B.



## GENERAL CONTENTS

### IDENTIFICATION OF INTERESTS

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

#### Analysis:

The Permittee provided information in the MRP-B that complies with the requirements of R645-301-112 as described below.

MRP-B states that the Permittee (UtahAmerican Energy, Inc) is a corporation, qualified to do business in the state of Utah (R645-301-112.100). Coal Resources, Inc. is the 100% owner of UtahAmerican Energy, and their parent company is Murray Energy Corporation (Appendix 1-1).

Appendix 1-1 includes the names, telephone numbers, and addresses of the Permittee, Permittee's Resident Agent, parent corporation officers and directors, and the person who will pay the abandoned mine land reclamation fee. The information includes each person's title, and the date they assumed that position. MRP – Part B identifies the Permittee's employer identification number (EIN), and in the confidential binder, the social security numbers of key personnel of UEI and parent companies (R645-301-112.200 *et seq*). Mr. Robert D. Moore, Secretary of the Corporation certified that the information was complete and correct as of January 28, 2005.

The Permittee lists each additional name and identifying number, including employer identification number, Federal or State permit number, and MSHA number with date of issuance, under which the Permittee owns or controls, or previously owned or controlled, a coal mining and reclamation operation in the United States within five years preceding the date of the application in Section 112.340, and Appendix 1-2 of the MRP-B. In Section 112.350, the Permittee states, "There are no pending coal mine permit applications in any State in the United States (R645-301-112.300- *et seq*, R645-301-112.400- *et seq*).

The Permittee lists each legal owner of surface and mineral property in the permit area in Section 112.500; surface land ownership is shown on Plate 4-1, and mineral ownership is shown on Plate 5-4. Owners of adjacent property are listed in Section 112.600 (R645-301-112.500, 600).

The Permittee lists the MSHA numbers for the Horse Canyon and Lila Canyon Mines, as well as the proposed refuse pile, in Section 112.700 (R645-301-112.700).

After the Division approves the application but before issuing the permit, the Division will require the Permittee to update, correct, or indicate that the information submitted under R645-301-112.100 to R645-301-112.800 has not changed (R645-301-112.900).

**Findings:**

Information provided in the MRP-Part B meets the Identification of Interests requirements of the regulations.

**VIOLATION INFORMATION**

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

**Analysis:**

The Permittee has complied with the requirements of R645-301-113 and subsections as in Sec. 113.100-120 and Appendix 1-3. .

After the Division notifies the Permittee that they have approved the application but before they issue the permit, the Division will require the Permittee to update, correct, or indicate that the information submitted under R645-301-113 has not changed (R645-301-113- *et seq*).

**Findings:**

Information provided in the MRP-Part B meets the Violation Information requirements of the regulations.

**RIGHT OF ENTRY**

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

**Analysis:**

The Permittee has complied with the requirements of R645-301-114 and subsections as described below.

Right of entry is based on Federal Coal Leases held by the Permittee (Section 114.100 and Table 1-1). For surface access, the BLM signed a Decision Record for the Lila Canyon Mine Project on November 27, 2000 granting a right-of-way to UtahAmerican for the construction and operation of the Lila Canyon facilities. Though the case had been in litigation,

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**GENERAL CONTENTS**

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it is now resolved and the BLM is prepared to grant the right-of-way (see letter dated Jan 4, 2001 in Appendix 1-6).

There is no private mineral estate involved in the Lila Canyon Extension permit area (R645-301-114.200 *et seq*).

**Findings:**

Information provided in the MRP-Part B meets the Right of Entry requirements of the regulations.

**LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS**

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

**Analysis:**

The Permittee has complied with the requirements of R645-300-121.120, R645-300-141, and R645-301-112.800, and R645-301-115 as described below.

The plan includes a map (Plate 1-1) and description (see Public Notice, Appendix 1-5), which identify the location and boundaries of the proposed permit area and which are sufficient to enable local residents to readily identify the proposed permit area (R645-300-121.120).

The Permittee will conduct coal mining and reclamation operations only on those lands that:

- Are specifically designated as the permit area (on Plate 1-1, and in the Public Notice.)
- Are authorized for the term of the permit.
- Are subject to the performance bond or other equivalent guarantee in effect pursuant to R645-301-800. (R645-300-141)

The permit area does not include any lands designated as unsuitable for mining, or under study for designation as unsuitable for mining. There are no occupied dwellings within 300 feet of the Lila Canyon Mine, but there is a public road within 100 feet of the mining boundary. The Permittee has obtained permission from Emery County to mine within 100 feet of the road, as required by R645-103-234.100 (Appendix 1-4). Before construction of the mine may begin, the Permittee must also comply with the requirements of R645-103-234.200 through R645-103-234.300 and provide opportunity for a public hearing, this will be a condition to the permit (R645-301-115 *et seq*).

**Findings:**

The information found in the MRP-Part B meets the Legal Description and Status of Unsuitability Claims requirements of the regulations.

**PERMIT TERM**

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

**Analysis:**

The Permittee has complied with the requirements of R645-310-116 and subsections, as described below.

The MRP-Part B includes anticipated starting and termination dates for the life of the mine in Section 116. Construction will begin as soon as possible after:

- The Division issues the permit.
- The Secretary of the Interior issues mine plan approval.
- Public notice and an opportunity for a public comments and a hearing on the County Road.

The Permittee describes the disturbed acres in Table 4-2, and shows the permit area on Plate 1-1 and disturbed area on Plate 1-2.

The initial permit term is five years.

**Findings:**

Information provided in the MRP-Part B meets the Permit Term requirements of the regulations.

**PUBLIC NOTICE AND COMMENT**

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

**Analysis:**

The Permittee met the requirements of R645-300-120 and R645-301-117.200 as described below.

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The Permittee published public notices in the Sun Advocate (April 1, 8, 15, and 22, 2004), and the Emery County Progress (April 6, 13, 20, and 27, 2004), newspapers of general circulation in the Emery and Carbon County areas. A copy of the affidavit of publication is in Appendix 1-5.

The notice included the name and business address of the Permittee, a map and legal description of the permit area, the location where a copy of the application was available for inspection, and the name and address of the Division where public comments could be submitted.

There was no notice of the public road within 100 feet of the permit area. Before construction of the mine may begin, the Permittee must also comply with the requirements of R645-103-234.200 through R645-103-234.300 and provide opportunity for a public hearing. The Division will require this as a condition to the permit as described in "Legal Description and Status of Unsuitability Claims."

On March 29, 2004, the Division issued written notification indicating the Permittee's intention to conduct coal mining and reclamation operations within the described tract of land, the application number, the location where the copy of the application could be inspected, and the location where comments on the application may be submitted. The Division sent the notification to:

- All local governmental agencies with jurisdiction over or an interest in the area of the proposed coal mining and reclamation operation, including but not limited to planning agencies, sewage and water treatment authorities, water companies; and
- All federal and state governmental agencies with authority to issue permits and licenses applicable to the proposed coal mining and reclamation operation and which are part of the permit coordinating process developed in accordance with the State Program, Section 503(a)(6) or Section 504(h) of P.L. 95-87, or 30 CFR 733.12; including the Natural Resource Conservation Service district office, the local U.S. Army Corps of Engineers district engineer, state and federal fish and wildlife agencies, and Utah State Historic Preservation Officer and Water Users.

**Findings:**

Information provided in the MRP-Part B meets the Public Notice and Comment requirements of the Regulations.

**FILING FEE**

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

**Analysis:**

The Permittee paid the required permit fee.

**Findings:**

Information provided in the MRP-Part B meets the Filing Fee requirements of the regulations.

## PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

**Analysis:**

*Naming Convention - Item 1*

The Permittee, and others, refer to the Lila Canyon expansion as the MRP - Part B or the Lila Canyon Mine or the Lila Canyon Extension of the Horse Canyon Mine or the Lila Canyon Extension or Lila Extension.

The Division has chosen to refer to the Horse Canyon Mine - Lila Canyon Extension proposal as “MRP - Part B.” **Unless specifically stated, all references to sections and volumes in this Technical Analysis refer to the MRP – Part B.**

The MRP - Part B amendment is an addition to the existing C/007/0013 permit. Although MRP - Part B is largely a stand-alone document, there are baseline data and current legal/financial information in the Horse Canyon Mine MRP (hereafter referred to as Part A) that are relevant to MRP - Part B. There are two separate water-monitoring plans, one in Part A and one in MRP - Part B. There are two Probable Hydrologic Consequence (PHC) discussions, one in Part A and another in MRP - Part B, which utilizes data from Part A.

*Naming Convention -Item 2*

Various terms for coal mine waste used in MRP-B can be confusing. By the definitions found in the R645 Rules (R645-100-200), coal-processing waste and underground-development waste - which is excavated rock from underground mine workings - are coal mine waste. Coal mine waste deposited on the surface forms a refuse pile.

MRP-B distinguishes a sub-category of coal mine waste: slope-rock waste, or “rock-slope material/ mine development waste,” which is the coal mine waste to be produced by

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**GENERAL CONTENTS**

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construction of the entry slopes. This material will be basically free of coal, segregated from other waste in the refuse pile, and used as a base for construction of a shop-warehouse pad. The Permittee explains the terminology in Section 536 and in Appendix 5-7 of MRP- Part B. The Permittee has replaced the term "rock-slope material" with "rock-slope material/mine development waste" in some sections of MRP- Part B.

**Findings:**

The information found in the MRP - Part B meets the Permit Application Format and Contents requirements of the regulations.

**REPORTING OF TECHNICAL DATA**

Regulatory Reference: 30 CFR 777.13; R645-301-130.

**Analysis:**

The Permittee complies with the requirements of R645-301-130 by providing in Appendix 1-5 the names and qualifications of the individuals and organizations that collected and analyzed data. The individuals listed are professionals qualified in the respective subjects.

**Findings:**

Information provided in the MRP-Part B meets the Reporting of Technical Data requirements of the Regulations.

**MAPS AND PLANS**

Regulatory Reference: 30 CFR 777.14; R645-301-140.

**Analysis:**

The Permittee has complied with the requirements of R645-301-140 as described below.

All maps and plans that the Permittee submitted with the MRP-Part B comply with the scale and base information requirements of the regulations. Plate 5-1 shows the areas mined before and after August 3, 1977. There is no surface disturbance in the Lila Canyon Extension area.

**Findings:**

Information provided in the MRP-Part B meets the Maps and Plans requirements of the Regulations.

**COMPLETENESS**

Regulatory Reference: 30 CFR 777.15; R645-301-150.

**Analysis:**

The Permittee submitted a Permit Application Package (PAP) for the Lila Canyon Extension to the Division on February 24, 2004. The Division now refers to this PAP as the Lila Canyon MRP-Part B. The Division determined the MRP-Part B to be *administratively* complete on March 26, 2004. The Division found the MRP-Part B to meet the minimum *technical* requirements of the regulations on September 15, 2005. The *technical* adequacy of the MRP-Part B is the subject of this Technical Analysis (TA).

**Findings:**

Information provided in the MRP-Part B meets the Completeness requirements of the Regulations.

## **ENVIRONMENTAL RESOURCE INFORMATION**

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

### **GENERAL**

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

#### **Analysis:**

The Permittee met the requirements of this section of the TA by providing a general description of the existing, pre-mining environmental resources within the proposed permit area and adjacent areas in MRP - Part B as follows:

- The lands subject to surface coal mining operations and the size, sequence, and timing of mining (See Section 521 and Plate 1-1 and Plate 1-2).
- The nature of cultural historic and archeological resources listed or eligible for listing on the National Register of Historic Places and known archeological sites within the proposed permit and adjacent areas (Section 411.140).
- A description of the existing, pre-mining hydrologic resources within the permit area and adjacent areas (Section 720).

The Division comments on the resource information presented in the MRP- Part B under specific Environmental Resource Section headings of this TA.

The Horse Canyon Mine is on the western slope of the Tavaputs Plateau. in the Book Cliffs coalfield in Emery County, south of the towns of East Carbon and Sunnyside, Utah USGS 7.5' topographic quads Cedar and Lila Point cover the permit and adjacent areas. The proposed Lila Canyon Project facilities site is five miles east of State Highway 6.

#### **Findings:**

Information provided in the MRP-Part B meets the General Environmental Resource Information requirements of the Regulations.

### **PERMIT AREA**

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

**Analysis:**

The Permittee met the requirements of the regulations outlined in this section of the TA. Those rules require that the Permittee describe and identify the lands subject to surface coal mining operations over the estimated life of those operations and the size, sequence, and timing of the subareas for which it is anticipated that individual permits for mining will be sought.

The permit area is divided in two parts: the Horse Canyon Mine (Part A) and the Lila Canyon Extension (Part B). The Permittee shows the permit boundary on several maps including Plate 1-1, Permit Area Map.

Table 1-1 shows federal coal leases acreage. Table 4-2 breaks out the surface acreage of private, state and federal ownership within Parts A and B of the permit area. Table 4-2A breaks out the private, state and federal acres of coal ownership within Parts A and B of the permit area.

Plate 5-5, Mine Map, shows mining of reserves from 2005 to 2019, a 14-year life-of-mine. Table 3-3 shows that reclamation will begin in 2020.

The surface facilities for MRP- Part B Lila Canyon will be located in SE $\frac{1}{4}$ SW  $\frac{1}{4}$ , Sec 15, T.16 S., R.14 E. The area is located upon an alluvial/colluvial bench at an elevation of 5,800 to 6,500 ft., where the two forks of Lila Canyon converge. The perimeter of the disturbed area contains approximately 42.6 acres. The actual disturbance for construction of pads, silos, coal processing structures, and parking will take approximately 25.3 acres, leaving 17.3 acres of undisturbed islands within the disturbed area. The Permittee illustrates the disturbed area boundary on several maps including Plate 1-2, Disturbed Area Map.

**Findings:**

Information provided in the MRP-Part B meets the Permit Area requirements of the Regulations.

**HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION**

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

**Analysis:**

The MRP-Part B met the requirements of R645-301-411 pertaining to historic resources. The MRP Confidential Binder includes numerous evaluations of historic resources that focus on the permit area). The MRP also includes narrative and maps that describe or illustrate locations of historic resources within or adjacent to the permit area. The Permittee summarizes the results

**ENVIRONMENTAL RESOURCES INFORMATION**September 21, 2005

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of reports up to 2004 and provides details of historic properties within the area (Confidential Binder, App. 4-1). There is proof of coordination efforts with SHPO. The Division, in consultation with SHPO, considers that the Lila Canyon extension project will have “no effect” to historic resources.

Blaine Miller (1991) conducted a cultural resource inventory in T. 16 S., R. 14 E. (report number U-91BL-656). His results showed that 42EM2255 and 42EM2256 are eligible for listing in the NRHP. Currently, the MRP-Part B does not include a complete report. The Permittee could not locate the completed report because BLM or SHPO no longer have the report on file. Sites 42EM2255 and 42EM2256 are not near the surface disturbance area, but are within the 21.5-degree angle of draw for subsidence. The Division, under consultation with SHPO, determined that the Lila project will not likely affect 42EM2255 and 42EM2256.

The Division received comments that the Permittee must perform cultural surveys for all areas subject to subsidence. The regulations do not require historic resource surveys for all areas. The Permittee provided adequate historic resource surveys in the MRP-Part B.

There are no cemeteries in or within 100 feet of the MRP-Part B permit area, and it contains no units of the National System of Trails or Wild and Scenic Rivers system.

**Findings:**

Information provided in the MRP-Part B meets the Environmental -Historic and Archeological Resource Information requirements of the Regulations.

**CLIMATOLOGICAL RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.18; R645-301-724.

**Analysis:**

The Permittee complied with R645-301-724.400 by providing all required information regarding climatological factors that are representative of the proposed permit area. The data come from the National Weather Service’s cooperative weather station located in Sunnyside, Utah for the period 1971 to 2000. The information is found in Section 724.410 of the MRP - PART B.

**Findings:**

Information provided in the MRP-Part B meets the Climatological Resource Information section of the Regulations.

## **VEGETATION RESOURCE INFORMATION**

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

### **Analysis:**

The MRP-Part B met the requirements of R645-301-321 because there is adequate discussion of plant communities observed within the permit area. The MRP contains many supporting documents on vegetation for the permit area. Volume 2 (App. 3-1 and 3-2) contains vegetation surveys, vegetation maps, and productivity estimates of the main facilities area. The MRP also includes adequate vegetation analysis needed for assessing reclamation potential and success.

### **Findings:**

Information provided in the MRP-Part B meets the Environmental - Vegetation Resource Information requirements of the regulations.

## **FISH AND WILDLIFE RESOURCE INFORMATION**

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

### **Analysis:**

#### *GENERAL WILDLIFE*

The MRP-Part B met the requirements of R645-301-322 because there is adequate discussion, supporting documentation, or maps on fish and wildlife resources for the permit and adjacent areas (Vol. 2 App. 3-3 through 3-6).

The Division received comments that the MRP-Part B does not contain site-specific resource information, fails to address high value wildlife habitats, and lacks sufficient information to design the protection plan. The Division, in consultation with DWR and BLM, determined the level of detail required for wildlife information. The agencies declined to require additional monitoring of the wildlife species. However, the agencies agreed that the Permittee should:

- Survey all seeps and springs (including descriptions of riparian habitat, seep and spring vegetation, and amphibians).
- Monitor south canyon water source(s) i.e., Stinky Springs.
- Calculate water consumption.

### *Ungulates*

The MRP-Part B includes wildlife information in Sec. 322.220 and the wildlife map (Plate 3-1). Plate 3-1 shows habitat within the Lila permit area for Rocky Mountain bighorn sheep, elk, and mule deer. Plate 3-1 shows habitat within the surface facilities area for Rocky Mountain bighorn sheep and yearlong habitat for mule deer. A large area adjacent to the permit boundary is yearlong habitat for pronghorn. DWR, USFWS, and BLM developed a mitigation plan to offset impacts to bighorn sheep as well as mule deer, elk, and chukars (see details in Operations).

There are big horn sheep in Lila Canyon and in an unnamed canyon located in the southwest corner of the permit area. The seeps in the unnamed canyon are significant water sources for the sheep. The Permittee agreed to monitor two of the springs (L-16-G and L-17-G) on a quarterly basis beginning the second quarter of 2002. The hydrology database provides data for these springs. The Permittee also moved the permit boundary further north to avoid these springs.

### *Amphibians and Reptiles*

The PHC (App. 7-7) mentions that Permittee has not observed amphibians while water monitoring. The Division may reassess the need to monitor wildlife species during mining operations as conditions change or new information becomes available.

### *Game Birds, Migratory Birds, and Raptors*

The Division, in consultation with DWR, requires the Permittee to conduct raptor surveys at least two years immediately prior to and one year following facilities construction. To help protect raptors and their nest from mining operations, including subsidence, the Permittee will conduct yearly fly-over raptor surveys starting in 2005. The Permittee will refer to the mining map overlaid with potential cliff habitat (Plates 5-3 and 5-5). Premining surveys will provide baseline and post-disturbance data sufficient to update the protection and enhancement plan as operations change.

Five Golden eagle nests are within the 0.5-mile (2640') buffer zone for the surface facility area. Raptor surveys over the course of five years, beginning in 1998, showed that eagles have not used or tended these five nests since 1999. DWR stated that one possible reason for the low nesting activity over these past few years is drought.

Information from DWR shows that chukars rely heavily on water sources up Lila Canyon. DWR mentioned that mining operations near the mouth of the canyon would affect these birds. DWR, USFWS, and BLM developed a mitigation plan to offset impacts to chukars as well as to bighorn sheep, mule deer, and elk (see details in Operations of this TA).

*THREATENED, ENDANGERED, AND SENSITIVE ANIMAL/PLANT SPECIES (TES)*

The MRP-Part B met the requirements of R645-301-322 because there is adequate discussion, supporting documentation, and maps on TES species that could occur within or adjacent to the permit area. The Division, in consultation with USFWS, considers that the Lila Canyon extension project “is not likely to adversely affect” the Mexican spotted owl or its critical habitat. Furthermore, the agencies are in agreement that there will be “no effect” on the other threatened or endangered species that could occur within or adjacent to the permit area.

Appendices for Chap. 3 include the following wildlife and TES-related resources: USFWS TES list, nine separate TES surveys (1999 - 2002), DWR raptor surveys, and ‘Fauna of Southeastern Utah and Life Requisites Regarding Their Ecosystems’ (reference only).

The MRP-Part B includes a 2004 TES list as well as an overview of habitat and occurrence data for all the TES species in Emery County (App. 3-3). The Permittee mentions that the Colorado River cutthroat trout is a Conservation species. Documents in App. 3.3 show that there are no known occurrences of TES species, but there may be suitable habitat for certain species.

