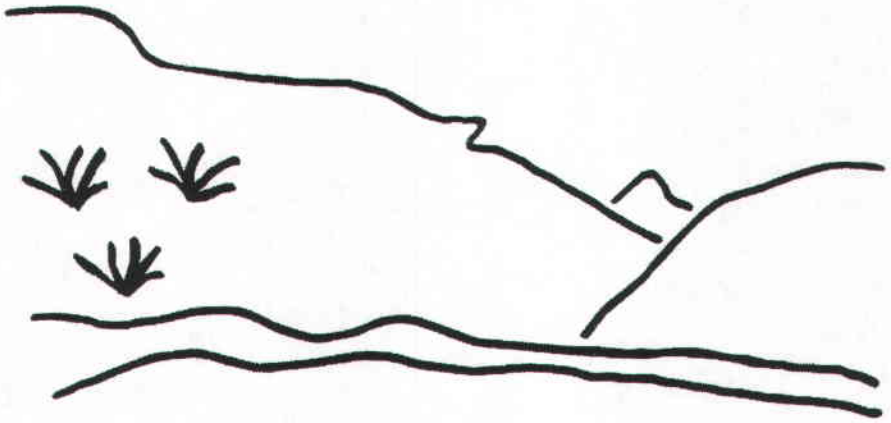
State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Master Technical Analysis
Horse Canyon Mine, Part B
Lila Canyon Extension
C/007/0013
April 18, 2008

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ATTACHMENTS

EXECUTIVE SUMMARY

The UtahAmerican Energy, Inc. (UEI, the Permittee) application (the Application) to add a 4,664.32-acre extension south of the existing Horse Canyon Mine was approved on May 3, 2007 and the permit was issued on May 18, 2007. The existing mine has undergone reclamation and is currently awaiting Phase III bond release. The proposed extension, referred to as the Lila Canyon Extension, includes the development of new surface facilities near the mouth of Lila Canyon in order to mine coal in six federal leases. Upon review and as demonstrated in this Master Technical Analysis (MTA), the Division finds that the Application is technically adequate and meets the requirements of the R645 Coal Rules. It is recommended that approval be given for the Lila Canyon revision to the Horse Canyon Mine permit with the following conditions:

Attachment A

SPECIAL CONDITIONS
(October 15, 2007)

1. UtahAmerican Energy, Inc (UEI) will submit water quality data for the Horse Canyon Mine, in an electronic format through the Electronic Data Input web site, http://hlunix.hl.state.ut.us/cgi-bin/appx-ogm.cgi. **(This condition is ongoing.)**

2. UEI will follow the Programmatic Agreement if cultural resource sites are discovered within the permit or adjacent areas. **(This condition is ongoing.)**

3. UEI will: 1) provide for conducting yearly fly-over raptor surveys; 2) immediately contact UDOGM, USFWS, UDWR and BLM if raptors are tending nests or are nesting in areas near the area to be mined (mining in the subsidence zone and below the cliffs next to the subsidence zone) in the current nesting season or in the coming nesting season (the following year); 3) implement the Best Technology Available (BTA) to provide for the protection of the raptors and their nests. This BTA will be determined by the agencies and then implemented by UEI. Implementation of BTA measures may include fencing of the nests, or avoidance of the area and/or may also include the need to apply for a 'take' permit from USFWS; and 4) provide a complete report of the yearly surveys to UDOGM." **(This condition is ongoing.)**

More detailed explanations of Condition 3 are located in this MTA (dated April 9, 2008) pdf under the Operations Section "Migratory Birds, Game Birds, and Raptors" and 2008 Incoming document #0011. The Permittee will comply with all provisions outlined in Condition 3 as well as the accompanying explanations provided in the Operations Section of this MTA. The Permittee must follow all provisions **in addition** to what is included in the MRP.

4. UEI must report actual annual water depletions to OSM - Western Region by September 30 of each year.

INTRODUCTION

The Horse Canyon Mine is located in the Book Cliffs coalfield in Emery County, Utah south of the towns of East Carbon and Sunnyside. The existing mine has undergone reclamation and is currently awaiting Phase III bond release. UtahAmerican Energy, Inc. (UEI, the Permittee) presented permit application package (PAP or the Application) to develop new surface facilities and conduct underground coal mining in an area south of the existing Horse Canyon Mine, referred to as the Lila Canyon Extension. The existing Horse Canyon Mining and Reclamation Plan (MRP) is referred to as the MRP-Part A, and the approved Lila Canyon Extension PAP has become the MRP-Part B. This Master Technical Analysis (MTA) document is the result of a review by the Division to describe technical adequacy of the Application as applied to the Utah R645 Coal Rules.