*TES Plants*

Mel Coonrod surveyed for many TES plant species (May 1999, August 2000, April 2002, May 2002). The observations for individuals were positive only for canyon sweetvetch.

Mr. Coonrod (Biological Assessment 2000) stated that there is suitable habitat for San Rafael cactus (Despain footcactus), Winkler cactus, and Wright fishhook cactus within the permit area. The Utah Heritage Program (DWR), however, considers that there is very little chance that any of these three TES species could occur near the Lila mine. The Division does not impose further requirement at this time to conduct field surveys for these species.

The Division, in consultation with DWR and BLM, determined that the Lila Canyon extension project has potential habitat for the Cliff’s blazing star, canyon sweetvetch, and creutzfeldt-flower (all BLM candidate and sensitive species). The Permittee will survey these species either the year construction begins or one year prior to construction (Sec. 321.100)

The areas with most potential for Cliff’s blazing star and creutzfeldt-flower include the surface facilities area and north of the pediment (Section 15). If the results are positive for these species, the Permittee must immediately submit a protection/mitigation plan. The Permittee must implement the plan prior to disturbance.

Mr. Coonrod (1999) recommended monitoring for canyon sweetvetch. The best time to identify this species is in middle June to early July (depending on drought conditions). The areas to survey canyon sweetvetch include the surface facilities area and south of the pediment (Sec.

21). The Permittee will also survey this species at least the year construction begins or one year prior to construction.

TES Animals: Mexican Spotted Owl (MSO)

Appendix 3-4 includes the letter “Summary of Mexican Spotted Owl Habitat Survey Within the Lila Canyon Coal Lease Area”, which summarizes the Willey MSO report (2002) and provides an action plan for MSO. The Willey study showed there is suitable MSO habitat within the Lila Canyon permit area. In the action plan and Sec. 333, the Permittee agrees to conduct “formal” MSO calling surveys of specific areas described by two conditions: 1) the areas are identified by the 2000 model and supported by the Willey flyover results and 2) the areas are classified as subsidence zones.

The ground-truthing survey for MSO habitat is normally recommended prior to the calling survey for birds. DWR, nevertheless, considers the Willey flyover as an adequate substitute for a ground-truthing survey for habitat. The Permittee is responsible for conducting the calling survey two years prior to the subsidence zone or surface disturbance reaching potential MSO habitat. The Permittee and Division must be aware of mine progression in relationship to MSO habitat locations, therefore, the MRP-Part-B provides a mine map overlain with potential MSO habitat (Plates 5-3 Lila Confidential Binder).

**Findings:**

Information provided in the MRP-Part B meets the Environmental - Fish and Wildlife Resource Information requirements of the Regulations.

**SOILS RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

**Analysis:**

The MRP- Part B met the requirements for soil survey and characterization. The Permittee discusses soil resources in Chapter 2, Sections 210 through 224 of the MRP- Part B.

The Soil Survey is found in Section 3.2 of Appendix 2-3. The survey contains soil descriptions, soil pedon descriptions, a soil-salvage suitability analysis, laboratory soil testing data, field soil profile-descriptions, soil and landscape photographs, a soil map, and a salvageable-soils map. All mapping and soil survey work was conducted in accordance with the standards of the NRCS’s National Cooperative Soil Survey.

*Soil Identification and Description, and Productivity*

The predominant soil classification is Strych fine sandy loam. From the soil description sheets in Appendix 2-3 and Plate 2-2, Detailed Soils Map of the Mine Facilities Site, the Division notes that the canyon bench holds deep colluvial soils, stabilized from wind erosion by a surface layer of biological soil crusts, dried plant litter, boulders and live plant cover. The topsoil (A-horizon layer) varies from three to 26 inches deep due to position on the slope. The B-horizon stretches from 31 – 60 inches in the profile and is a zone of carbonate accumulation. Sandstone bedrock underlies the soils, except at the location of the fan portal where shale and burned coal cover the sandstone rock layer. Surface soils are subject to extremes of temperature (Sec 3.2, Appendix 2-3).

The disturbed area vegetation is primarily pinyon-juniper and grass-shrub communities (Plate 3-2). In good years, the grass-shrub can be expected to produce 600 – 800 lbs/acre. However, recent estimations place the disturbed area productivity at 350 lbs/acre and the grass/shrub reference area at 450 lbs/ac due to drought (see Appendix 3-2 letters dated 1998 and 2003).

*Soil Characterization*

Soil pedon descriptions on standard NRCS forms are provided in Appendix D within Appendix 2-3. Soil horizons were sampled and analyzed according to Division guidelines for topsoil and overburden. Table 3.21 in Appendix 2-3 provides generalized soil properties, including percent surface stones and boulders. Soil sampling locations are shown on Plate 2-2, Detailed Soils Map of the Mine Facilities Site. Intermountain Laboratories, Inc analyzed the soil samples. Laboratory data sheets are found in Appendix C of Appendix 2-3.

Appendix 2-3 contains soil macronutrient status information analyzed by BYU Soil and Plant Analysis Laboratory May 1, 2003, providing a reference for comparison with the nutrient content of the redistributed topsoil at final reclamation.

Since the A horizon is less than six inches deep, the topsoil recovered will be a mix of both the A and B horizon soils, in accordance with R645-301-232.200. Depths of salvage range from 6 to 18 inches over the site (see Available Soil Resources table in Section 232.100). A calcic horizon was verified in soil pedons LC1, LC5 and LC6 which will provide a marker for soil salvage depth. The percent rock content within the proposed facilities area is high according to the 1988 Division guidelines, however it is not a deterrent to soil salvage. Large stones, 36 inches or less, are considered part of the soil layer and are included in the topsoil volume estimates.

**Findings:**

Information provided in the MRP-Part B meets the Environmental Soils Resource Information requirements of the Regulations.

**LAND-USE RESOURCE INFORMATION**

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

**Analysis:**

The information provided in the MRP Parts A and B fulfills the land use resource information requirements. Chapter X, Section 10.3 of the MRP Part A describes pre-mining land use by wildlife and for access to grazing allotments.

In Sec. 410 and 411 of the MRP Part B, pre-mining land use description include wildlife habitat, grazing, recreation and mining. Grazing allotments are listed in Table 4-3 and allotment boundaries are shown on Plate 4-2. Water rights (including those for stock watering) are tabulated in Table 7-2 and illustrated on Plate 7-3.

Lila Canyon is zoned M & G – 1 for mining and grazing (Sec. 411.130). In March 1999, the Emery County Board of Commissioners approved a “Large Scale Industrial Site Plan for the Lila Canyon Operation” (App. 4-2 letter dated June 4, 1999).

Lila Canyon is within an area identified by the BLM as the Range Valley Mountain Habitat Management Plan Area (Chap. 4). A habitat management plan was adopted in 1991 to provide management of wildlife and for access management. The Habitat Management Plan Area and wildlife habitat are shown on Plate 3-1.

Plate 4-4 indicates that the permit area boundary overlaps areas of Turtle Canyon Wilderness Study Area (WSA).

Lease readjustment for U-0126942 restricts surface occupancy in Turtle Canyon. The lease readjustment can be modified if it interferes with the lessee’s right to explore, access, and extract the coal resource, because the lease is a valid existing right.

Exploration and mining activity has previously occurred in Lila Canyon (Sec. 411.200, App. 5-4, Plates 5-1 and 6-2 and Plate II-2, MRP Part A). County Road 126 into Lila Canyon was built in the 1950's to provide access for coal exploration.

**Findings:**

Information provided in the MRP-Part B meets the Land Use Resource Information requirements of the regulations.

**ALLUVIAL VALLEY FLOORS**

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

**Analysis:****Alluvial Valley Floor Determination**

The information provided in Chapters 2, 6, and 7 of the MRP-B is adequate for the Division to determine that there is no probable existence of an alluvial valley floor.

This section summarizes the land use, soil, plants, geology, surface- and ground-water information reviewed by the Division in making the findings required under R645-302-320.

The Lila Canyon Extension is in the western Book Cliffs escarpment. Numerous small seeps and springs exist within and adjacent to the permit area (Sec. 731.220). Steeply dipping joints transmit ground water from the surface (Sec. 6.5.3.5) as illustrated in Fig. VI-5. The surface expressions of the faulting are grabens and draws. The general strike of the beds in the permit area "B" is N22°W with dip 10 to 14 % towards the east (Plates 6-1 through 6-4 and 7-1-B and Sec. 6.4.2).

Water inflow from the Geneva Tunnels is anticipated (Sec. 6.6.1). Water inflows associated with fault or fracture systems are possible, but not expected to be significant. The Sunnyside Sandstone Member of the Blackhawk Formation contains the two coal seams of interest: Upper Sunnyside and Lower Sunnyside Seams. The sandstone beneath the Lower Sunnyside coal seam is considered to be a zone of ground-water accumulation (Sec. 6.4.1). Historical records for the Geneva Mine (now known as the Horse Canyon Mine) indicate that the mine was dry until the Sunnyside Fault was intercepted. This suggests that as mining progresses down dip, "substantial" water may be encountered, but this water will be isolated from the surface recharge zone (Sec. 6.6.3.1) and indications are that the Sunnyside Fault will not be encountered within the Lila Canyon Extension (Sec. 6.5.3.3).

The Mancos Shale forms the slopes below the base of the Book Cliffs, overlain in places by pediment deposits (Sec. 6.4.1 and Plate 6-1). In the permit area, drainages flow in response to snow melt and precipitation events (Sec. 731.220 and Plate 7-1). Grassy Wash receives the Lila Canyon and Right Fork of Lila Wash drainages. Grassy Wash and Marsh Flat Wash collect the flow from the Mancos slopes further south. Little Park Wash channels the flow on the plateau above. There is no valley holding a perennial stream in the permit area (Sec. 724.700).

Order III soil survey (Plate 2-1) indicates that the soils on the plateau in Little Park Wash are Neto Fine Sandy Loam (Section 220.200). This soil is comparable to the Glenberg soil described in the published Carbon County Soil Survey, according to Leland Sasser, Soil Scientist and Survey Project Leader with the NRCS, Price Field Office, Utah (consultation June 5, 2001). Plate 3-2, Vegetation indicates that the dominant species growing on the plateau in the vicinity of Little Park Wash are Atriplex, Artemesia and Elymus, none of which are wetland species.

Little Park Wash falls within the Little Park grazing allotment (Plate 4-2). The land use is unimproved rangeland and wildlife habitat. There is no farming activity upstream or downstream of the permit area, therefore, the proposed operations will not interrupt, discontinue, or preclude farming on an alluvial valley floor. Based on the information provided in the plan, in accordance with R645-302-321.100, the Division determines that there is no probable existence of an alluvial valley floor.

**Findings:**

Information provided in the MRP-Part B meets the Alluvial Valley Floor requirements of the regulations. There is no probable existence of an alluvial valley floor in the permit area.

**PRIME FARMLAND**

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

**Analysis:**

The Natural Resources Conservation Service (NRCS) determined in 1998 that there are no prime farmlands at the proposed disturbed site (see App. 2-1).

**Findings:**

Information provided in the MRP-Part B meets the Prime Farmlands requirements of the regulations. There are no prime farmlands at the proposed disturbed site.

**GEOLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

**Analysis:**

The Permittee has complied with the requirements of R645-301-610 and 620. Geology information for the Lila Canyon Extension permit and adjacent areas, including stratigraphy and structure, is presented in Chap 6, Horse Canyon Mine - Part B - Lila Canyon Mine

Geologic maps and cross sections met the requirements of R645-301-622. Plate 6-1 shows surface outcrops of the formations - including unconsolidated deposits, faults, and current water monitoring locations. Plate 6-2 identifies locations of outcrop measurements, faults, elevations and locations of test borings and core samplings, and depth to coal. Plate 6-3 shows coal thickness isopachs. Plate 6-4 illustrates overburden thickness isopachs and structural contours for the coal seam. Copies of several borehole logs are in Appendix 6-1. The borehole logs show lithologic characteristics and thickness of overlying and underlying strata and coal or rider seams above the seam to be mined. In addition to the boreholes, coal seams and adjacent strata were measured at 17 outcrop locations in 1974 and 1975. Lithology and thickness of the coal seams and adjacent strata are shown on the measured sections and drill logs in Appendix 6-1 and on Plate 6-5. Jay Marshall, a Utah Registered Professional Engineer (#152606) certified all geological maps.

Plates 7-1, 7-1A, and 7-1 B also show elevations and locations of test borings and core samplings, the depth and thickness of the coal seam, coal crop lines, and the strike and dip of the coal to be mined. There are no gas or oil wells in the permit or adjacent areas.

Resource maps and plans and site specific information are based on published geologic information, mine plans from the nearby Sunnyside and South Lease areas, and exploration and drilling records of Kaiser Steel, U. S. Steel Corporation, and Intermountain Power Agency (IPA). Published sources of geologic information are listed in the Bibliographies in Chap 6 and 7.

The Sunnyside Fault, other faults, the elevation of the Horse Canyon Mine workings, and potentiometric information relevant to understanding the saturated strata of the Blackhawk Formation are discussed in Sec 724.100 and shown on Plate 7-1. The lithology creates two separate groundwater zones, an upper perched zone and a deep saturated zone.

Sufficiently detailed geologic information has been collected within and adjacent to the permit area to assist in determining all potentially acid- or toxic-forming strata. A discussion of potentially acid- and toxic-forming strata is in Sec 6.5.5.1; this discussion is based on information from other mine operations in the area and information detailed in Appendices 6-1 and 6-2. The disturbed area will be subjected to neither opencast mining nor subsidence, and geologic information is sufficient to determine whether reclamation can be accomplished.

Sufficient geologic information has been collected within and adjacent to the permit area to assist in preparing the subsidence control plan. Sec 6.4.1 and Plates 6-3 and 6-4 describe the

depth of cover, seam thickness and elevation, and lithology of overlaying strata that affect the likelihood or extent of subsidence and potential subsidence-related damage. Plates 5-1 and 5-5 indicate existing and projected underground workings. Plate 5-3 shows the location and extent of areas in which planned subsidence might occur and the locations of water rights and water-monitoring points.

Secs. 6.3 - 6.5 include descriptions of the regional and structural geology and other parameters that could influence reclamation, down to the coal seam to be mined and underlying strata, of the permit and adjacent areas. These descriptions are based on geologic maps and cross-sections (Plates 6-1 through 6-4, 7-1, 7-1A, and 7-1 B), borehole logs and exploration and drilling records (Appendix 6-1), measured sections (Plate 6-5), chemical analyses that include both total and pyritic sulfur (Appendix 6-2), published geologic information, and mine plans from the nearby Sunnyside and South Lease areas.

Water level data for piezometers IPA-1, IPA-2, and IPA-3 are tabulated in Appendix 7-1 and mapped on Plate 7-1 and Figure 7-1. Appendix 6-1 contains drill logs, water pump tests, and water analysis data for S-32. Locations of the Horse Canyon water-supply well and the Minerals Development Corporation (MDC) Well are on Plate 7-1, and they are discussed in Sec 724.100.

The Division received comments that effects of faults on movement of ground water are ignored, especially in the "regional aquifer". Faults in the Horse Canyon Mine - Part B area are discussed in Sec 6.5.3.3. Regional and structural geologic information is correlated to the occurrence, availability, movement, quantity and quality of potentially impacted surface and ground water in Sec. 724 and Appendix 7-3. Water entered the Horse Canyon Mine in large amounts only when the Sunnyside Fault was intercepted in deeper, down-dip areas (Sec 6.4.1). Lila Canyon extension development is planned so as to avoid the Sunnyside Fault, which is thought to lie east of the Lila Canyon workings (Sec 6.5.3.3), and Plates 6-1 and 6-2 project the Sunnyside Fault as dying-out near the northeast corner of the Lila Canyon extension.

Thickness and engineering properties of strata immediately above and below the coal seam are discussed in Sec 6.5.5 and tabulated in Table 6-6. The Division has not required collection, analysis, or description of additional geologic information.

The Division received comments that analyses for acid- or toxic- forming materials from test borings or drill cores in the strata above and below the coal seam to be mined was not done. Drill-logs in Appendix 6-1 note the presence of visible pyrite, indicating acid-forming potential in strata above and below the Sunnyside Seam. Appendix 6-2 includes analysis of roof, coal, and floor material from the Sunnyside Coal Seam from the IPA boreholes. Also in Appendix 6-2 is the report prepared by ACZ Inc (Steamboat Springs, Colorado) for Kaiser Coal Co. in 1983. The strata above and below the Sunnyside Seam were sampled in boreholes S-24 and S-25, located south of the MRP - Part B area (Plate 6-2). As discussed in the report, samples displayed no acid-forming potential based on total sulfur. The report also provides information on total

metals extracted using EP-Toxicity procedures and saturated paste extractions for calculation of SAR. The Division concludes from this report that key parameters to monitor in the rock slope development waste will be hot water soluble boron and SAR.

As explained in Sec 6.5.5.1 and Appendix 5-7, the Lila Canyon extension refuse pile differs from that at Sunnyside in several ways that will preclude the events that caused acid-drainage at Sunnyside. Infiltration of water into the pile will be minimized by diverting water around the site, placing the waste in an excavated depression, compacting and burying the waste, and establishing drainage off and away from the covered pile (Sec 731.121, Appendix 5-7). Periodic sampling of the materials placed in the refuse pile will provide monitoring of the coal-mine waste characteristics in the pile (Appendix 5-7).

Appendix 6-2 contains a request for exemption from R645-301-624.300 (letter dated April 22, 2002). As authorized under R645-301-626, the Division is waiving additional collection and analyses of logs and samples from test borings or drill cores in the coal seam and the strata immediately above and below the coal seam. The Division finds that the collection and analysis of additional data from test borings or drill cores is unnecessary because information having equal value or effect is available to the Division in a satisfactory form. This information includes the plans and designs for the construction, operation and reclamation of the refuse pile, information from a number of sources on the soils, geology, hydrology and climate of the area, and the Permittee's commitment to analyze coal-mine waste for acid- and toxic-forming properties. Information from additional test borings or drill cores would not serve to further reduce potential impacts. This waiver applies to the initial Horse Canyon - Part B – Lila Canyon Mine extension amendment only and does not preclude the Division from requiring such information in the future.

The Division does not require the analysis of pyritic sulfur in the coal seam unless the maximum potential acidity from total sulfur exceeds safe limits (see the Division's 1988 Soil and Overburden Guidelines). This recommendation remains a valuable tool in assessing the degree of hazard and will not be waived; the Permittee has been required to analyze coal and waste removed from the mine for total and pyritic sulfur.

#### *Geology and Probable Hydrologic Consequences (PHC)*

The Division received comments that there is not sufficient resource information to allow determination of the Probable Hydrologic Consequences (PHC). There was particular concern that there is not sufficient resource information for Range Creek drainage to evaluate the potential for adverse impacts. The geologic map and cross-section on Plates 7-1A and 7-1 B now include Range Creek drainage. The geology of the Range Creek drainage, particularly as it relates to the Lila Canyon extension, is discussed in Chap 7 and the PHC (Appendix 7-3).

The Permittee has complied with the requirements of R645-301-630. The subsidence-monitoring plan is in Sec 525.440; subsidence-monitoring points are shown on Plate 5-3. The

Lila Canyon Mine will use planned subsidence (Sec 525.460). An outcrop barrier of coal will be left to protect the escarpments at the outcrop, and only first mining will be allowed within 200 ft of the outcrop (Sec 525.453). Sec 525.452 describes other areas where special measures will be taken to prevent, control, or minimize subsidence and potential subsidence-related damage. There will be no backstowing or backfilling of voids to control subsidence, and no measures will be taken on the surface to prevent damage or loss of value (Secs 525.451 and 525.454). Sec 728.200 states that subsidence effects are expected to be minimal due to the amount of cover and massive rock strata between the mining level and the surface.

The Permittee has complied with the requirements of R645-301-640. The method used by other Permittees to seal the exploration boreholes with cement is briefly described on logs in Appendix 6-1. The IPA piezometers are secured and temporarily sealed with locking caps, as shown in the photos in Appendix 7-8. Shafts, drifts, adits, tunnels, exploratory holes, entryways or other opening to the surface from the underground will be capped, sealed, backfilled or otherwise properly managed consistent with MSHA, 30 CFR 75.1771 (Sec 513.500). IPA-1, IPA-2 and IPA-3 and any future wells or piezometers will be reclaimed according to the Division's Performance Standards (Sec 765); however, no additional drilling is planned (Sec 755).

**Findings:**

Information provided in the MRP-Part B meets the Geologic Resource Information requirements of the regulations and is sufficient to assist in preparing the CHIA.

**HYDROLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

**Analysis:****General Information**

The Permittee has supplied sufficient information in the MRP-Part B to address the requirements of the regulations pertaining to hydrology. The following paragraphs support why the Division considers that the Permittee addressed the regulations. Chapter 7 presents surface-water information for undisturbed and disturbed drainage areas. The Permittee conducted surveys of the stream channels to characterize channel reaches according to stream type, i.e., perennial, intermittent or ephemeral, and to establish the monitoring frequency or demonstrate factors required under Rule R645-301-724.200. Water emanating from a spring but remaining on the surface after some distance was classified as surface flow. Appendix 7-7 presents the stream channel characterizations for the Lila Extension, based on channel composition and biologic (plant and aquatic) communities present, as well as the classifications established in the

definitions under R645-301-100. This Appendix includes photographs of stream channel monitoring sites. The information presented demonstrates that stream channels are ephemeral.

Table 7-3, Sec. 731.220 describes quarterly monitoring of the ephemeral channels for water quality. Plate 7-4 and Table 7-3 show surface water monitoring site locations within the permit area. Appendix 7-1 provides baseline monitoring-data for these sites. Water quality and flow data have been collected at most of the sites since 2000, and at all of the sites since June 2002. (For electronic version of the data see Division's Coal Mining Water Quality Database, <http://linux1.ogm.utah.gov/cgi-bin/appx-ogm.cgi>).

Flow data show that the channels are dry most of the time except near springs and during and immediately after a precipitation event. This supports the Permittee's stream channel study conclusion that channel reaches are ephemeral. Where there are springs in the channels, the flow usually travels down the channel 50 to 200 ft before it infiltrates into the gravels and sands of the channel. Each flow event in an ephemeral channel is separate and distinct. The stream flow is directly proportional to the amount of precipitation or snow-melt runoff, and the water quality varies greatly depending on the amount of flow. There are no specified water uses for the stream flow.

Appendix 7-7 describes Stinky Spring Wash. This area drains southward through the permit area.

### **Sampling and Analysis**

Section 723 of the MRP – Part B indicates water quality analysis required by rule will be conducted according to the methodology in the current edition of "Standard Methods for the Examination of Water and Wastewater" or the methodology in 40 CFR Parts 136 and 434. Analysis reports in Appendices 7-2 and 7-6 and the Division's database met this standard.

### **Baseline Information**

#### *Ground-water Information*

Plate 7-1 provides names and locations of seeps, springs, wells, and piezometers. Section 724.100 describes baseline water-quantity, seasonal flow rates, and usage. Water-rights information is in Table 7-2 and locations are shown on Plate 7-3. Appendices 7-1, 7-2, and 7-6 (and the Division's database) provide baseline water-quality data. Depth to the water in the coal seam and adjacent strata is shown on Plate 7-1 and discussed in Sec. 724 of the MRP – Part B, Mine Inflow Information.

The Division received comments that extrapolation of the potentiometric surface on Plate 7-1 ignored faults, ignored the car rotary dump, ignored the most recent data, and covered an

unacceptably large area based on just three closely spaced data points. In spite of these limitations, the information provided met the requirements of R645-301-724.100 because the potentiometric surface and the projected water-coal contact on Plate 7-1 provide a reasonable approximation of the depth to water in the coal seam and in water-bearing strata above and potentially impacted strata below the coal seam.

As part of the post-mining land use change approved by the Division on January 6, 2004, the Horse Canyon Well, located near the main Horse Canyon surface facilities, is to be transferred to CEU as a potential source of culinary water for University of Utah's science field camp (Sections 731.400 and 724.100). There are no plans to transfer any other wells (Sec. 731.400).

### *Regional Aquifer*

The Division received the following comments concerning ground water and the existence of a regional aquifer:

- The regional aquifer is not described;
- There is no information on the discharge area and discharge rates for the regional aquifer; and
- The Permittee has not established that the saturated zone is not an aquifer.

The BLM's July 2000 EA of the Lila Canyon Project labels the "coal formation" of the Blackhawk Formation as a regional aquifer, and mentions springs issuing from the Blackhawk at lower elevations within the canyons. However, the 1985 survey of the Horse Canyon area by JBR and the 1993 - 1995 survey of the area around Lila Canyon by EarthFax did not identify any seeps or springs issuing from strata below the upper Price River Formation (Plate 7-1A).

Previously unknown seeps, which flow near the top of the Mancos Shale, were found in an unnamed intermittent drainage at the southwest corner of the Lila Canyon extension in 2000. The Permittee initiated monitoring of these seeps (L-16-G and L-17-G), named Stinky Springs, in 2002. These seeps are not a water supply and have limited use, but they appear to be an important source of water for Bighorn sheep, specifically in the early spring. Because Stinky Springs are below the coal seam, subsidence should not impact these springs, but recharge or flow to these seeps could be interrupted. The MRP presents evidence that flow to these springs is most likely through a local system confined to the Central Graben. Water chemistry is consistent with waters from the Mancos Shale in the Book Cliffs (Sec. 724.100, Mancos Shale). Plate 7-1 shows these seeps could be related to the Graben Fault, and descriptions in Appendix 7-3 associate these seeps with the graben, although not directly with the fault zones.

The IPA piezometers were completed within the Sunnyside Sandstone, the basal member of the Blackhawk Formation and the first formation with identifiable water below the coal seam (Sec. 724.100, Blackhawk Formation).

*Lines' model applied to Range Creek*

The Division received comments that the block-diagram in Figure 8 of Lines, 1985, "The Ground-Water System and Possible Effects of Underground Coal Mining in the Trail Mountain area, Central Utah," (USGS Water-Supply Paper 2259) supports the hypothesis that there is discharge to Range Creek from a regional aquifer and is a model for interaction between the Lila Canyon Mine area and Range Creek, also that it indicates that mining at Lila Canyon will disrupt flow in Range Creek. The Division does not dispute that the study by Lines provides valuable, although generalized, insight into ground-water systems in the Wasatch Plateau, specifically in the Trail Mountain area. However, the situation illustrated in Lines' block-diagram does not adequately or realistically represent the hydrogeologic relationship between the Lila Canyon area and Range Creek for at least two important reasons, which are discussed in Sec 724.200 (Permit Area Surface Water Resources) in the MRP.

- Vertical separation. Range Creek has not eroded through the Colton Formation in the areas nearest the Lila Canyon Extension, and along its entire course, Range Creek has not eroded deeper than the upper Price River Formation, leaving a thick section of low-permeability rock that vertically isolates the creek from the projected saturated zone in the lower Blackhawk Formation and Star Point Sandstone. (Lines' model shows a stream that has eroded through the saturated lower Blackhawk Formation and into the Star Point Sandstone and receives gravity-driven baseflow directly from a regional water table.) In addition, in the reaches nearest Lila Canyon, Range Creek is significantly higher in elevation than the potentiometric surface, as illustrated on Plate 7-1B.
- Horizontal separation. Lines' block-diagram has no scale, but proximity of the stream to the impacted saturated strata is apparent, i.e., they are in direct contact. In contrast, the shortest distance between the planned Lila Canyon Mine workings and Range Creek is approximately four miles.

*Mine Inflow*

A large section of the Horse Canyon Mine is below the potentiometric surface indicated on Plate 7-1. In-mine flows in the Horse Canyon Mine were monitored for quantity and quality at several locations, which are shown on Plate 7-1. Only when the mine intercepted the Sunnyside Fault in deeper, down-dip areas was significant water encountered. The estimated average discharge rate was 0.2 cfs, but there was no estimate of in-mine consumption (Sec.

724.100). The Division specified a maximum discharge rate of 500 gpm (1.1 cfs) be used in developing the MRP– Part B (Sec. 724.100, Mine Inflow Information).

*Baseline Data Adequacy*

The Division received comments that the MRP- Part B contains numerous water samples from the mined area of the Horse Canyon Mine that do not represent pre-mining conditions; the JBR data are not pre-mining, and the JBR data provide no baseline for the permit area. The Division considers the JBR and EarthFax data, and other data dating back to at least 1978, to be valid pre-disturbance, pre-mining baseline in relation to the Lila Canyon extension and as an important part of the required description of the existing, pre-mining hydrologic resources of the permit and adjacent areas. The JBR and EarthFax data alone are not sufficient baseline data, but they are a useful and valid part of the baseline data.

The Division received comments that there are no baseline ground-water monitoring data on the springs to be monitored and that water-elevation data from the IPA piezometers are sporadic – not adequate baseline information. In addition to data collected between 1978 and 1996, the Permittee submitted at least two years of quarterly baseline data from the springs, streams, and piezometers. Data from October 2002 and earlier are provided in the permit application. Subsequent data have been submitted directly to the Division’s coal database. As of the second quarter of 2004, the Permittee stopped collecting water samples from the Lila Canyon extension. The Permittee will recommence water sampling upon approval of the Lila Canyon Extension (E-mail from Jay Marshall to Pam Grubaugh-Littig, October 25, 2004).

The Division received comments that IPA-1, -2, and -3 are the only potential source of information on water quality in the saturated zone. Sampling of water specifically from the IPA piezometers is not necessary to satisfy the requirements of the Coal Mining Rules. There is information on ground-water quality and quantity in the analyses of in-mine flows at the Horse Canyon Mine. There are also data from S-32, located to the south. Water-quality information in the MRP-Part B adequately describes the quality of the ground water in the lower zone in the Lila Canyon Extension.

The Division received comments that the Permittee had not described seasonal variation in ground water – especially with maps or cross sections in compliance with R645 Rules R645-301-722.100. The Permittee is in compliance with the rule. Water levels for the IPA piezometers are tabulated in Appendix 7-1. Water levels have varied through time, but the data do not show distinct seasonal variation. Nevertheless, the Permittee has mapped a set of spring and fall water-level elevation contours on Figure 7-2A, which serve to emphasize the minor seasonal effect. Figure 7-2B graphically shows the temporal variations. Seasonal variation in springs is documented in App. 7-1, 7-2, and 7-6 and in data submitted to the Division’s database: maps and cross sections are not amenable to showing the seasonal variation of these flows.

*Monitoring - Inside vs. Outside the Permit Area Boundary*

The Division received comments that an insufficient number of seeps and springs are being monitored, and that the majority are outside the permit area. The number of springs monitored on one side or the other of the permit area boundary is not relevant: the R645 Rules require baseline and operational monitoring of both the permit area and adjacent areas and protection of hydrologic resources both inside and outside the permit area. The Permittee developed an adequate monitoring plan.

The Division received comments that 14 EarthFax data monitoring points are within the permit area, but data were collected for only one. During the EarthFax water monitoring survey of 1993 – 1995, data were collected for all fourteen seeps and springs located inside the permit boundary (documented in Appendix 7-1), but not every site had flow sufficient to obtain valid water-quality samples. Many of the 14 locations referred to were no more than wet spots some years, and were dry other years. Where flow was sufficient and consistent, water-quality analyses were done for sites representative of water rights and ground-water discharge.

*Ground-water Emergence Zones – Groups of Springs and Seeps*

The Division received comments that baseline data need to be collected at all springs and seeps, irrespective of use, location, flow, and other existing information about the site and the impact potential. The R645 Rules require a description of the ground-water hydrologic resources: location; extent; ownership; seasonal quantity and quality; discharge, depth, or usage; and additional information deemed necessary and required by the Division. Baseline data meeting this description are in Appendices 7-1, 7-2, and 7-6 and in the Division's water quality database.

The data collected by EarthFax during the 1993-1995 survey were representative of the groups of springs and seeps in the respective ground-water discharge zones. Springs selected by the Permittee for operational monitoring typically have baseline water-quantity and -quality data from the EarthFax survey, have been developed for use by the water right holder, and have the greatest or most consistent flow of the group (Sec. 731.211). At sites that have been selected for operational monitoring, monitoring was resumed in 2001: data are in the Division's database. Additional, detailed investigation of every point source and every aspect of every component of the hydrologic resources is not needed to minimize impacts or to comply with the R645 Rules.

The Division received comments that seeps and springs cannot be treated as systems or groups. – each source is a separate resource as regards hydrology, wildlife, and vegetation. The survey results from 1993, 1994, and 1995 in App. 7-5 document the seasonal, ephemeral nature of individual discharge locations within a ground-water discharge zone or area: discharge appeared at new, previously dry locations and diminished at some older sites during the three years the EarthFax survey was in progress, which is a typical pattern documented throughout the

Book Cliffs and Wasatch Plateau coalfields and many other locations. This is because systems, rather than discrete points, are involved.

The Division received comments that L-6-G is adjacent to the Horse Canyon Mine and is not a useful monitoring point. L-6-G has provided pre-disturbance, pre-mining baseline groundwater information in relation to the Lila Canyon extension and contributes to the required description of the existing, pre-mining hydrologic resources for the permit and adjacent areas. Because L-6-G has been frequently dry, L-11-G, located approximately 100 yards upstream of L-6-G and representative of the same ground-water emergence zone, was added to the monitoring plan in 2001, and L-6-G was dropped from the monitoring plan in 2003.

#### *Surface Water Information*

Locations and names of streams and seeps and springs are shown on Plate 7-1 and they are described in Sec. 724.200. The Right Fork of Lila Wash diversion and the BLM stockwatering pond (located roughly 2 miles downstream from the disturbed area) are discussed in App. 7-9, and locations are shown on Fig. 1. The Right Fork of Lila Wash is shown on several maps, notably Plate 7-1. Discharge from the sedimentation pond will enter the Right Fork; mine-water discharge, if any, will also go to the Right Fork. There are no lakes or impoundments, other than stock-watering troughs associated with water rights, in the permit or adjacent areas.

#### **Surface Water Information**

The Permittee has submitted information to describe the surface water resources. Surface water flow for the permit area can be divided into disturbed and undisturbed drainages. They are discussed separately below.

#### *Undisturbed Drainage*

Plate 7-3 shows the surface water resources on and adjacent to the mine. Figure 1, (App. 7-7) highlights the channels with drainages that are larger than 1 square mile and will be undermined. Tables 1 and 2 summarize the reaches according to total length, length in ephemeral and perennial feet, gradient, flora, fauna, use and effects from mining. Plate 5-5 shows the stream channels and areas to be mined. Subsidence is not considered surface disturbance (April 27, 1999, U.S. District Court of Appeals for District of Columbia decision). The Permittee does not have to demarcate areas that will be mined within 100 feet of a stream where no surface disturbance will take place.

The Permittee describes surface water in Sec. 722.200 of the MRP-Part B. A review of the surface water data in Appendix 7-1 and in the Division's Coal Water Quality Database substantiates that the channels on the permit area are dry during most of the year. Monitoring

has not detected flow in the channels near the proposed mine site, or the channel of Little Park Wash in the mountainous region above the mine

Range Creek Canyon lies to the east of the permit area. Surface flows in Range Creek will not be undermined.

The Permittee describes the regional surface-water flow pattern of the permit and adjacent areas in Sec. 724.200 of the MRP-Part B. The locations of known seeps, springs, and watering ponds are shown on Plate 7-1 and descriptions and photographs of the monitoring sites are provided in App. 7-8. All drainages on the proposed permit eventually flow to the Price River drainage. The Permittee has conducted surveys of these streams to assess their characteristics. (Appendix 7-7 of the MRP-Part B) and concludes that all of the stream channels on the permit area are ephemeral, except where some low flowing seeps and springs provide flow in the channels for short distances. Most of those springs are part of the water-monitoring program.

The Horse Canyon Creek drainage is adjacent to the Lila Canyon permit area, however the area of Horse Canyon that lies closest to the Lila Canyon permit area has already been undermined by the Horse Canyon Mine and will not be impacted from the Lila Canyon Mine. Most of the area above the Lila Canyon Wash drainage has been undermined. No additional mining will take place in those areas, Plates 5-1 and 5-3. The Permittee has collected surface water resource information on Lila Canyon Wash and the Right Fork of Lila Wash (see App. 7-1). The Permittee states that the major portion of Lila Canyon drainage is normally dry, flowing only in response to precipitation runoff or snowmelt. The upper portion of Lila Canyon (above the mountain road) contains some springs that flow during the springtime. The Horse Canyon mine has undermined these springs. The upper part of the Right Fork of Lila Wash will be undermined. No impacts are expected to take place in the Right Fork of Lila Canyon, because no springs exist in the canyon and it is completely ephemeral.

Little Park Wash and its tributaries drain most of the surface above the mine site. The Permittee has assessed the characteristics for these stream channels and summarized their reaches in Fig. 1 (App. 7-7). The Permittee shows the relationship of the Little Park Wash and tributaries to mining on Plate 5-3. Spring sites are shown on Plate 7-1 and 7-1A. Geologic information shows that most of the springs of the Little Park Wash drainage are located near the contact of the undifferentiated Flagstaff/ North Horn Formation and Colton Formation. The information presented by the Permittee shows the likelihood of mining impacts to these springs appears to be low, because they fall outside the area of influence from mining, that is, the subsidence area. In addition, there are some 600-2,300 ft of rock strata between the coal seam to be mined and the springs. This set of environmental conditions will help prevent impacts to the springs and sources from mining operations.

The Permittee has assessed the stream characteristics for Stinky Springs Wash (App. 7-7 and 7-9 of the MRP-Part B). The Permittee has assessed the channel and made a conclusion that

it is ephemeral. Mining should not impact the springs, because, as shown on Plate 5-3, the springs are below the coal seam in elevation and mining will not take place near the springs.

#### *Disturbed Drainage*

The Permittee will control disturbed area drainage by using silt fencing, culverts, ditches, and a sedimentation pond to contain and control sediment on the disturbed area and prevent downstream contamination.

The Division received comments that downstream impacts could occur to the Price River if the UPDES sites discharge in large quantities. The Permittee looked at both the possibility of the discharge reaching the Price River, and whether a flow will cause negative impacts to the channel (App. 7-9). The Permittee calculated the flow distance from the sedimentation pond would be under 4 miles, using 500-gpm as a model parameter. The Division requested the Permittee to use this very conservative 500 –gpm rate based on information from other mines in the area (Soldier Canyon, Sunnyside, West Ridge, and Dugout Canyon) that have generally recorded mine discharges of less than 200 gpm.

The Permittee used the methods found in the US Soil Conservation Service's (SCS, now Natural Resource Conservation Service, NRCS) National Engineering Handbook (NEH, 1985) to determine how far the 500-gpm flow would reach. NRCS soil maps were used to model soil types in the channel at various reaches. The calculations revealed that the flow would only reach 3.4 miles downstream from the mine. The Price River is 9.5 miles from the mine.

The Permittee also concluded that there would be no impacts to the geomorphology of the wash, since the 500-gpm value is much less than the calculated 2-year flood of 16,600 gpm.

The Permittee states in the PHC App. 7-3, MRP-Part B (Flooding and Streamflow Alteration), that following reclamation, stream channels altered by the mining operation will be returned to a stable state. Channels will be designed to safely pass the peak flow resulting from a 100 year-6 hour precipitation event.

Baseline water-quality data in App. 7-1, 7-2, and 7-6 and in the Division's water quality database include information on total suspended solids, total dissolved solids or specific conductance corrected to 25°C, pH, total iron, total manganese, and alkalinity, although some parameters may be missing for specific samples. Limited acidity information is found in App. 7-2 and the database, but acid drainage is not anticipated as a problem because of the carbonaceous nature of the strata (Secs. 6.5.2 and 6.5.5.1; App. 7-3, Acid- or toxic-Forming Materials). Baseline water-quantity descriptions include information on seasonal flow rates. Water-rights information is in Table 7-2 and locations are shown on Plate 7-3.

The Division received comments that seasonal variation of Lila Canyon and Little Park Wash must be shown, and that remote samplers and crest-stage gauges should be used to monitor

the intermittent channels. The next two paragraphs provide how the Permittee met the regulations and provide the Division's response concerning this comment.

The sedimentation pond and bypass culvert are to be built in the Right Fork of Lila Wash, and the section of the Right Fork above these structures is, by definition and function, an ephemeral drainage. Channels that drain more than one square mile, even though they have ephemeral flow, are included in the intermittent stream definition in the Coal Mining Rules because potential flood volumes can necessitate application of the stream-channel diversion criteria of the coal mining rules. Classification of streams is to be made at the time of permit application, based on collected data and probable conditions, which help eliminate skewing by data from unusually wet or dry periods (Fed. Reg., vol. 44, no. 50, p. 14932). No facilities or diversions are planned for intermittent drainages at the Lila Canyon extension. Because of the ephemeral nature of these drainages, their probable condition is dry with occasional flow during spring snowmelt and summer thundershowers, with no aquatic biological community.

Information on water quality and time and magnitude of flow in these drainages is not needed to design, operate, or reclaim the mine, minimize disturbance to the hydrologic balance, or otherwise meet requirements of the R645 Rules. The Division has concluded that requiring remote samplers and crest-stage gauges in the intermittent channels of the Lila Canyon extension would not provide information relevant to meeting the requirements of the R645 Rules, preventing or mitigating off-site impacts, facilitating reclamation, or otherwise protecting the hydrologic balance and environment.

#### *Supplemental Information*

If ongoing technical analyses indicate the need for further supplemental information, the Division will require the Permittee to provide it.

#### **Baseline Cumulative Impact Area Information**

Information needed to meet the regulatory requirements of R645-301-725 is available from federal, state, and a number of other sources. The Permittee is not required to provide data specifically for the CHIA determination but may gather and submit such information. The Division is not limited to information in the MRP in preparing the CHIA; however, data in the both Parts A and B of the Horse Canyon Mine MRP have been used in preparation of the CHIA.

#### **Modeling**

Runoff flows from some disturbed area drainage areas were calculated using Storm (Version 6.20), a program used to calculate runoff flows from disturbed areas based on the SCS-TR55 Method for Type II storms. In Sec. 726 of the MRP-Part B, the Permittee proposes to

model the potential impacts from mine water discharge prior to mining. They have already done this modeling, and they have submitted it in Appendix 7-9.

### **Alternative Water Source Information**

The Permittee conducted a water rights search for a mile outside the Lila Canyon permit area. They show the locations of those water rights on Plate 7-3, and provide descriptions of the rights in Table 7-2. The Permittee indicates that they own the rights to approximately 1.5 cfs in the area, and if any adverse effects on other water resources result from the operation, the Permittee may replace State appropriated waters from their own water rights. Other options for water replacement are identified in Sec. 727. The Permittee has committed to include: sealing of cracks, piping, trucking water in, or constructing wells if impacts occur.

### **Probable Hydrologic Consequences Determination**

The Horse Canyon Mine PHC determination is in Sec. 6.7 of MRP-Part A. The PHC determination for the Lila Canyon extension is in App. 7-3 of MRP-Part B and discussed in Sec. 728. The Lila Canyon extension PHC determination is based on baseline hydrologic and geologic information collected for the permit extension application, baseline and operational information from the Horse Canyon Mine, and similar information from other mines in the area, including information on quality and quantity of surface and ground water under seasonal flow conditions. Hydrologic resources that might be impacted at the Lila Canyon extension are identified. The springs and stream channels being monitored in the Lila Canyon extension area are discussed in the MRP-Part B. In preparing the PHC determination in MRP-Part B, the Permittee used information from the Columbia and Horse Canyon Mines along with baseline data collected for the Lila Canyon extension.

The PHC determination is submitted in App. 7-3 and contains information describing the potential of impacts from mining. Probable impacts include acid and toxic material contamination, potential decrease in spring and stream flows from subsidence, potential increases in stream flow, water quality degradation and stream channel changes.

The Permittee has addressed these potential impacts in the PHC. The Permittee points out that contamination from acid and toxic materials is unlikely, because the rock and soils surrounding the minesite are carbonaceous; meaning they contain carbonate, a buffering material that neutralizes acids. The Permittee states in Sec. 731.311, MRP-Part B, that any acid or toxic-forming materials will be identified by sampling and analysis of underground development waste generated from mining. Any acid or toxic material found will be properly stored, protected from runoff, and buried in an approved site beneath 4 feet of non-acid, non-toxic material. A Spill Prevention and Control Plan will be implemented to safely store acid and toxic forming materials, such as fuel, oils and solvents, and non-coal waste. All water discharged from the

minesite will have to meet water quality standards and UPDES limits. The UPDES limits are shown in Table 7-4.

The Permittee discusses the potential of contamination of total suspended solids and total dissolved solids (TDS). Data presented in Apps. 7-1 and 7-6 and summarized in Sec. 724.100 of the MRP-Part B indicate that these constituents could increase as a result of disturbance, however sediment control structures and monitoring plans have been put into place to mitigate these impacts. The impacts will be minimal as a result of mine water discharge to receiving streams.

Other potential impacts include the displacement of fines on the channel bottom, and minor widening of the channel. The report in App. 7-9 indicates that the maximum anticipated mine water discharge (500 gpm) is approximately 3% of the 2-year flood of 16,600 gpm. Therefore, natural flows in the channel would be more likely to cause changes to the channel than any mine water discharge.

The Permittee address potential impacts to stream channels from subsidence in Sec. 525, MRP-Part B. The Permittee states that no impacts are expected, since most of the areas of the stream channels lie above extensive stratigraphic cover, most over 1000 feet. Some surface expressions of tension cracks, fissures or sinkholes may be experienced, however the Permittee has committed to mitigate any of those impacts. The Permittee has established a subsidence-monitoring plan. The Permittee provided the sequence and timing of mining in Secs. 522 and 523, MRP-Part B. Plate 5-5 depicts the underground workings and areas where first mining will take place to make sure subsidence stays within the permit boundary, and that escarpments, protected wildlife species and drainages are not harmed. The Permittee proposes to monitor areas as mine workings are conducted to identify any impacts. In Section 525.440 the Permittee presents the subsidence-monitoring plan. In Sec. 525.120 and 525.500, MRP-Part B the Permittee describes how any potential impacts will be mitigated. Dirt roads above the mine and stream channel areas experiencing damage will be repaired by regrading and filling of any sinkholes, fissures or cracks. Most of the springs in the vicinity of the mine are outside the permit area or have more than 1000 feet of strata between them and the coal seam. Any spring or stream flow that is interrupted will be will be mitigated. The Permittee commits to provide mitigation or replacement of any state appropriated waters (Secs. 525.480 and 727).

The PHC, App. 7-3, identifies that there will be no impacts to Range Creek, because it lies outside the influence of mining and is several miles away. The overlying strata (above the coal seam) is very thick (2000+ feet)' in the eastern part of the permit area. There are several hundred feet of strata containing shale, siltstone and mudstones, which prevent vertical migration and interconnection of mine water with any surface waters in the vicinity of Range Creek. Range Creek and its tributaries lie outside the influence of subsidence. Resources in the Range Creek drainage should not sustain any impacts from subsidence related activity.

Comments received by the Division expressed concerns that baseline data are inadequate to prepare the PHC determination and that potential adverse impacts to a regional aquifer and Range Creek have not been addressed in the PHC determination. Information on geology and hydrology is adequate to prepare the PHC. R645-301-728.300 of the Rules requires that the MRP contain specific findings. The Lila Canyon extension PHC makes determinations on:

*728.310. Whether adverse impacts may occur to the hydrologic balance;*

Maps and cross-sections that include the Range Creek drainage have been added to the MRP, and a discussion of the Range Creek drainage has been added to Sec 724.200 and Appendix 7-3, Potential for Decreased Spring and Stream Flows, to help clarify in the public record why regional impacts, particularly adverse impacts to Range Creek drainage, are not expected.

Based on available data and expected mining conditions, the proposed mining and reclamation operation is not expected to proximately result in contamination, diminution or interruption of an underground or surface source of water, within the proposed permit or adjacent areas, which is used for domestic, agricultural, industrial, wildlife or other legitimate purpose (Appendix 7-3, Conclusion).

*728.320. Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface- or ground-water supplies;*

Rocks of the Mesaverde Group are carbonaceous, so persistence of acids and acid-related toxins is unlikely. The refuse pile is designed to handle potentially acid- or toxic-forming materials brought to the surface and to minimize the formation of acid- or toxic- forming drainage. Based on the hydrology, geology, and climate of the area and the design of the refuse pile, acid or toxic impacts from materials removed from the mine or from mine water discharge are unlikely (Appendix 7-3, **Acid- or Toxic- Forming Materials**).

*728.330. What impact the proposed coal mining and reclamation operation will have on:*

*728.331. Sediment yield from the disturbed area;*

Sediment control structures at the new mine site will be constructed to minimize impacts and according to the methodologies and specifications in in the Sediment Control Plan, Appendix 7-4. Temporary sediment controls will be used whenever possible to lessen the impact of construction activities (Appendix 7-3, **Sediment Yield**).

*728.332. Acidity, total suspended and dissolved solids and other important water quality parameters of local impact;*

Information on acid-and toxic-forming materials is presented in Sec 6.5.5.1. Based upon the hydrology, geology, and climate of the area and the refuse pile design, the probability of acid

or toxic impacts from materials removed from the mine or from mine water discharge is unlikely (Appendix 7, **Acid- or Toxic- Forming Materials**). Sedimentation ponds and other sedimentation control measures will be installed to minimize any increase in sediment in the surface waters downstream from disturbed areas (Appendix 7, **Sediment Yield**). Based on water-quality data in Appendices 7-1 and 7-6 [and the Division's database] and experience at the Horse Canyon Mine, potential impacts on TDS concentrations do not appear to be a significant concern. Although TDS in water discharged from the mine may be higher than the Class 4 standard of 1,200 mg/L, it will be similar to the TDS concentration of other waters used for irrigation downstream (Appendix 7-3, **Acidity, Total Suspended Solids, and Total Dissolved Solids**). Water will be sampled prior to discharge to ensure compliance with UPDES standards (Sec 728.333 (2)).

*728.333. Flooding or streamflow alteration;*

Appendix 7-9 includes characterization of the Right Fork of Lila Wash that is based on determination of water table elevations in the alluvium and descriptions of biologic communities. Photographs provide a visual record of pre-disturbance conditions. Sedimentation pond design is in Appendix 7-4. The sedimentation pond will discharge into the Right Fork of Lila Canyon; mine-water discharge, if any, will also go to the Right Fork. As summarized by the Permittee in Appendix 7-3, **Flooding and Streamflow Alteration**, the pond has been designed and will be built to be geotechnically stable, minimizing the potential for breaches that could cause downstream flooding. Flow routing through the sedimentation pond and other sediment-control devices will reduce peak flows from the disturbed areas, decreasing the potential for flooding in downstream areas. By retaining sediment on site in the sediment-control devices, the stream bottom elevations of the Right Fork of Lila Wash downstream from the disturbed area will not be artificially raised and the hydraulic capacity of the stream channel will not be altered.

*Flooding from mine discharge*

Potential impacts from mine-water discharge into the Right Fork drainage are identified in the PHC. They include the displacement of fines on the channel bottom and widening of the channel. Steady discharge would likely result in additional streambank vegetation, which would reduce the potential for channel widening (Appendix 7-3, **Flooding or Streamflow Alteration**). The PHC states that it is expected that downstream impacts from pumping water from the mine will be very similar to those experienced in the adjacent Horse Canyon Mine (Appendix 7-3, Potential for Increased Stream Flows), although pre-mining data are not available for Horse Canyon. The MRP contains a commitment to evaluate morphology and erosion impacts before water is discharged and at least quarterly during pumping to determine if any stream channel alteration will occur (Sec 728.333 (3)) and to take remedial action if needed (Sec 728.333 (4)).

Because of infiltration, diversion to a stockwatering pond, and evapotranspiration, mine discharge is expected to flow less than 4 miles down the Right Fork channel (Appendix 7-9). Flooding in the downstream channel is unlikely because the maximum expected mine discharge

of 500 gpm (1.1 cfs) is significantly below the anticipated 2-year flood of 37 cfs (Appendix 7-9). The calculated runoff for the 10-yr, 6-hr peak flow, based on information in Appendix 7-4 (Tables 4 and 5), is 31.05 cfs, so expected discharge is well below expected flood levels.

There should be no natural discharge of ground water from any portal, active or reclaimed, of either the Horse Canyon or Lila Canyon Mine because of the elevation of the portals relative to the saturated zones, as illustrated on Figure 7-1. The portals will be sealed once mining ceases. As a precaution, the Permittee will incorporate standpipes into the grading plans for the sealed portals at the Lila Canyon extension so that water levels can be checked annually (Appendix 7-3, **Flooding or Streamflow Alteration**).

*Flooding from runoff*

Interim sediment-control measures and maintenance of the reclaimed areas during the postmining period will preclude deposition of significant amounts of sediment downstream (Appendix 7-3, **Flooding or Streamflow Alteration**). Plans for reclamation hydrology are in part 4 of Appendix 7-4.

On the other hand, reducing the amount of sediment while the sediment carrying capacity remains the same can result in increased streambed and stream bank erosion. This could happen if the flow released to the stream remained the same; however, the sediment control structures also reduce the peak flow from the site and therefore, correspondingly, the sediment carrying capacity of the stream. Controlled release also aids in the development of vegetation that can stabilize the channel banks and bed (Appendix 7-3, **Sediment Yield**).

All diversions at this mine are designed to be temporary (Sec 761). There are no diversions planned for perennial or intermittent streams (742.320). Diversions of miscellaneous flows are designed to safely pass the peak runoff of a 2-year, 6-hour precipitation event. Reclamation channels have been designed to safely pass the peak flow from a 10-year, 6-hour or 100-year, 6-hour precipitation event, as appropriate for temporary or permanent diversions (Appendix 7-3, **Flooding or Streamflow Alteration**). These designs meet the standards for diversion of perennial or intermittent streams in R645-301-742.323. Methods, parameters, and calculations are detailed in Appendix 7-4, which was prepared by a registered professional engineer.

*728.334. Ground-water and surface-water availability;*

The MRP includes information on water rights in and within one mile of the permit area. Water rights are identified in Sec 645-301-727 and Table 7-2. The locations of those rights are shown on Plate 7-3. The Permittee commits to repair or replace any state-appropriated water supply damaged by mining operations: methods are given in Sec 727.

It is unlikely that alternative water supplies will be needed, as most springs are upstream of the permit area or are in areas where subsidence from post-1977 mining is not documented or expected. No known depletion of flow and quality of surveyed springs exists in the Horse Canyon mine permit area and the Permittee expects none in the Lila Canyon extension (Appendix 7-3, Potential for Decreased Spring and Stream Flows).

Range Creek is the perennial stream closest to the Horse Canyon Mine – Lila Canyon extension. The Lila Canyon extension does not present any Probable Hydrologic Consequences to Range Creek and associated water rights (Appendix 7-3, Potential for Decreased Spring and Stream Flows).

According to the USFWS, water consumption by underground coal mining operations could adversely modify critical habitat and jeopardize the continued existence of several endangered fish species in the Colorado River Basin. Projected losses total 74 acre-ft/year, which is below the USFWS mitigation level of 100 acre-ft/year, so water consumption by the Lila Canyon underground coal mining operation will not jeopardize the existence of or adversely modify the critical habitat of the Colorado River endangered fish species (Appendix 7-3, **Water Consumption**).

*728.335. Other characteristics as required by the Division;*

Comments have been received that the impacts of increased salinity from the solution of salts from the Mancos Shale are not evaluated. Appendix 7-9 includes a calculation of how far mine discharge of 500 gpm would be expected to flow. Because of infiltration, evapotranspiration, and diversion to a stock pond, the mine discharge is not expected to reach the Price River. The Division required the evaluation be done for 500 gpm of flow, which is considerably larger than expected flows.

*728.340. NA*

*728.350. Whether the UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES conducted after October 24, 1992 may result in contamination, diminution or interruption of State-appropriated Water in existence within the proposed permit or adjacent areas at the time the application is submitted.*

State appropriated waters in and adjacent to the proposed permit area are identified in Table 7-2. The PHC determination is that it is unlikely contamination, diminution or interruption of any water resources will occur within the permit or adjacent areas. Diminution of flow due to past mining is not indicated by sampling results in Appendices 7-1 and 7-2, (Appendix 7-3, Potential for Decreased Spring and Stream Flows).

It is unlikely an alternative water supply will be needed, but commits to replace or repair, as soon as practical, any state-appropriated water supply damaged by mining operations (Sec 727).

**Findings:**

Information provided in the MRP-Part B meets the Hydrologic Resource Information requirements of the regulations.

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

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

**Analysis:**

**Affected Area Boundary Maps**

The Permittee met the requirements of this section of the R645 – Rules. Those rules require that a Permittee include a map that shows the boundaries of all areas proposed to be affected over the estimated total life of the underground mining activities, with a description of size, sequence, and timing of the mining of subareas for which it is anticipated that additional permits will be sought. The affected area boundaries are shown on several maps including Map 1-1, Permit Area Map.

**Archeological Site Maps**

The MRP-Part B met the requirements of R645-301-411.141 because there are archeological maps showing known resource locations within the permit area (Confidential Binder).

**Coal Resource and Geologic Information Maps**

Depth to the Sunnyside Seam, the seam to be mined, is shown on the Cover and Structure Map on Plate 6-4. Thickness of the Sunnyside Seam is shown on the Coal Thickness Isopach map on Plate 6-3. Thickness and nature of the Sunnyside Seam, of coal or rider seams above the Sunnyside Seam, and of the stratum immediately below the Sunnyside Seam are shown on the Coal Sections on Plate 6-5. Elevation contours on the Sunnyside Seam as determined from the outcrop and bore holes are on Plate 6-4.

Plate 6-1 shows surface geology, including coal crop lines, within the proposed permit area and adjacent area. Strike and dip of the Hiawatha Coal Seam are indicated by structural contour lines on Plates 7-1 and 6-4.

Plate 7-1A shows the geology of a larger area, including the Range Creek drainage; along with location of surface- and ground-water monitoring points in and adjacent to the Horse Canyon Mine and Lila Canyon Extension permit area. The cross section on Figure 7-1 (Volume 7) shows the rock tunnels, the dip of the strata, stratigraphy, and expected ground-water elevation. Plate 7-1B shows the geologic cross section extending from Lila Canyon to Range Creek, including a projection of the water level indicated in the IPA piezometers. Figures VI-1 and VI-2 portray the general stratigraphy of the permit and adjacent areas.

Fault locations and offsets are shown on Plate 6-1 and discussed in the text. Fault traces are not always visible at the surface, and fault locations on Plates 6-1 and 6-2 are also based on exposures at the outcrop, faults encountered in the Geneva Mine, and information from drilling (Section 6.5.3.3, p. 24). Interpretations of fault alignments, which are based on detailed mapping by Kaiser Corporation consultants, differ slightly from those on maps published by the others (Section 6.4.2, p. 10), including the USGS. Aside from differences in detail, these sources agree on general location, extent, and magnitude of the faults.

The Sunnyside Fault, shown on Plates 6-1 and 6-2 of the Lila Canyon MRP and Plate II-2 of the current MRP, limited mining to the east in the Horse Canyon Mine. The Permittee believes it lies east of the proposed Lila Canyon Extension (Section 6.5.3.3, p. 24). Plates 6-1 and 6-2 indicate the Sunnyside Fault dies out near the northeast corner of the Lila Canyon Extension.

Most maps and cross sections in the MRP extend as far as Patmos Ridge but include only a small portion of the Range Creek drainage. Plates 7-1A and 7-1B, geologic maps and cross sections that extend from the Book Cliffs to the Range Creek drainage, have been added to the MRP. Water rights have been added for the portion of Range Creek on Plate 7-3.

### **Cultural Resource Maps**

The MRP-Part B met the requirements of R645-301-411.141 because there are maps showing known historic resource locations within the permit area (Confidential Binder).

### **Existing Structures and Facilities Maps**

The Permittee met the requirements for this section of the R645 – Rules. Those rules require a Permittee to show the location and dimensions of existing areas of spoil, waste, coal development waste, and noncoal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities within the proposed permit area.

Existing structure means a structure or facility used in connection with or to facilitate coal mining and reclamation operations for which construction began before January 21, 1981. The Permittee met the requirement for showing the existing structures and facilities by showing:

- The location of all buildings in and within 1000 feet of the proposed permit area. No such structures exist within the Lila Canyon area.
- The location of surface and subsurface man-made features within, passing through, or passing over the proposed permit area. The only man-made features within the Lila Canyon area are a 60" culvert, and 48" culvert and Little Park road. The culverts are located in or near the disturbed area. See Plate 5-1A, Pre Mining Contours. The existing roads, powerlines and railroads in and around the Lila Canyon area are shown on Plate 5-1
- The location and size of existing areas of spoil, waste, coal development waste, and noncoal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities within the proposed permit area. No such structures exist.
- The location of each sedimentation pond, permanent water impoundment, coal processing waste bank and coal processing waste dam and embankment. No such structures exist.

### **Existing Surface Configuration Maps**

The Permittee met the requirements for supplying the Division with existing surface topographic maps and cross sections. Those requirements are that a Permittee show sufficient slope measurements to adequately represent the existing land surface configuration of the area affected by surface operations and facilities, measured and recorded according to the following: each measurement shall consist of an angle of inclination along the prevailing slope extending 100 linear feet above and below or beyond the coal outcrop or the area to be disturbed or, where this is impractical, at locations specified by the Division; where the area has been previously mined, the measurements shall extend at least 100 feet beyond the limits of mining disturbances, or any other distance determined by the Division to be representative of the premining configuration of the land; and, slope measurements shall take into account natural variations in slope, to provide accurate representation of the range of natural slopes and reflect geomorphic differences of the area to be disturbed. Plate 5-1A shows the existing surface configuration for the Lila Canyon disturbed area. The map is at a scale of 1-inch equals 100 feet and the contour lines are on 5-foot intervals. The contour lines extend more than 100 feet beyond the disturbed area boundaries.

The Permittee gave the Division a series of cross sections and profiles that show the pre-disturbed topography at the Lila Canyon Mine site. The series consists of Plate5-7-A-1 through

5-7-A-4, Plate 5-7-B-1 through 5-7-B-3 and Plate 5-7C. Those cross-sections and profiles show 5-foot evaluation intervals.

Plate 5-3, Subsidence Control Map, shows the existing topography of the Lila Canyon Extension area. The contour lines appear to be taken off a USGS topographic map. The Division considers the contours on Plate 5-3 adequate to show the pre-mining topography in the Lila Canyon Extension.

### **Mine Workings Maps**

The Permittee met the requirements for showing previously mined areas in and around the proposed permit boundaries at the Horse Canyon Mine. Those requirements are that a Permittee show the location and extent of known workings of active, inactive, or abandoned underground mines, including mine openings to the surface within the proposed permit and adjacent areas. Location and extent of existing or previously surface-mined areas within the proposed permit area.

Plate 5-1, Previously Mined Areas, shows the location of the known mine workings in the Horse Canyon permit area. The old mine workings include the Horse Canyon project and the old Book Cliffs Mine. The Permittee shows the approximate dates when each of the subareas of the Horse Canyon Mine and adjacent areas were worked. The area had mining activities from the 1940s to the 1980s

In section 521.111 the Permittee gives a narrative of mining activity that occurred in the area, including many small mines. The exact locations of the small mines are not known because the Book Cliffs Mine later mined many of the same areas. Therefore, the Permittee shows the previously mined areas associated with the Book Cliff Mine.

On Plate 5-1, the Permittee shows the location of exploration entries in permit area "B," Lila Canyon. Those exploration entries are most likely a breakout for the Geneva Mine. A fan was located at the breakout to assist in ventilation.

Jay Marshall, who is a registered professional engineer in the State of Utah, certified Plate 5-1.

See Plate II-2 in the Horse Canyon section of the mine plan for a detailed mine map of the Horse Canyon project. The exploration entries are shown on Plate II-2.

### **Monitoring and Sampling Location Maps**

Elevations and locations of test borings and outcrop measurements are on Plates 6-2, 6-3, 6-4, and 6-5. Piezometers IPA-1, IPA-2, and IPA-3 are shown on Plates 7-1 and 7-4. Elevations

and locations of seeps and springs monitored in 1985 by JBR and in 1993-1995 by EarthFax are on Plate 7-1.

Horse Canyon Mine UPDES discharge points UT022926 - 001, - 002, and - 003 (monitored from 1979 to 1991) are on Plates 7-1 and 7-1A. Currently monitored UPDES discharge points, UT040013- 001A and - 002A are shown on Plates 7-1, 7-2, and 7-4. Lila Canyon Mine UPDES points L-4-S (UTG040024-001, sedimentation pond outfall) and L-5-G (UTG040024-002, mine water) are on Plates 7-1A and 7-4.

Plates 7-1 and 7-1A identify the surface- and ground-water monitoring sites associated with the original Horse Canyon Mine, including the inventoried spring sites on and adjacent to the permit area. Locations of current operational water-monitoring sites for the Horse Canyon Mine and baseline and current operational water-monitoring sites for the Lila Canyon Mines are on Plates 7-1A and 7-4.

### **Permit Area Boundary Maps**

The Permittee met the requirements for this section of the R645 – Rules. Those rules require that a Permittee show the boundaries of land within the proposed permit area upon which the applicant has the legal right to enter and begin underground mining activities.

Plate 1-1, Permit Area Map shows the permit boundaries as Permit Area A- the Horse Canyon project, and Permit Area B- the Lila Canyon Extension.

On Plate 1-2 the Permittee shows the disturbed area boundaries. The plate also has UTM coordinates to help the Division locate the disturbed area in relationship to the permit boundaries.

### **Subsurface Water Resource Maps**

The cross section on Plate 7-1B, which shows the relationship of geology to the saturated zone in the lower Blackhawk Formation, extends from the Book Cliffs to Range Creek.

Water-level elevation contours are on Plate 7-1. Water levels for the IPA piezometers are tabulated in Appendix 7-1, and although the data do not evidence seasonal variations, the Permittee has portrayed variations of head on a contour map in Figure 7-1 (Volume 6) and shown them graphically in Figure 7-2.

The MDC and Horse Canyon wells, completed in a small alluvial aquifer at the mouth of Horse Canyon, are discussed in Section 724.100 and shown on Plate 7-1.

Locations where ground-water elevations in the mine were determined in 1986 and 1993 are on Plate 7-1. These ground-water elevations were used in projecting on Plate 7-1 where mining will intercept water.

### **Surface and Subsurface Manmade Features Maps**

The Permittee met the requirements of this section of the R645 – Rules. Those rules require that a Permittee show the location of all buildings in and within 1,000 feet of the proposed permit area, with identification of the current use of the buildings. The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area, including, but not limited to, major electric transmission lines, pipelines, and agricultural drainage tile fields. Each public road located in or within 100 feet of the proposed permit area.

The Permittee met the requirement by providing the following information:

- The locations of all buildings in and within 1,000 feet of the proposed permit area, with identification of the current use of the buildings. There are no such buildings.
- The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area, including, but not limited to, major electric transmission lines, pipelines, and agricultural drainage tile fields. Those features are shown on Plate 5-1 and Plate 5-1A.
- Each public road located in or within 100 feet of the permit area. Those features are shown on Plate 5-1 and Plate 5-1A.

### **Surface and Subsurface Ownership Maps**

The Permittee depicts coal ownership on Plate 5-4, and surface ownership on Plate 4-1.

### **Surface Water Resource Maps**

Water rights locations are on Plate 7-3. Water rights 91-4959 (Redden Spring) and 91-185 (MDC well), both held by the Permittee, are not shown on Plate 7-3.

Location of the Right Fork of Lila Canyon, which will receive discharges from the sedimentation pond and mine discharge, is on several maps, notably Plate 7-1.

The Right Fork of Lila Wash diversion and BLM stockwatering pond, located roughly two miles downstream from the disturbed area, are shown on Figure 1 in Appendix 7-9.

Locations of streams and seeps and springs are shown on Plate 7-1. There are no known perennial streams, lakes or ponds within the permit and adjacent areas. The nearest perennial stream is Range Creek, located several miles east of the Lila Canyon area: geologic maps and cross sections that extend from the Book Cliffs to Range Creek have been added to the Lila Canyon Extension MRP (Plates 7-1A and 7-1B).

Plate 7-3 shows locations of water rights. Water right 91-183 (Horse Canyon Creek), held by the Permittee, is not shown on Plate 7-3.

### **Vegetation Reference Area Maps**

The MRP-Part B met the requirements of R645-301-323.100 because vegetation maps illustrate community types within the disturbed and reference areas, as well as illustrate the location of reference areas. Plate 3-2 locates “land features” of the permit area including plant communities (listed above), spring locations, and geologic formations. Appendix 3-1 provides a description and quantitative survey of the vegetation as well as a map of the plant communities within the permit and reference areas. The vegetation map in App. 3-1 shows the boundary for the reference area.

### **Well Maps**

The Permittee met the requirements of R645-301-722.400 by depicting the locations of all open wells on Plate 7-1.

One oil exploration hole was drilled south of the proposed Lila Canyon Extension area, in Section 25, T. 16 S., R. 14 E., SLM, by Forest Oil Company. The location of the hole is shown on Plate 6-2.

Exploratory boreholes S-26, S-28, and S-31 (Plate 6-2) were offset with shallow piezometers A-26, A-28, and A-31, intended to monitor ground water in the alluvium of Little Park (Table 6-3). These piezometers have been plugged and abandoned and are not shown on maps in the MRP.

### **Contour Maps**

The Permittee met the requirements for this section of the R645 –Rules. The Permittee submitted several plates showing the contour of the land on and adjacent to the proposed permit area.

Plate 5-1A shows the pre-mining contours for the disturbed area. Several maps, including Plate 5-3 show contours for the entire Lila Canyon area. The contours for Plate 5-3 are

based on contours from USGS topographic maps and accurately represent the pre-mining contours for the Lila Canyon Extension.

A qualified, registered, professional engineer prepared, or directed the preparation of, Plates 5-1A and 5-3 and certified them.

**Findings:**

Information provided in the MRP-Part B meets the Maps, Plans, and Cross Sections of Resource Information requirements of the Regulations.

## OPERATION PLAN

### MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

#### Analysis:

The Permittee met the general requirements of R645-301-523, R645-301-526, and R645-301-528 by providing the Division with a description of:

- The type and method of coal mining (room and pillar and longwall, Sec. 523, 528.100);
- Anticipated annual and total production of coal (200,000 tons/yr increasing to 4,500,000 tons/yr, Sec. 523);
- The major equipment to be used (Sec. 523); and
- Facilities to be constructed and removed or left as part of the postmining land use (Sec. 523, 526, 528).

The Permittee chose to develop the new mine facilities in Lila Canyon rather than use the existing facilities at the Horse Canyon site for the following reasons:

- Development of the Horse Canyon site would entail disturbance of reclaimed ground (Sec. 528.110);
- The existing Horse Canyon facilities are not suitable for a large-scale longwall operation (Sec. 520); and
- The Horse Canyon Mine workings are submerged and otherwise not in a safe condition for operational use.

Access to the lower Sunnyside seam at the Lila Canyon location requires tunneling from the base of the cliffs upwards at a 12% grade through sandstone for a distance of approximately 1,200 ft. The Permittee refers to these inclined portals as rock-slopes. They will drive the ventilation portal from the underground workings to the surface. See Plate 5-2 for the locations.

The material from the rock slopes is by definition underground development waste and coal mine development waste. The Permittee will place all material from the rock slopes in the refuse pile.

Because the material from the rock slope will not contain coal, or material that is combustible or acid or toxic forming, the Division (and MSHA) will allow the Permittee to use that material as structural fill. Fill for other areas of the disturbed area will come from subsoils.

**Findings:**

Information provided in the MRP-Part B meets the Mining Operations and Facilities requirements of the regulations.

**EXISTING STRUCTURES:**

Regulatory Reference: 30 CFR 784.12; R645-301-526.

**Analysis:**

The Permittee met the requirements of the Existing Structures section of the regulation by describing the existing structures in the permit area in the MRP-Part B (Sec. 526.110). The existing structures are:

- A 60-in CMP culvert (Plate 5-1A). The 60-in culvert is in poor shape and located mostly outside of the permit area. The County plans to replace the culvert before mining operations begin. The Permittee will tie into the new culvert with UC-1, the 60-in bypass culvert in the Right Fork of Lila Canyon.
- A 48-in CMP culvert (Plate 5-1A). The 48-in culvert is in poor shape and located mostly outside of the permit area. The grading plan for the disturbed area will eliminate the need for the 48-in culvert because flow will be diverted to the sediment pond area. The County will most likely remove this culvert.
- The Little Park Road (App. 5-4, Plates 4-1, and 5-1), a public road that does not have to be permitted.

**Findings:**

Information provided in the MRP-Part B meets the Existing Structures requirements of the regulations.

**PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES**

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

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**OPERATION PLAN**

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**Analysis:**

The MRP-Part B met the requirements of R645-301-411.144 because the Permittee identified parks or historic resources that mining operations may adversely affect and there is adequate information pertaining to a protection plan.

There are known cultural resources within or adjacent to the permit area that are listed as eligible for listing in the National Register of Historic Places. The BLM will oversee and conduct a data recovery project for site 42EM2517. This project will begin following the Notice to Proceed, which BLM issues following mine plan approval. The Division, under consultation with SHPO, determined that construction or mining operations in the Lila Canyon disturbed area boundary would not likely affect two other eligible sites (42EM2255 and 42EM2256). These agencies based their decision on the following: 1) the two sites are not within the disturbed area boundary, and 2) there is 1000 ft of cover over these sites, and therefore little chance of tension cracks occurring from subsidence.

There are no public parks, or units of the National System of Trails or the Wild and Scenic Rivers system within the proposed permit area.

**Findings:**

Information provided in the plan meets the Protection of Public Parks and Historic Places requirements of the Regulations.

**RELOCATION OR USE OF PUBLIC ROADS**

Regulatory Reference: 30 CFR 784.18; R645-301-521, -301-526.

**Analysis:**

The Permittee met the requirements of R645-301-526.116 by:

- Showing that no public road will be relocated (Secs. 526.116 and 521.133, Plates 5-1A and 5-6); and
- Showing that the public will be protected from mining and reclamation operations that will be conducted within 100 feet of County Road #126 and BLM route RS2477 (Sec. 526.116, App. 1-4, and Plate 5-2).

There are several Jeep trails and wheel tracks within the Lila Canyon Extension area. The Division does not consider the Jeep trails and wheel tracks to be engineered roads because they were not engineered and do not receive maintenance.

The Permittee plans to tie culvert UC-1 into Emery County's 60-in culvert that lies under the county road. Emery County will install the culvert under the road and has consented to allow mining operations within 100 ft of the public road (App 1-4). To protect the public, Emery County requires, and the Permittee will install, a 6-ft chain link fence between the disturbed area and the Lila Canyon Road (see App. 1-4, letter from the Emery County Road Department dated January 10, 2001).

The current access to the Lila Canyon site is from two routes. The first route starts near the Horse Canyon Mine and extends south, following the Book Cliffs escarpment. The second route heads east from the intersection of U.S. Highway 191/6 and Emery County Road 126, passes the proposed location for the Lila Canyon facilities, and eventually connects with the first route. These routes were constructed in the early 1940's and are commonly referred to as the Lila Canyon Road, and Emery County Road 126.

Future access to the Lila Canyon site will be from Emery County Road 126 (EC 126). Emery County proposes to upgrade approximately 4.8 miles of EC 126, from the intersection with US Highway 191/6, to the Lila Canyon facilities site. Emery County has applied for the appropriate rights-of-way and special use permits needed to perform this roadwork. There are no plans to alter the road that leads from the Horse Canyon Mine to the Lila Canyon site. Emery County will maintain jurisdiction and responsibility for all construction upgrades and continued maintenance of these roads.

Appendix 1-5 contains the agreements between the Permittee and Emery County, which are:

- Emery County will construct, operate and maintain EC 126;
- The Permittee will provide funding for the construction of EC 126; and
- The Permittee may encroach upon EC 126.

The Division considers EC 126 a public road, which does not need to be permitted because:

- The road was properly acquired by Emery County and was not deeded to avoid regulations. Specifically, the Permittee owns no part of EC 126;
- Emery County will maintain EC 126 with public funds; and
- The construction of EC 126 is similar to that of other public roads with the same classification. *(During the initial construction and operation phase, the road will be graveled. When the need arises, EC 126 will be paved. Phone conversation with Jay Marshall on September 20, 2005).*

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## OPERATION PLAN

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### **Findings:**

Information provided in the MRP-Part B meets the Relocation or Use of Public Roads requirements of the regulations.

## **AIR POLLUTION CONTROL PLAN**

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

### **Analysis:**

The Permittee met the requirements for the air pollution control plan. Appendix 4-3 contains correspondence between the Permittee and the Department of Environmental Quality, Division of Air Quality (DAQ). In the cover letter for the Notice of Intent dated December 22, 1998, the Permittee requested approval for a Minor Source of up to 2,000,000 tons of coal per year. An Approval Order (DAQE-702-99) was issued August 27, 1999.

Section 520 indicates that the truck loadout road will be paved during construction and that all unpaved roads and pad areas will be treated with water or dust suppressant and that open stockpiles will be watered as conditions warrant.

### **Findings:**

Information provided in the plan meets the Air Protection Control Plan requirements of the Regulations.

## **COAL RECOVERY**

Regulatory Reference: 30 CFR 817.59; R645-301-522.

### **Analysis:**

The Permittee met the requirements of R645-301-522 by providing a description of the measures to be used to maximize the use and conservation of the coal resource in the MRP-Part B (Sec. 522). The description assures that coal mining and reclamation operations are conducted so as to maximize the utilization and conservation of the coal, while utilizing the best technology currently available to maintain environmental integrity (see Resource Recovery and Protection Plan (R2P2), on file with the BLM). The Permittee plans to mine all economically recoverable coal within the current leases. Mine expansion to the south is possible. The Permittee has a lease by application for reserves south of the permit area.

**Findings:**

Information provided in the MRP-Part B meets the Coal Recovery requirements of the regulations.

**SUBSIDENCE CONTROL PLAN**

Regulatory Reference: 30 CFR 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

**Analysis:**

**Renewable Resources Survey**

The Permittee met the requirements of R645-301-525.200 and R645-301-727 by supplying the following information:

Plate 5-3, Subsidence Control Map (scale 1:12,000), shows the maximum extent of subsidence at a 21.5 degree angle-of-draw. The subsidence survey results in Secs 525.130 and 525.220 state that there are no public buildings, public facilities, churches, schools, hospitals, or impoundments with 20 acre- ft or more storage capacity in or around the Lila Canyon Extension. There are no water conservancy districts and all water rights are held by the Permittee and BLM for stockwatering, domestic, mining, and other uses, leading to the conclusion that there are no aquifers or bodies of water that are a significant source of a public water system. The survey did find that a portion of the Little Park Road and seeps and springs exist within the area of projected subsidence.

In Chap. 7 of the MRP-Part B, the Permittee lists the location of each State appropriated water right, the amount of water associated with the right, and the water use (locations of allocated water rights, as shown on Plate 5-3, are accurate only to the nearest quarter-section). The Division will rely on this information to resolve any problems involving water replacement issues.

The water replacement program is described in Sec. 727. The Permittee states in Section 525.130 of the MRP-Part B that all State appropriated water rights are owned either by the BLM or by UEI. As required by R645-301-525.130, Appendix 1-5 contains a copy of the notification letter that the Permittee sent to the BLM.

For all wildlife issues such as the potential for subsidence damage to snake dens, see the Operation Plan, Fish and Wildlife Information section of this TA.

**OPERATION PLAN**

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**Subsidence Control Plan**

The Permittee met the requirements of R645-301-525.400 and R645-301-525.500 as follows:

*525.410* - by discussing the method of coal removal in (Secs. 522, 523, and 525.410).

*525.420* - by providing a map of the underground workings (Plate 5-5) that describes the location and extent of the areas in which planned-subsidence mining methods will be used and that identifies all areas where the Permittee will take measures to prevent or minimize subsidence and subsidence-related damage (see Plate 5-5 Confidential Binder for protection of raptor nests); and, when applicable, to correct subsidence-related damage.

*525.430* - by describing the physical conditions such as depth of cover, seam thickness, and lithology, which affect the likelihood or extent of subsidence and subsidence-related damage (Secs. 525.120 and 525.430).

*525.440* - by describing the monitoring the Permittee will perform to determine the commencement and degree of subsidence so that, when appropriate, other measures can be taken to prevent, reduce, or correct material damage (Sec. 525.440). The Permittee will initiate subsidence monitoring in an area before any second mining begins in that area, and monitoring will continue for five years after mining stops, or until subsidence is complete. The Permittee will note any cracks observed and report them to the Division in an annual report.

*525.450* - by describing the subsidence control measures the Permittee will use to prevent or minimize subsidence and subsidence-related damage in areas where they do not use planned subsidence (Sec. 525.450, Plates 5-5, 5-5 Confidential Binder, 5-3, and 7-1).

*525.460* -by describing the anticipated effects of planned subsidence – tension cracks, fissures, sinkholes, and ground-lowering (Sec. 525.460 of the MRP-Part B, p. V-12 of the MRP-Part A).

*525.470* - since there are no non-commercial buildings and occupied residential dwellings nor structures related thereto in the permit area; this does not apply.

*525.480* - by describing the how the Permittee will replace adversely affected State-appropriated water supplies or mitigate or remedy any subsidence-related material damage to the land (Secs. 727, 525.120, and 525.480). The methods proposed by the Permittee are similar to those that have been successfully used by other mines to replace water losses; and the Division considers them acceptable.

525.500 - by describing how the Permittee will repair any subsidence damage that may occur (Secs. 525.120, and 525.500).

### **Performance Standards For Subsidence Control**

The Permittee will comply with all provisions of the approved subsidence control plan described in Sec. 525.

### **Notification**

R645-301-525.700 requires the Permittee to notify the water conservancy district, if any, in which the mine is located and all owners and occupants of surface property and structures above the underground workings at least six months prior to mining. The Permittee will meet this requirement when the time comes. The notification will include, at a minimum, identification of specific areas in which mining will take place, dates that specific areas will be undermined, and the location or locations where the operator's subsidence control plan may be examined.

### **Findings:**

Information provided in the MRP-Part B meets the Subsidence Control requirements of the regulations.

## **SLIDES AND OTHER DAMAGE**

Regulatory Reference: 30 CFR Sec. 817.99; R645-301-515.

### **Analysis:**

The Permittee met the requirements of R645-301-515.100 and .200 by committing to phone the Division if a slide occurs (Section 515.100) and inform them of the slide and proposed remedial plan. The Division will then determine the adequacy of the remediation plan. The Permittee has also committed to report any potential hazards found during impoundment inspections (Sec. 515.200).

### **Findings:**

Information provided in the MRP-Part B meets the Slides and Other Damage requirements of the regulations.

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**FISH AND WILDLIFE INFORMATION**

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

**Analysis:**

GENERAL WILDLIFE

The MRP-Part B met the requirements of R645-301-333, R645-301-342, and R645-301-358 because the Permittee will use the best technology available to minimize impacting wildlife and its critical habitat. There is also sufficient information relating to protection/enhancement plans or there is adequate information to develop additional protection/enhancement plans, under the direction of the Division and other agencies.

The conveyor from the rock tunnel to the run of mine coal stockpile is elevated to avoid restriction of large mammal movement. The only fence is along the County road, about 1000 ft long. The fence will not impede large mammal movement up-canyon, but will restrict movement in the drainage to the south.

The Permittee will discharge all suitable water encountered during mining in a manner that it becomes available to wildlife. Ensuring water quality suitability is a requirement of the UPDES discharge permit. The MRP – Part B discussed the possible benefits of water in the sediment pond to wildlife in Sec. 333.300.

**Protection and Enhancement Plan**

*Ungulates*

There is no designation of critical habitat for ungulates within the disturbed area. There is a large area designated as critical habitat for mule deer, but it is east of the disturbed area. There is, however, habitat within or adjacent to the permit area for Rocky Mountain bighorn sheep, elk, mule deer, and pronghorn. There is also habitat within the disturbed area for Rocky Mountain bighorn sheep and yearlong habitat for mule deer.

Table 3-2 shows 800 acres of Rocky Mountain bighorn sheep habitat and the EA UT-070-99-22 states that there are approximately 25 sheep in the area. These sheep frequent two springs in an unnamed canyon.

During the EA (UT-070-99-22 July 2000) process, DWR, USFWS, and BLM agreed to develop a wildlife enhancement/mitigation plan to offset impacts to bighorn sheep as well as mule deer, elk, raptors, and chukars (Sec. 322.220, 333). The basic plan is a habitat enhancement project for about 70 acres of pinyon-juniper woodland, shrubs, forbs, and grasses,

as well as to install two guzzlers. The overseeing agency for this project is the BLM with DWR serving as a consultant. These agencies will finalize the details of the project and the Permittee will submit the final plan as an appendix to the MRP-Part B within one year following mine plan approval (Sec. 333). The plan will include project goal, expected benefits, project procedures, company commitment, implementation dates, project locations and agency contacts.

The Permittee will adhere to exclusionary periods when initiating construction and final reclamation projects. The exclusionary periods include: raptors (Feb 1 - July 1), bighorn sheep lambing, (May 1 - June 15), and pronghorn (May 15 - June 20).

#### *Amphibians and Reptiles*

The Division received comments that subsidence could damage snake dens. The Division, in consultation with DWR and BLM, determined that mining operations might impact snake dens, at random, with only a minor impact to the overall snake population. The agencies will not require snake-related subsidence surveys.

#### *Migratory Birds, Game Birds, and Raptors*

The Permittee will conduct yearly fly-over raptor surveys starting in 2005.

The Permittee established a one-half mile buffer zone of no disturbance during critical nesting periods for raptors. This buffer zone is adequate to protect eggs and chicks from abandonment (DWR). The Permittee will conduct raptor surveys at a minimum of a one-mile radius around any planned construction (Sec. 333.200). It may be necessary to delay projects until nesting season ends, if surveys indicated that nests are active. These surveys will help ensure that raptors, nests or young, are not adversely affected by mining or mine-related activity. There is one exception, which are the two golden eagle nests mentioned in Section 358.200. The Permittee is assuming the nests will be abandoned due to indirect disturbance (Sec. 333) and the EA enhancement/mitigation project will help offset the impact to these two nests.

The Division, in consultation with DWR, requires the Permittee to conduct raptor surveys within a one-mile buffer zone of the surface facilities area once every three years. Collecting data for baseline as well as during operations will help determine whether mining affected the use of the nests in close proximity to the facilities area.

The agencies participating (USFWS, DWR, and BLM) in the EA wildlife enhancement/mitigation planning (noted in the Operations -Ungulate section of this TA) decided there is a high probability that eagles will abandon all nests near the surface facilities area (Sec. 333). Although daily operations may affect the use of these nests, the Permittee will conduct first seam mining only (pillars remain) where necessary to prevent habitat loss from subsidence. The Permittee also agrees to contact the Division to initiate a separate mitigation plan if there are future/unknown nests lost because of operations (Sec. 322.220).

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The Permittee plans to have below ground power lines within the disturbed area (Sec. 322.210). PacifiCorp will design and construct the power line from the distribution line to the Lila Canyon substation to the surface facility.

The Division received comments concerning the mine access road and impacts to wildlife. The Permittee will instruct employees to move road kill to the sides of the road and will contact DWR when the public/employees reports road kills (Sec. 333). These measures will help reduce vehicle collisions with raptors, especially golden eagles, feeding on road kill. The Division recommends extending this protective measure to include removing road kill from roads leading from the interstate to the permit area.

**Endangered and Threatened Species**

*TES Plants*

The Permittee will survey for canyon sweetvetch, Cliff's blazing star, and creutzfeldt-flower at least the year construction begins or one year prior to construction. If the results are positive for these species, the Permittee must immediately submit a protection/mitigation plan to go into Sec. 333. The last survey report for these species was in 2004.

*TES Animals*

*Mexican Spotted Owl (MSO)*

The MRP-Part B states that the "Applicant does not plan to monitor any wildlife species during the life of the operation with the exception of raptors" (Sec. 333.200). The MRP-Part B, however, includes a separate commitment to survey for Mexican spotted owls following USFWS guidelines.

*Colorado River Fish*

The Permittee calculated the estimated amount of water consumed by the mine. The MRP-Part B includes the total expected water loss from mining operations at 73.94acre-ft (App. 7-3 PHC). This volume of water is below the 100-acre-ft threshold that requires mitigation (USFWS).

The USFWS commented that there should be an evaluation of the effects of water discharge to the Price River on the Colorado pikeminnow (squawfish). This discharge line was apparently proposed early in the planning process for the mine, but it is no longer included in the MRP-Part B.

There was a concern that discharged mine water could increase in salinity as it flows through the Mancos Shale before draining into the Price River. The USFWS stated that the increase in salinity was not a concern, but selenium deposition from this proposed mining operation is a concern.

The Permittee agreed to monitor at the point of discharge if modeling showed mine discharge to reach the Price River. The Permittee's modeling results (using some of the Division's recommended parameter values), shows that mine discharge will not reach the Price River. Appendix 7-9 provides the calculations and results of the model.

The Division contacted the Bureau of Reclamation (BOR) concerning the mine water discharge and the Colorado River Basin Salinity Control Program. The BOR has no regulatory requirement for salinity control. However, if the mine discharges and contributes to salinity, then BOR would be interested in working with the mine to reduce the output. Working with the mine could include the BOR paying to pipe the water to the Price River. The BOR also stated that since the BLM has salinity mandates, they should be the agency that addresses this issue.

#### *Southwestern Willow Flycatcher*

The 2004 USFWS TE list now includes the southwestern willow flycatcher for Carbon County. The Division received comments that mining operations could influence Range Creek and hence this flycatcher. The Biology and Hydrology sections of the MRP-Part B describe the vegetation and geological constraints for potential habitat for or mining impacts to this species or Range Creek. (Secs. 322.210, 724.200; App. 7-3 PHC). The lack of perennial streams and riparian vegetation within the permit area make it unlikely habitat for the southwestern willow flycatcher.

#### **Bald and Golden Eagles**

Five golden eagle nests are within the 0.5-mile (2640 ft) buffer zone for the surface facility area. Plate 5-3 (Confidential Binder) shows raptor nests and the subsidence angle of draw. Two golden eagle nests are within the subsidence angle of draw. The Permittee and collaborating agencies concluded that there is a high probability that the eagles will abandon these nests because of proximity to operations. The EA enhancement/mitigation plan for 70 acres of habitat improvement described above was developed, in part, for the potential loss of these nests.

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

A standard stipulation on federal coal leases is that the lessees monitor the effects of underground mining on vegetation. The MRP-Part B includes a plan to monitor vegetation with

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color infrared photography every five years. This commitment is consistent with Division requirements for other mines and is acceptable.

According to the MRP-Part B, there are no wetlands, riparian areas, or perennial drainages within the permit area. There are greater numbers of observations of springs in the NW, NE, and SE corners of the permit area than other areas in the permit area (Plate 7-1A). The monitoring locations near these areas are L11G, L7G, L9G, and L12G. The habitat description for monitoring stations L9G and L12G are "minor wet meadows". The seep in the Stinky Springs Wash, which is associated with monitoring point L17G, is very important to big horn sheep. At this time, it does not appear that many of the springs are within the 21.5-degree angle of draw (Plates 5-3, 7-1A).

Appendix 7-7 describes community types near the water monitoring sites (basically referencing Plate 3-2), provides a landscape picture for each of the sites, and briefly describes a repair plan for subsidence of springs and drainages. The Permittee assesses that it is unlikely that subsidence will negatively impact springs, seeps, and drainages, but commits to regrade and fill subsidence-related cracks, fissures, or sinkholes. The Permittee will use the best techniques available at the time of repair, including the possibility of seeding the repaired area. The Permittee will notify the Division before any repair of seeps, springs, or drainages.

The Permittee will help protect escarpment habitat from subsidence with a minimum of 200-ft barriers. The Permittee assesses there should be no effects of subsidence on surface or ground waters because the permit area has only ephemeral flow associated with precipitation events (Sec. 332). The Permittee commits to:

- Monitor mined areas in the spring for evidence of subsidence according to the subsidence control plan (Sec. 525).
- Monitor ephemeral stream channels in areas of potential subsidence.
- Monitor vegetation using of infrared aerial photography every five years (Sec. 332).
- Develop a mitigation plan and submit the plan to the Division for approval if mining impacts vegetation and wildlife. The Permittee may (Sec. 332)
  - Enhance habitat by increasing forage productivity in undisturbed areas.
  - Provide watering sources.

**Findings:**

Information provided in the plan meets the Operations - Fish and Wildlife Information requirements of the regulations.

**TOPSOIL AND SUBSOIL**

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

**Analysis:**

**Topsoil Removal and Storage**

As shown on Plate 5-2, the disturbed area boundary includes 42.6 acres (see also Sec. 116.100, Section 542.200, App. 5-8). However, topsoil will be removed from only 25.30 acres (Available Soil Resources Table Sec. 232.100) to develop the surface facilities described in Sec. 542.200. Consequently, Plate 5-2 illustrates islands of “undisturbed” within the “disturbed” area. Section 116.100 describes the islands of undisturbed land within the disturbed area. These undisturbed islands will be marked and protected (Sec. 231.100, Sec. 234.220, and Plate 5.2)

The Permittee will install an enclosed conveyor (Sec. 232.710) to keep the native soils beneath the conveyor free of coal accumulations. Jersey barriers will protect the undisturbed slope from encroachment by the coal stockpile. The undisturbed slopes will be monitored (Sec. 234.220). Additional measures (such as implementing water sprays or construction of a wind fence) will be taken to protect these undisturbed soils from incidental coal fine deposition (Sec. 234.220).

Plate 2-3 Soil Salvage and Replacement provides guidance for the topsoil removal, depending upon location between 6 – 18 inches of topsoil will be salvaged and stockpiled (see Available Soil Resources table in Sec. 232.100). A calcic horizon was verified in soil pedons LC1, LC5 and LC6 which will provide a marker for soil salvage depth in these locations. The percent rock content within the proposed facilities area is high according to the 1988 Division guidelines, however it is not a deterrent to soil salvage. Large stones, 36 inches or less, are considered part of the soil layer and are included in the topsoil volume estimates.

The Table of Available Soil Resources in Sec. 232.100 estimates 50,236 bank yd<sup>3</sup> or 59,278 loose yd<sup>3</sup> will be salvaged. Soils will be removed from the 25.3 acres to be disturbed with a crawler-tractor, grader, front-end loader, and/or trackhoe.

Soils will be removed from all disturbed areas including stony areas to a depth of eighteen inches or to shale (Sec. 232.100 and 232.300) with the following exceptions:

- The steep rocky slopes within the disturbed area below and between the conveyor and coal storage pile (Sec. 232.710)
- The two supports to be constructed for the conveyor (Sec. 232.710..)
- The area of topsoil storage (topsoil will be removed from the access road to and around the topsoil pile, but not from beneath the topsoil pile, Sec. 232.100..)
- The slope between the coal pile road and the portal access road (Plates 2-3 and 5-2.) [No disturbance is anticipated for this slope.]

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The Permittee will handle soils at optimum moisture content, when the soils are loose and friable (Sec. 231.100), by adding moisture or allowing the soils to dry as needed.

The Permittee agrees in Sec. 231.100 and 232.100 to employ a qualified soils specialist to oversee the soil salvage, construction of subsoil storage site, and reclamation of the site. The Permittee further commits in Sec. 232.500 to maintain records of materials removed and placement of materials either in the topsoil storage pile or in the fill. Soil pedestals will be left to verify soil removal depths (Sec. 232.500). Further, there is a commitment to develop As-Built maps showing where subsoil materials have been used as fill material (Sec.232.500), including thickness of topsoil, subsoil, and substrata.

The Division received comments on the need for soil-borrow areas. Topsoil will be recovered from all disturbed areas and the total recovery of topsoil is estimated at 50,236 bank yd<sup>3</sup>. On the average, this represents a replacement depth of 15 in over the proposed 25 disturbed acres. Furthermore, the Order 1 Soil Survey suggests that subsoils are also suitable for plant growth down to a depth of 48 in (Appendix 2-3). These subsoils will be placed where they can be recovered and utilized to increase the rooting depth at reclamation. There is no need to develop a soil borrow area.

Storage of the approximately 59,000 loose yd<sup>3</sup> of topsoil will be in a stockpile (Sec. 232.100 Available Soil Resources Table) with the approximate dimension 26 ft high X 246 ft long X 146 ft wide (Sec. 232.100), with 2h:1v side slopes. Plate 5-2 and Plate 2-4 show the location of the topsoil stockpile, as well as cross-section 4+00 on Plate 5-7A-2.

The topsoil stockpile is located on Plate 5-2 and Plate 5-7, among others. Topsoil stockpile will be an Alternate Sediment Control Area (ASCA) protected from upstream flow by drainage ditches (design shown in App. 7-4). The stockpile will be loosely piled with a rough, irregular, pitted surface to retain moisture and reduce erosion (Sec. 231.100 and 231.400). This practice is described in the Practical Guide to Reclamation (DOGM, 2000), available at <http://ogm.utah.gov/>.

The topsoil will be retained in place with the use of berms, ditches or silt fences surrounding the pile. The stockpile will be mulched and seeded in the fall (after September 15 and before January 15) using the mix in Table 3-4 (Sec. 231.400). Table 3-4 is a mix of native grasses, forbs and shrubs chosen to control erosion. Sec. 231.100 and Sec. 231.400 indicate that if seeding does not immediately follow topsoil pile construction, the pile will be roughened again immediately before seeding.

The Permittee has committed to gathering eight, five gallon buckets of cryptogamic soil separately from the remainder of the topsoil salvage (Sec. 232.100). The Permittee will try to establish cryptogams on the topsoil stockpile by using the cryptogamic soil as an additive to each load of wood fiber mulch hydrosprayed on the surface of the gouged topsoil pile. The

cryptogamic soil will be mixed with wood fiber mulch at a rate of 1% by volume (Sec. 234.230.) The biologic soil crusts established on the topsoil pile will be later harvested for inoculation of the reclaimed site (Sec 232.100).

Storage of topsoil from the access road to and around the topsoil storage area will be in berms around the topsoil stockpile (Sec. 232.100). Storage of topsoil from the fan portal will be in a berm around the fan disturbance (Sec. 234.100). Plate 5-2 shows the location of the topsoil berm at the fan site. To avoid contamination with rock dust, the berm will not extend in front of the fan. The bermed fan portal soil will be protected with a silt fence and vegetated (Sec. 234.100).

### *Subsoils*

Section 232.500 states that about 18,000 yd<sup>3</sup> of subsoil will be used as construction fill material during operations (total subsoil cut is provided in the legend of Plate 2-3 by soil type.). The total cut volume is estimated at 44,283 yd<sup>3</sup> (Table 1, App. 5-4). Subsoil will also be used as cover over the waste rock disposed of in the refuse area, App.5-7). Section 232.700 specifies the subsoil recovery based upon recommendations found in Part 3.4 of App. 2-3 Soil Inventory. The recovery depth in inches is the depth of salvageable subsoil remaining after topsoil removal. Thus, for the SBG soil map unit, the 30-in removal thickness would come from between 18 in and 48 inches of the profile.

The Division received comments that a subsoil stockpile should be required. An average recovery depth of 15 in of topsoil from the site will provide an adequate supply of topsoil for final reclamation. In addition, the location of subsoil fill with suitable reclamation characteristics will be mapped for ease of recovery and replacement during reclamation (Sec. 232.500, Sec. 241, Sec. 242.100). These subsoils will be used as fill underneath parking areas, roads, buildings, and storage sites. These subsoils will be protected during operations by asphalt, concrete, or gravel and an impervious membrane (Sec. 232.500). Section 232.500 further indicates that upon reclamation, subsoils found to be contaminated with oil, grease, or salts through visual evaluation will be hauled to a landfill site. These protections are adequate to maintain suitable subsoil for the rooting zone.

### **Findings:**

Information provided in the MRP-Part B meets the Topsoil Salvage requirements of the regulations.

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**Analysis:**

The MRP-Part B met the requirements of R645-301-330, R645-301-331, and R645-301-332 because the Permittee provided measures to limit the degree of disturbance, plans to apply interim reclamation practices when applicable, and descriptions of mitigation procedures for subsidence-related impacts. The Permittee will provide the Division biologist with seed mix tags prior to or during interim, contemporaneous, and final reclamation projects (refer to R645-301-341.220).

The Permittee will revegetate with an interim seed mix on all incidental disturbances. Tables 3.4/3.5 and state the interim and final seed mix. The mixture contains a high proportion of blue flax, an aggressive self-seeding native species.

Section 331 refers to the revegetation plan in Sec. 340 for further information about revegetation methods.

The Division discusses measures that the Permittee will take to help protect escarpment habitat and water resources from subsidence in other sections of this TA.

**Findings:**

Information provided in the plan meets the Operations - Vegetation requirements of the regulations.

**ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

**Analysis:**

**Road Classification System**

The Permittee met the requirements of R645-301-527 by classifying all roads, except the coal pile road, as a primary road (Sec. 527.100). The Coal Pile Road is an ancillary road because it was built for one purpose, to provide equipment access to the pile and will be used infrequently.

Access to the Lila Canyon facilities site will be by Emery County Road 126 (EC 126, Lila Canyon Road). Emery County will upgrade and relocate sections of EC 126 to accommodate the increase in traffic.

The Division considers EC 126 to be a public road that does not require permitting. See the Relocation or Use of Public Roads section of this TA for more details on the Division's findings.

### **Plans and Drawings**

The Permittee met the requirements of R645-301-527.200 (roads) by providing adequate plans and drawings for each road that they will construct in the disturbed area (Sec. 527.200, App. 5-4, and Plate 5-2). The description includes:

- A map (Plate 5-2);
- Appropriate cross sections (App. 5-4);
- Specifications for each road width, road gradient, road surface, road cut, fill embankment, culvert, bridge, drainage ditch, and drainage structure (App.5-4);
- A maintenance plan describing how roads will be maintained throughout their life to meet the design standards throughout their use (Sec. 527);
- A commitment that if a road is damaged by a catastrophic event, such as a flood or earthquake, the road will be repaired as soon as practical after the damage has occurred (Sec. 527);

The Permittee will not relocate any natural drainage ways in constructing the roads. The Permittee has not requested alternative specifications, or to construct steep cut slopes.

### **Performance Standards**

The Permittee met the requirements for R645-301-534 by designing, and planning to construct, maintain, and reclaim each road to:

- Prevent or control damage to public or private property;
- Use nonacid- or nontoxic-forming substances in road surfacing;
- Have, at a minimum, a static safety factor of 1.3 for all embankments;
- Have a schedule and plan to remove and reclaim each road;
- Control or prevent erosion, siltation and the air pollution attendant to erosion by vegetating or otherwise stabilizing all exposed surfaces in accordance with current, prudent engineering practices;
- Have appropriate widths, surfacing, and grades for the type and size of equipment used;
- Be located, insofar as practical, on the most stable available surfaces;
- Be surfaced with crushed gravel;
- Be routinely maintained to include repairs to the road surface, blading, filling potholes and adding replacement gravel or asphalt. It will also include revegetation, brush removal, and minor reconstruction of road segments as necessary; and

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- Have culverts that are designed, installed, and maintained to sustain the vertical soil pressure, the passive resistance of the foundation, and the weight of vehicles using the road.

All road design information is located in Sec. 534, Plate 5-1 and App. 5-4.

The PermitteeUEI does not propose to have any temporary fords in perennial or intermittent streams.

### **Primary Road Certification**

The Permittee met the requirements of R645-512.250 by having a professional engineer, licensed to do business in the State of Utah certify the road designs found in App. 5-4 and on Plate 5-2.

When the roads are actually constructed, a registered professional engineer will certify the construction or reconstruction of primary roads in a report to the Division. The Permittee will provide those reports, called as-builts, to the Division upon completion of the road.

### **Other Transportation Facilities**

The Permittee met the requirements of R645-3601-527.200 (other transportation facilities) by showing and describing each conveyor they will use at the Lila Canyon facility (Sec. 520, and Plate 5-4). Since the Permittee plans to leave the ground beneath the conveyor as undisturbed, due to the steepness and remoteness of the area, the Permittee will totally enclose the conveyor.

The Permittee does not plan to construct any rail facilities at Lila Canyon at this time.

### **Findings:**

Information provided in the MRP-Part B meets the Road Systems and Other Transportation Facilities requirements of the regulations.

## **SPOIL AND WASTE MATERIALS**

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

**Analysis:**

**Disposal Of Noncoal Mine Wastes**

The Permittee met the requirements of R645-301-528.330 and R654-301-754 by including plans to dispose of noncoal mine wastes in the MRP-Part B (Sec. 528.330, and 754)

The Division will allow the Permittee to dispose of concrete debris on site by placing the concrete under at least four feet of cover in areas that will be backfilled and graded. The Permittee will cover sand and gravel road-surfacing materials with two feet of cover. The Permittee will dispose of asphalt off-site (Sec. 542.640).

**Coal Mine Waste**

The Permittee met the requirements of R645-301-528.320 by describing, with appropriate maps and cross-section drawings, the proposed disposal methods and sites for placing underground development waste and excess spoil generated at surface areas affected by surface operations and facilities (Sec. 528.320, Map 5-2, and Figures 1 and 2 in App. 5-7).

The Permittee will place coal mine waste in the refuse pile.

The Permittee met the requirements of R645-301-512.230 by having a registered professional engineer (P.E.) design and certify the coal mine waste disposal facility (refuse pile). The Permittee will supply P.E. certified as-built drawings when the Permittee finishes construction of the site.

**Refuse Piles**

The Permittee met the requirements of R645-301-528.322 by designing the refuse pile in accordance with all applicable regulations (Sec. 528.322, Map 5-2, and App. 5-7).

The Division received comments that the use of coal mine waste for structural fill would violate the regulations. While the regulations do not specifically state that coal mine waste can be used for structural fill the material can be used in the construction of dams and embankments. Therefore, the Division determined that coal mine waste can be used for structural fill as long as all other regulations are fulfilled.

The Division received some public comments that placement of coal mine waste with dump trucks would violate R645-301-528.320 because of the prohibition of placement of coal mine waste by end or side dumping. In *A Dictionary of Mining, Mineral, and Related Terms* compiled and edited by Paul W. Thrush and Staff of the Bureau of Mines published 1968, the term end dumping is defined as: "Process in which earth is pushed over the edge of a deep fill

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and allowed to roll down the slope". The placement of coal mine waste in the refuse pile will be done in a controlled manner and the material will not roll down the slope. The use of dump trucks is common in Utah for the transportation and placement of coal mine waste in refuse piles. Neither the OSM nor the Division has ever had any concerns about the use of dump trucks for moving and placing coal mine waste.

**Impounding Structures**

The Permittee will not construct any impoundments from coal mine waste. The only impoundment structure at the Lila Canyon site is the incised sediment pond (Sec. 533.200).

**Burning And Burned Waste Utilization**

The Permittee met the requirements of R645-301-528.323 by providing a plan to extinguish coal mine waste fires. The plan contains provisions to ensure that only those persons authorized by the operator, and who have an understanding of the procedures to be used, shall be involved in the extinguishing operations. No burning or unburned coal mine waste will be removed from the permitted disposal area (Sec. 528.323, and App. 5-3).

**Return of Coal Processing Waste to Abandoned Underground Workings**

The Permittee does not propose to return coal-processing waste to abandoned underground workings.

**Excess Spoil**

The Permittee does not anticipate the generation of any excess spoil.

**Findings:**

Information provided in the MRP-Part B meets the Spoil and Waste Materials requirements of the regulations.

**HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

## **Analysis:**

### **General**

The Permittee met the requirements for providing hydrologic information. The Permittee met those requirements by including a water-monitoring plan in Sect. 731.200 through 731.225, MRP-B. Surface and ground-water monitoring provides data to identify any impacts to from mining on springs, seeps, and drainages within and adjacent to the permit area by comparison with relevant baseline data and with applicable effluent limitations. The Permittee selected monitoring locations and frequencies, described in Table 7-3, so that significant springs, seeps and drainages that could potentially be impacted by the mining and reclamation operations will be monitored on a regular basis (Section 731.222)

### **Groundwater Monitoring**

The Permittee met the requirements for ground water monitoring. They implemented a ground water monitoring plan in 1996. The monitoring plan is described in Sec. 731.211 MRP-B. A chart in Sec. 731.220, MRP-B lists all of the ground-water monitoring sites. Table 7-3 provides information on the ground-water sites, such as, location, type, monitoring frequency and remarks. Ground water monitoring parameters for operational and reclamation periods are listed in Table 7-5.

The seeps and springs selected by the Permittee for monitoring are representative of the ground water emergence zones located in and adjacent to the area of proposed mining. Springs initially selected typically have:

- Baseline water-quantity and -quality data from the EarthFax survey.
- Developed for use by the water right holder.
- Have the greatest, or most consistent flow, of the group of springs or zone stratigraphy.

Locations of the surface monitoring sites are shown on Plate 7-4. Data collected through October 2002 are in App. 7-1. More recent data are in the Division's database. Station L-5-G is the potential mine discharge point and will be monitored in accordance with UPDES Permit requirements. IPA-1, -2, and -3 will be monitored quarterly for water levels only (Sec. 731.211).

A cluster of springs and seeps (4, 5, 6, 7, 8-A, and 9-R) in the northeast corner of the Lila Canyon Extension is not being monitored. There is no water right associated with these springs and seeps, and they are well outside the zone of projected subsidence.

Baseline water levels for 1994, 1995, and 1996 have been established at IPA-1, IPA-2, and IPA-3. Data collected through October 2002 are in Appendix 7-1, and the most recent data are in the Division's database. Eventually, the mine may intercept the three IPA piezometers, so

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in addition to the three piezometers, the Permittee commits to the monitoring of underground usage and discharge to more accurately define potential impacts on ground water (Sec. 731.513).

Ground water monitoring procedures and equipment are described in Sec. 731.212 and Sec. 731.215. Ground-water monitoring will continue through mining and reclamation until bond release (Section 731.214).

**Surface Water Monitoring**

The Permittee met the requirements for surface water monitoring. The surface-water monitoring plan is in Sec. 731.220, MRP-B. The Permittee monitored significant surface water sources on and adjacent to the Part A and Part B Permit areas since May 1996. Seeps and springs are treated as ground-water discharge sources and are described above. Locations of all monitoring sites are shown on Plate 7-4. Proposed monitoring methods, parameters and frequencies are described in Table 7-3, "Water Monitoring Stations," and Table 7-4, "Water Monitoring Parameters."

Any mine discharge from L-4-S will be monitored under the UPDES program. Sediment pond and mine discharges will be monitored monthly or as frequently as discharges occur (Table 7-3). Appendix 7-5 contains a copy of the UPDES permit for the Lila Canyon Extension. The UPDES permit was issued in 1999 (App. 7-5).

Surface-water monitoring will continue through mining and reclamation until bond release (Section 731.224). Equipment, structures and other devices used in conjunction with monitoring the quality and quantity of surface water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator when no longer needed (Sec. 731.225).

**Acid- and Toxic-Forming Materials and Underground Development Waste**

The Permittee met the requirements for handling acid- and toxic-forming materials and underground development waste by placing underground development waste in the refuse pile. The Permittee will examine and test the materials to determine acid- or toxic-forming potential (Sec. 536). Samples will be collected and analyzed a minimum of five times during construction of the rock-slope tunnels, and from every 6,000 tons of waste rock placed on the refuse pile during mine operation (App.5-7). Table 2 of App. 5-7, lists the parameters to be analyzed.

The reclamation plan specifies four feet of subsoil and topsoil will be placed over the refuse pile and the slope-rock underground development waste (Sec. 553.300, Sec. 731.311, App. 5-7).

### **Gravity Discharges From Underground Mines**

The Permittee reports that no gravity discharges from the mine will take place. All strata dip away from the portals, and the potentiometric surface identified in the piezometers lies well below the level of the mine portals (Sec 731.520, .521; Figure 7-1).

### **Water-Quality Standards And Effluent Limitations**

The Permittee met the requirements for showing how they will comply with all applicable State and federal water quality laws and regulations for effluent limits. The Permittee discusses mitigation for disturbed area drainage in Chap. 7 of the MRP-B.

The Permittee points out that runoff from disturbed areas will likely show a slight increase of sediment loading than pre-mining runoff. The Permittee has submitted designs and calculations for hydrologic structures that provide for the control and treatment of disturbed area runoff in Sec.732, 733, 742, 743 and 744. Discharged water may come from the sediment pond or less likely from underground mine workings. Mine water will be treated by the use of sumps to remove sediments and oil and grease from the water prior to discharge (Sec 731.513).

The Permittee states that if it becomes necessary to discharge mine water, the mine water will meet UPDES Permit standards as identified in Appendix 7-5 (Sec 742.112). A UPDES discharge permit has been issued by the UDWQ for the proposed sediment pond and mine water for the Lila Canyon operation (Appendix 7-5.).

Surface-water monitoring data will be submitted to the Division at least every three months, within 30 days of the end of the quarter (Sec. 731.220). When analysis of any surface-water sample indicates non-compliance with the permit conditions, the Permittee will promptly notify the Division and take action as described in Sec. 731.223.

### **Diversions: General**

The Permittee met the requirements for diversions. Plate 7-2 identifies all of the undisturbed and disturbed area diversion ditches. Except for the ASCA around the fan portal, all disturbed area drainage will be diverted to the sedimentation pond (Plate 7-6). Undisturbed areas, UA-2, UA-3, UA-4 and UA-6 will also be directed to the sedimentation pond (Table 5, Appendix 7-4). The pond is properly sized to handle the required runoff volume.

One undisturbed diversion is designed for the mine site, Sec. 732.300. Plates 7-2 and 7-5 show the undisturbed Culvert UC-1 that will be placed in the Right Fork of Lila Creek to divert undisturbed drainage under the sedimentation pond.

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**Diversions: Perennial and Intermittent Streams**

The Permittee met the requirements for the diversions of perennial and intermittent streams. In Section 742.333, the Permittee states that all temporary diversions are designed to safely pass the peak runoff of a 10-year, 6-hour precipitation event, and refers to Appendix 7-4 for details.

**Disturbed Diversion**

The Permittee met the requirements for disturbed diversions. Plate 7-5 shows all disturbed area drainage diversions. Disturbed diversions will consist of berms, culverts and ditches. The diversions are designed and sized to collect and transmit the runoff from a 10-year, 24-hour precipitation event via the mine pad to the sedimentation pond. Sizing calculations are provided in App. 7-4, MRP-B.

**Casing and sealing of wells**

The Permittee met the requirements for casing and sealing wells. IPA-1, -2, and -3 will be reclaimed according to the Division's performance standards in R645-301-765. If any wells are installed in the future, the requirements of R645-301-765 will be met (Sec. 765).

**Stream Buffer Zones**

The Permittee met the requirements for establishing stream buffer zones. The Permittee states in Sec. 731.600 and 731.612 of the MRP-Part B that no mining activities will take place within 100 ft of a perennial or intermittent stream. The Permittee showed (App. 7-7 and Plate 7-2) that no perennial or intermittent streams exist where surface disturbance is planned. Surface disturbance will only take place along the portions of Lila Canyon Wash and the Right Fork of Lila Canyon Wash (Plates 7-2, 7-5 and 7-6). Stream Buffer Zone markers will mark the limits of mining activity. There is no surface disturbance planned along Stinky Springs Wash or Little Park Wash or its tributaries. The Permittee has provided stream characteristic information in Appendix 7-7 showing that, except for some spring areas in the Little Park Wash drainage, all stream channels on the permit area are ephemeral.

**Sediment Control Measures**

The Permittee met the requirements for sediment control measures. The Permittee provided information in Sec. 742, Sediment Control Measures, and Appendix 7-4, MRP-B, Sedimentation and Drainage Control Plan, to show that facilities will be set in place during mining operations to control and contain sedimentation within the permit area.

### **Siltation Structures: General**

The Permittee met the requirements for the use of siltation structures. The Permittee proposes to use siltation structures and silt fences below the fan portal to control and treat runoff from the site.

### **Siltation Structures: Sedimentation Ponds**

The Permittee met the requirements for the use of sediment ponds. The Permittee will use a sedimentation pond to treat runoff from the disturbed mine site. The sedimentation pond location, design plans, and cross-sections are on Plates 7-5 and 7-6. Design calculations are in Appendix 7-4. The designs show the pond is sized adequately to treat the runoff from a 10 year-24 hour precipitation event. The designs for the emergency spillway are adequate to pass the 25 year-6 hour precipitation event.

### **Findings:**

Information provided in the MRP-Part B meets the Operational Hydrologic Information requirements of the regulations.

## **SUPPORT FACILITIES AND UTILITY INSTALLATIONS**

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

### **Analysis:**

The Permittee met the requirements of R645-301-526 by submitting a description, plans, and drawings for each support facility to be constructed, used, or maintained within the proposed permit area (Sec. 520, App. 5-4, App. 5-7). The plans include maps (Plates 5-2, and 5-8), appropriate cross sections, design drawings, and specifications sufficient to demonstrate compliance.

The support facilities will be located, maintained, and used in a manner that: prevents or controls erosion and siltation, water pollution, and damage to public or private property; and, to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values and minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any such contributions shall not be in excess of limitations of State or Federal law.

The Permittee has included in Sec. 520 and Sec. 234.220 of the MRP-Part B several means by which deposition of coal fines on the undisturbed slope will be controlled.

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In compliance with R645-301-526.220, all support facilities will be located within the disturbed area. Runoff from the disturbed area will report to the sedimentation pond for treatment before being discharged. For additional details on erosion, siltation, and water pollution see the Hydrology section of this TA. Fish and wildlife issues are discussed in detail in the Fish and Wildlife Protection Plan section of this TA.

### **Findings:**

Information provided in the MRP-Part B meets the Support Facilities and Utility Installations requirements of the regulations.

## **SIGNS AND MARKERS**

Regulatory Reference: 30 CFR Sec. 817.11; R645-301-521.

### **Analysis:**

The Permittee met the requirements of the R645-301-521.200 by committing in Sec. 521.200 of the MRP-Part B to:

- Post, maintain, and remove (at bond release) all identification signs required by this regulation;
- Design signs to be of a uniform design that can be easily seen and read, make them of durable material, and conform to local laws and regulations regarding signage;
- Maintain signs during all activities to which they pertain;
- Display mine and permit identification signs at each point of access from public roads to areas of surface operations and facilities on permit areas;
- Show the name, business address, and telephone number of the Permittee, and the Utah mining permit number on the signs;
- Clearly mark the perimeter of all areas affected by surface operations or facilities before beginning mining activities;
- Mark buffer zones to prevent disturbance by surface operations and facilities; and
- Mark where topsoil or other vegetation-supporting material is physically segregated and stockpiled.

### **Findings:**

Information provided in the MRP-Part B meets the Signs and Markers requirements of the regulations.

## **USE OF EXPLOSIVES**

Regulatory Reference: 30 CFR Sec. 817.61, 817.62, 817.64, 817.66, 817.67, 817.68; R645-301-524.

### **Analysis:**

R645-301-524.220 allows the Permittee to submit a specific blasting plan separate from the MRP. The Permittee has opted to submit a detailed blasting plan if and when they propose to blast (Sec 524.200).

### **Findings:**

Information provided in the MRP-Part B meets the Use of Explosives requirements of the regulations.

## **MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

### **Analysis:**

#### **Affected Area Maps**

The Permittee met the requirements for showing the affected area. Plate 1-1, Permit Area Map, shows the location of the entire Horse Canyon Permit area. The area includes permit area A, which is the Horse Canyon project, and permit area B, which is the Lila Canyon Extension.

#### **Mining Facilities Maps**

The Permittee met the requirements for showing mine facilities maps. Plate 5-2 shows the surface facilities for the Lila Canyon Extension. The map shows the location of each facility used in conjunction with mining operations.

#### **Mine Workings Maps**

The Permittee met the requirements for showing the mine workings maps. Plate 5-5 shows the projected mine workings for the Lila Canyon Extension. The only openings are the two rock tunnels and the ventilation portal.

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**Monitoring and Sampling Location Maps**

The Permittee provided Plates 7-1A and 7-4 that shows all water monitoring sites.

**Certification Requirements**

The Permittee met the requirements for map certification. The Permittee had all appropriate maps and cross sections certified.

**Findings:**

Information provided in the MRP-B met the requirements of the Maps, Plans, and Cross Sections in the Mining Operations Section of the regulations.



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## **GENERAL REQUIREMENTS**

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

### **Analysis:**

The Permittee met the General Reclamation Plan requirements of the regulations by submitting a Reclamation Plan for the disturbed area within the Lila Canyon permit area (App. 5-8 and Chap. 2, 3, and 5). This plan describes how the Permittee will achieve environmental protection standards.

### **Findings:**

Information provided in the MRP-Part B meets the General Reclamation Plan requirements of the regulations.

## **POSTMINING LAND USES**

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

### **Analysis:**

The Permittee met the requirements for the postmining land uses by including a plan to restore all disturbed areas in a timely manner to conditions that are capable of supporting the uses they were capable of supporting before any mining; or higher or better uses (Chap. 4 of MRP-Part B). R645-100-200 defines higher or better uses as: postmining land uses that have a higher economic value or non-monetary benefit to the landowner, or the community, than the premining land uses.

The disturbed area for the Lila Canyon extension is on BLM land and the postmining land use is in accordance with the BLM's management plans of wildlife habitat, grazing, and incidental recreation (App. 4-2 and Sec. 412.140).

The Division received comments that the MRP - Part B fails to restore the land to a quality capable of supporting wilderness designation. The regulations do not provide for wilderness designation as a post-mining land use, nor do they *require* the Permittee to restore the land to any use other than the pre-mining land use. R645-100-200 defines the following possible post-mining land uses to be approved under the regulations:

- Cropland;
- Developed water resources;
- Fish and wildlife habitat;
- Forestry;
- Grazing land;
- Industrial/commercial;
- Pasture land or land occasionally cut for hay;
- Recreation;
- Residential; and
- Undeveloped land or no current use or land management.

**Findings:**

Information provided in the MRP-Part B meets the Postmining Land Uses requirement of the regulations.

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

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

**Analysis:**

The Permittee met the requirements of R645-301-342 and R645-301-358 by providing enhancement and protection measures for fish, wildlife, and habitat during the reclamation and postmining phases in the MRP-Part B.

The EA (UT-070-99-22 July 2000) enhancement/mitigation plan provides for the enhancement of the vegetation communities through and past the Permittee's responsibility period.

The species in the seed mixture will potentially provide good forage and cover for wildlife. The Permittee will reclaim the pinyon/juniper area to a grass/shrub community. This plan may enhance the quality of habitat in the area.

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**Findings:**

Information provided in the plan meets the Reclamation - Protection of Fish, Wildlife, and Related Environmental Values requirements of the regulations.

**APPROXIMATE ORIGINAL CONTOUR RESTORATION**

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

**Analysis:**

The Permittee met the requirements for restoring the land to the approximate original contour requirements (AOC). The Permittee will restore the site to AOC conditions as outlined in the backfilling and grading plan MRP-Part B by:

- Restoring slopes at a similar length and grade as the surrounding topography (Sec. 553.110).
- Eliminating all highwalls by proper backfilling and grading.
- Eliminating all spoil piles. Note: no spoil will be generated at the site.
- Eliminating all depressions by backfilling and grading except for small basins (pocks) that will be used for erosion control and to enhance vegetation. (Sec. 553.120).
- Achieving a post-mining slope that has a factor-of-safety of 1.3 or higher (Sec. 553.130, App. 5-5).
- Minimizing erosion and water pollution both on and off the site (Sec. 553.140).
- Restoring the site so that it will support the postmining land use.

Plate 5-1A shows the pre-mining topography, and Plate 5-6 shows the post-mining topography. Plates 5-7A-1 through 5-7A-4, and 5-7B-1 through 5-7B-3 show the pre-mining and post-mining cross-sections. Figure 2 of App. 5-07 shows detailed pre-mining, operational, and post-mining cross-sections for the refuse pile. Plate 5-9 shows the pre-mining, operational and post-mining cross sections for all portals.

The reclaimed site will contain some cut slopes. At cross section 16+00 the Permittee will leave a minor cut slope because they cannot completely eliminate the cutslope and achieve a minimum safety factor of 1.3. The Division does allow cutslopes to be retained in order to achieve slope stability.

**Findings:**

Information provided in the MRP-Part B meets the Final Surface Configuration requirements of the regulations.

**BACKFILLING AND GRADING**

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

**Analysis:**

**General**

The Permittee met the requirements for backfilling and grading by providing a plan in the MRP-Part B (Sec. 553) to backfill and grade the disturbed areas to:

- Achieve the approximate original contour (Sec. 553.110).
- Eliminate all highwalls, spoil piles, and depressions (Sec. 553.120).
- Achieve a post-mining slope that has a factor-of-safety of 1.3 or higher (Sec. 553.130, App. 5-5).
- Minimize erosion and water pollution both on and off the site (Sec. 553.140).
- Support the approved post mining land use (Sec. 553.150).
- Dispose of coal mine waste and underground development waste in the refuse pile.
- Cover all coal seams exposed by mining.

**Previously Mined Areas**

There are no known previously mined areas in the disturbed area boundaries for the Lila Canyon site.

**Special Provisions for Steep Slope Mining**

The Lila Canyon Extension area is not considered a steep slope mine, therefore the Permittee does not need to address special provisions for steep slope mining.

**Findings:**

Information provided in the MRP-Part B meets the Backfilling and Grading requirements of the regulations.

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**MINE OPENINGS**

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

**Analysis:**

The Permittee met the requirements for this section of the regulations by providing a plan in the MRP-Part B (Sec. 529, 551, App. 5-6) to permanently close each exploration hole, drill hole or borehole or well that is uncovered or exposed by mining activities within the permit area, unless approved for water monitoring or otherwise managed in a manner approved by the Division.

The Permittee will barricade and fence mine entries that are temporarily inactive in the permit area. The Permittee will post warning signs around the entries and periodically inspect and maintain the barricades (Sec. 529.210)

**Findings:**

Information provided in the MRP-Part B meets the Mine Openings requirements of the regulations.

**TOPSOIL AND SUBSOIL**

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

**Analysis:**

**Redistribution**

Section 241 describes grading the surface to AOC, replacement of subsoils in the root zone, ripping, replacement of topsoil, replacement of boulders and gouging and treatment of the surface with an inoculant.

The reclamation grading sequence is described in Sec. 241 and shown on Plate 2-3. In Sec. 241, the grading sequence is itemized in steps a through f. The sequence begins with: “a. Grade all areas where no subsoil is being stored. b. Replace subsoil on areas from which it was removed.” The Division received comments that the sequence as written was very confusing. The Permittee will use the as-built construction maps as a reference for locating suitable materials to be placed in the root zone during final grading. The as-built construction maps are referred to in Sec. 241, 242.100, and 232.500.

The Division received comments on the depth of topsoil replacement; the commenter believed that the MRP-Part B called for eighteen inches of topsoil to be replaced over the entire site. However, Sec. 242.100 describes the replacement of topsoil to approximate the variable depth of topsoil encountered at the site during the Order 1 Soil Survey (see Plate 2-3 Topsoil salvage and Replacement). Section 242.100 also outlines the equipment to be used to replace the topsoil.

The Permittee will attempt to re-establish biologic soil crusts on the surface of the topsoil storage pile (Sec. 231.400). If successful, they will use the biologic soil crusts to inoculate the reclaimed site (Sec. 244.200). At the time of reclamation, more options for cryptogam re-establishment may be available. For example, the U.S. Army Corps of Engineers is experimenting with cyanobacteria pellets, which may be commercially available in two years. (See <http://www.cecer.army.mil/td/tips/product/details.cfm?ID=527> for more information on cryptogam re-establishment).

The Permittee will replace any nutrients lost from the topsoil while in storage with amendments, as needed. To determine if amendments are necessary, several grab samples (from the bottom and middle portions of the stockpile) will be analyzed for nitrogen, potassium, and phosphorus (Sec. 243). Appendix 5-8 indicates that fertilizer application to the reclaimed surface will be based upon the testing of the topsoil.

### **Findings:**

Information provided in the MRP-Part B meets the Reclamation - Topsoil and Subsoil requirements of the regulations.

## **ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

### **Analysis:**

#### **Reclamation**

The Permittee met the requirements for this section of the regulations by including plans in the MRP-Part B (Sec. 542.600) to reclaim all roads within the disturbed area boundary, as soon as it is no longer needed for mining and reclamation operations. This reclamation will include:

- Closing the road to traffic;

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- Removing all bridges and culverts unless approved as part of the postmining land use;
- Removing or otherwise disposing of road-surfacing materials that are incompatible with the postmining land use and revegetation requirements;
- Reshaping cut and fill slopes as necessary to be compatible with the postmining land use and to complement the natural drainage pattern of the surrounding terrain;
- Protecting the natural drainage patterns by installing dikes or cross drains as necessary to control surface runoff and erosion; and
- Scarifying or ripping the roadbed, replacing topsoil or substitute material and revegetating disturbed surfaces

The Permittee will remove and bury road base gravel on site and cover it with a minimum of two feet of material, bury concrete under four feet of material, and dispose of the asphalt off site (Sec. 542.640 of the MRP-Part B).

**Retention**

The Permittee states in Sec. 642.600 of the MRP-Part B that there will be no roads left in the disturbed area after reclamation.

Emery County Road 126 (EC 126, Lila Canyon Road) is a public road that is constructed, operated and maintained by Emery County. The road is part of Emery County's transportation network, and will remain after the Permittee reclaims the Lila Canyon disturbed area.

**Findings:**

Information provided in the MRP-Part B meets the Reclamation - Road Systems and Other Transportation Facilities requirements of the regulations.

**HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

**Analysis:**

**Hydrologic Reclamation Plan**

**General**

The Permittee has submitted reclamation plans for the disturbed area in Sec. 760, and the reclamation sediment and drainage control plan is presented in App. 7-4 of the MRP-Part B. At the end of mining the Permittee will remove all mining structures, then regrade and shape the disturbed area site to approximate original contour (See Plate 7-7 of the MRP-Part B). The Permittee will remove all hydrologic structures at reclamation, except the 60-inch culvert (UC-1) that transmits flows from the Right Fork of Lila Canyon under the county road. This culvert is an existing structure (in existence before any mining disturbance), and an integral part of the existing county road.

### **Ground-water Monitoring**

The Permittee will continue to monitor ground-water according to the plan during the operation and reclamation phases of the mine-life, until bond release. The Permittee will follow the same ground-water monitoring plan during the operation and reclamation phases. Table 7-5 lists the ground-water monitoring parameters.

### **Surface-Water Monitoring**

The Permittee will continue to monitor surface-water according to the plan during the operation and reclamation phases of the mine-life, until bond release (Sec. 731.224 of the MRP-Part B). The Permittee will use the same surface-water monitoring plan during the operation and reclamation phases. Table 7-4 lists the surface-water monitoring parameters.

### **Acid- and Toxic-Forming Materials**

To ensure that surface and ground waters will not be polluted by acid or toxic materials, the slope-rock material (underground development waste) will be examined and tested as necessary to determine acid- and toxic-forming potential (Sec. 536). In App. 5-7, the Permittee commits to take a sample of coal processing waste for every 6,000 tons of waste disposed of in the refuse pile. These samples will be analyzed according to the parameters listed in Table 2 of App. 5-7. The Permittee will dispose of the slope-rock material in a refuse pile. At a minimum, the material in the refuse pile will be covered with 4 feet of non-acid and non-toxic forming material. (See Chap. 2, 5, and 7, and App. 5-7 for details.)

The Division does not expect an acid mine drainage problem to occur at the Lila Canyon Extension because refuse will be disposed of on high ground, and the refuse will be mounded and buried below four feet of growth medium. With low precipitation and four feet of soil cover, there will be limited contact of water with the refuse.

For additional discussion of acid and toxic-forming materials refer to these other sections of the TA: Operation Plan Spoil & Waste Materials/Refuse Piles and Operation Plan Hydrology Acid Toxic Forming Materials.

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**Transfer of Wells**

There are three piezometers (the IPA “wells”) and the Horse Canyon Well in, or adjacent to, the permit area (Sec. 722.400). There is no plan to transfer any of the IPA piezometers to any other party (Sec. 731.400). The Permittee plans to transfer the Horse Canyon Well to the College of Eastern Utah in conjunction with a land transfer.

**Discharges into an Underground Mine**

The Permittee has not proposed any discharges into an underground mine.

**Gravity Discharges**

Sec. 731.520 explains why gravity discharges from the mine are not expected, before or after mine closure. The coal seam to be mined dips away from the portal site at approximately 12 percent. If water is encountered in the mine, it is expected to be at a static level far below the exposed outcrop or rock slopes. It is not expected that water levels will ever reach the intersection of the rock tunnels and coal seam, so gravity discharge from the surface entries is also not expected.

**Water Quality Standards and Effluent Limitations**

The Permittee will monitor ground- and surface-water according to the plan during the operation and reclamation phases of the mine-life, until bond release. The Permittee will supply the water monitoring data to the Division every three months for each monitoring location. Should analysis of any sample indicate non-compliance with permit conditions, the Permittee will notify the Division and take immediate steps to correct the problem, and, if necessary, provide notice to anyone whose health or safety is in imminent danger due to non-compliance.

**Sedimentation Ponds**

The Lila Canyon sedimentation pond is considered temporary because it will be removed during final reclamation. The Permittee will use the sedimentation pond to control runoff until revegetation has been established, but will not remove it any sooner than two years after the last augmented seeding. When the sediment pond is no longer needed, the Permittee will regrade and reseed the area according to the reclamation plan. Plate 7-7 provides reclamation contours and drainage plans.

**Discharge Structures**

The sedimentation pond has a discharge structure, which directs water into the Right Fork of the Lila Wash. The Permittee will remove that discharge structure when the sediment pond is reclaimed. Underneath the sediment pond is a 60-inch culvert that directs water from the

undisturbed drainages into the. The Permittee will also remove that culvert when the pond is reclaimed.

### **Impoundments**

There are no permanent impoundments associated with the Lila Canyon Extension. All impoundments in the Lila Canyon Extension are temporary and will be reclaimed after Phase II bond release.

### **Findings:**

Information provided in the MRP-Part B meets the Reclamation – Hydrologic Information requirements of the regulations.

## **CONTEMPORANEOUS RECLAMATION**

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

### **Analysis:**

The Permittee will reclaim all disturbed areas not planned for use as contemporaneously as possible and within the constraints of seasonality.

### **Findings:**

Information provided in the plan meets the Reclamation - Contemporaneous Reclamation requirements of the regulations.

## **REVEGETATION**

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

### **Analysis:**

#### **Revegetation: General Requirements**

The Permittee met the requirements of R645-301-353 through R645-301-356 by including a reclamation plan and discussion of how the reclamation measures will meet the performance standards in the MRP-Part B.

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**RECLAMATION PLAN**

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The seed mixture for interim and final reclamation is the same (Table 3.4/3.5).

App. 5.8 and Table 3-3 describe the procedure for planting bare-root or containerized seedlings. The Permittee will carry out supplemental planting up to two years following seeding if it “appears that woody plant density is lacking”.

The Permittee will consult with the Division and DWR to provide the species and numbers of woody seedlings following an ocular evaluation (App. 5-8).

The Division received comment that the Permittee should not use lethal means of control for weeds and wildlife. The Permittee states that there will be “no use of pesticides or chemicals that have serious consequences to plants or wildlife...unless recommended by a regulatory agency...” (Sec. 333.200).

**Revegetation: Timing**

Table 3-3 provides a general reclamation timetable.

Salina wildrye, galleta, and blue grama are three of the more dominant grasses in the disturbed and reference areas. Galleta and blue grama are warm season grasses. The Division’s experience has been that these species do not establish well when seeded in the fall. The Division has no experience with successfully planting warm season species in the summer in Utah. The Permittee, however, agrees to establish demonstration plots to test whether summer seeding will increase establishment of the warm season species (Sec. 354).

**Revegetation: Mulching and Other Soil Stabilizing Practices**

App. 5-8 and Sec. 341.230 provide seed, mulch, and tackifier rates.

The Division recognizes the recovery rates for cryptogamic soil are slow, and that the period of extended liability may not be enough time to see “mature” or significant colonies. The Permittee, however, may increase soil stability by applying the best management practices for cryptogamic restoration.

**Revegetation: Standards For Success**

The effectiveness of vegetation for approved postmining land use as well as the extent of cover of the reclaimed area compared to the reference area determines revegetation success. The Permittee, the Permittee’s consultant, Dr. King, and the Division established a new reference area in 2003, which is slightly southwest from the mine entrance.

The Permittee will establish plant cover, woody plant density, and productivity at a minimum of 90% of the reference area (at a confidence interval of 0.1). The Permittee plans to meet diversity standards by applying the final seed mix and by planting seedlings, if needed, at year two of the liability period.

Wildlife habitat is the primary postmining land use. The Permittee does not plan to require or use animal control measures.

Section 358.100 states that the mine site environmental coordinator will identify possible TES species, notify the Division, and “take what ever actions are necessary to safeguard both the species and its habitat”.

The Permittee states there are “no wetlands and/or riparian areas within the area of potential disturbance”. The adjacent area, however, includes habitats of high value such as springs and wet meadows. The springs and meadows are primarily outside the permit area.

### **Findings:**

Information provided in the plan meets the Reclamation - Revegetation requirements of the regulations.

## **STABILIZATION OF SURFACE AREAS**

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

### **Analysis:**

Appendix 5-8 Reclamation and Enhancement Plan describes the means of soil stabilization including: gouging of the site to encourage a roughened appearance as shown in Figure 1; and placement of large rocks and boulders and vegetation; application of 500 lbs/acre wood fiber mulch and 100 lbs/acre of tackifier with seeding and then a second over spray of 1500 – 2000 lbs/acre of wood fiber mulch with 100lb/ac of tackifier and 200 lb/ac of 16-16-8 fertilizer. Appendix 5-8 further describes the use of wood fiber mulch over topsoil.

Microbial crusts stabilize the soil through protection of the soil from water and wind erosion. The plan recognizes the need to re-introduce microbial life in Sec. 241, and if soil crusts form on the topsoil pile, they will be harvested and added to the wood fiber mulch application over the reclaimed site, Sec. 244.200 specifies a method. The best technology for re-introducing cryptogams on a large scale is still a subject of research. The Internet Web site [www.soilcrust.org](http://www.soilcrust.org) provides excellent references. Introduction of biologic soil crusts may be as simple as sprinkling the crushed organisms over the surface and irrigating as described by Jayne Belnap in the publication, “Cryptobiotic Soil Crusts: Basis for Arid Land Restoration (Utah),”

**RECLAMATION PLAN**

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Restoration and Management Notes 12:1 Summer 1994. The Permittee's commitment to advancing this research is commendable.

In accordance with R645-301-244.300, rills and gullies that contribute to a violation of water quality or that disrupt the postmining land use will be filled, regraded or stabilized.

**Findings:**

Information provided in the MRP-Part B meets the Reclamation -Stabilization of Surface Areas Configuration requirements of the regulations.

**MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

**Analysis:**

**Affected Area Boundary Maps**

The Permittee met the requirements for showing the affected areas boundaries. Plate 1-1, Permit Area Map, shows the affected areas for the Horse Canyon Mine. The areas include Part A, the Horse Canyon Project and Part B, the Lila Canyon Extension, Plate 1-1,

**Bonded Area Map**

The Permittee met the requirements for showing the bonded area (disturbed area.) The Division bonds for activities that will occur within the disturbed area boundaries. Several maps show the disturbed area boundaries, including Plate 1-2 Disturbed Area Map and Plate 5-2, Surface Area

**Reclamation Backfilling And Grading Maps**

Several maps and cross-sections will be used during backfilling and grading. The general cross-sections are on Plate 5-7A-1 through Plate 5-7A-4 and Plate 5-7B-1 through Plate 5-7B-3. Cross-sections on Figure 1 and Figure 2 in Appendix 5-7 show the final backfilling and grading plan for the refuse pile. Plate 7-7 shows the post-mining contours and surface drainage. The maps are adequate to ensure proper backfilling and grading.

Plate 7-7 shows the postmining hydrology at Phase I bond release. The notes on the map indicate that the Permittee will remove the sedimentation pond, RD-1, RD-2, and the upper

portion of UC-1 at Phase II bond release. They will leave the portion of UC-1 that lies beneath the County Road in place.

### **Final Surface Configuration Maps**

Plate 5-6 shows the contours within and for at least 100 feet outside the disturbed area boundaries. The contour intervals are 5-foot. In addition, the cross sections are on 200-foot intervals. The Division considers the Plate 5-6 adequate to show the final surface configuration.

### **Reclamation Facilities Maps**

In Section 542.320 of the MRP-Part B, the Permittee states that there will not be any surface facilities left after final bond release.

### **Reclamation Surface and Subsurface Manmade Features Maps**

The Permittee met the requirements of this section of the regulations by:

- Identifying on Plate 1-1 that there are no buildings in or within 1,000 feet of the proposed permit;
- Identifying on Plate 1-1 that there are no surface or subsurface manmade features within, passing through, or passing over the proposed permit area, except for culvert UC-1; and
- Identifying on Plate 5-6 each public road located in or within 100 feet of the proposed permit area.

No roads within the permit area are to be left as part of the post-mining land use.

### **Certification Requirements**

The Permittee had a Registered Professional Engineer, licensed to do business in the State of Utah certify all maps and cross sections that require certification.

### **Findings:**

Information provided in the MRP-Part B meets the Maps, Plans, and Cross Sections of Reclamation Operations requirements of the regulations.

## **BONDING AND INSURANCE REQUIREMENTS**

**RECLAMATION PLAN**

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**Analysis:**

**Form of Bond**

The Permittee will submit a bond after the Division approves the Lila Canyon submittal, but before the Division issues the permit. The Division cannot issue the permit until the Permittee has posted an adequate bond. The Division determines whether the bond is adequate and in the proper form (see R645-301-860).

**Determination of Bond Amount**

The Division has determined that the reclamation cost for the Lila Canyon extension project must be a minimum of \$1,686,000 in 2008 dollars, based on the information provided in App. 8-1.

The Permittee did not bond for subsidence. The regulations do not require a Permittee to bond for subsidence unless damage occurs to either structures or facilities protected under R645-301-525.500 or when contamination, diminution or interruption to a water supply protected under R645-301-731.530 occurs.

**Terms and Conditions for Liability Insurance**

The Permittee supplied an insurance ACCORD form in Apps. 8-2 and 8-3 from the Federal Insurance Company stating the amounts their current policy provides for. The policy amounts are adequate to meet the minimum regulatory requirements.

The ACCORD form states that the issuing company will notify the Division at least 45 days before cancellation of the policy.

**Findings:**

Information provided in the MRP-Part B meets the Bonding and Insurance requirements of the regulations.



## **CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)**

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

### **Analysis:**

The Division is required to prepare a CHIA for the Decision Document as the TA is approved.

### **Findings:**

The Division has compiled the Cumulative Hydrologic Impact Assessment (CHIA).

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