The legal description for the Horse Canyon Mine (Permit Area "A") and the Lila Canyon Extension (Permit Area "B") along with a summary of pertinent background information for the mine are provided as Attachment 1 of this MTA. The permit area for the existing Horse Canyon Mine is approximately 1,327.75 acres, and the permit area for the proposed Lila Canyon Extension is approximately 4,664.32 acres, for a total of 5,992.07 acres. The Permittee proposes to mine coal in six federal leases 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 Lila Canyon Extension permit area overlaps a small portion of the Turtle Canyon Wilderness Study Area (WSA). However, the disturbed area of the mine is located approximately 1.3 miles from the WSA. 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 Application, 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 PAP was a Significant Permit Revision; therefore publication of a notice for public comment was required. Because the Permittee did not respond to the Division's April 2003 Technical Analysis and deficiency list until February 2004, the Division considered the permit application inactive, and required the Permittee to publish again. The new application was known as Part B Lila Canyon Extension and was processed as a new permit under the Horse Canyon Mine permit number. Notice was printed in both the *Sun Advocate* and the *Emery County Progress* in April 2004.

INTRODUCTION

Unless specifically stated, all references to Sections and Volumes in this MTA refer to the current Application on file for the Lila Canyon Extension. Attachment 2 of this MTA provides a list of selected Permittee commitments.

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 Application that complies with the requirements of R645-301-112 as described below.

The Application states that UtahAmerican Energy, Inc is a corporation, qualified to do business in the state of Utah (R645-301-112.100). Murray Energy Corporation is the 100% owner of UtahAmerican Energy (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. The Application identifies the Permittee's employer identification number (EIN), and in the confidential binder, the social security numbers of key personnel of UtahAmerican Energy, Inc., and parent companies (R645-301-112.200 *et seq.*). Mr. Michael O. McKown, Secretary of both UEI and Murray Energy Corporation certified that the ownership and control information was complete and correct as of May 15, 2007 (Appendix 1-1).

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. 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 esq.*, 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 Mine, and Lila Canyon Extension, as well as the proposed refuse pile, in Section 112.700 (R645-301-112.700).

The Division approved the Application on May 3, 2007 and issued the permit on May 18, 2007. The Permittee updated, corrected, and indicated that the information submitted under R645-301-112.100 to R645-301-112.800 had not changed (R645-301-112.900).

Findings:

Information provided in the Application 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 required, by providing the information found in Section 113.100-120 and Appendix 1-3.

The Permittee indicated by letter dated May 3, 2007 that the information submitted under R645-301-113 has not changed (R645-301-113- *et seq.*).

Findings:

Information provided in the Application 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 Extension 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, 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 Application 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. The Southern Utah Wilderness Alliance (SUWA) petitioned the Office of Surface Mining's (OSM) Denver Field Division (DFD) on July 25, 2006 to designate all lands lying within the subsidence zone of the proposed Lila Canyon Extension ("subject lands"), as unsuitable for surface coal mining operations. The petition indicated that the subject lands are "either known to contain or likely to contain a significant number of historic and prehistoric sites." The Federal regulations found in 30 CFR 769.14(g) say: "*OSM may determine not to process any petition received insofar as it pertains to lands for which an administratively complete permit application has been filed and the first newspaper notice has been published. Based on such a determination, OSM may issue a decision on a complete and*

accurate permit application and shall inform the petitioner why OSM cannot consider the part of the petition pertaining to the proposed permit area."

OSM determined that it would not process SUWA's petition, because SUWA "has been intimately involved with the proposed Lila Canyon Extension permitting process for a number of years, and has had ample opportunity to file an unsuitability petition", and *"to accept and consider SUWA's petition more than two years after the public notice of completeness was first published would constitute an unwarranted delay of mining operations by precluding action on the permit application."*

SUWA submitted a revised petition on September 13, 2006, surmising that the permit was not administratively complete when the Division determined it to be so. OSM again determined that it would not process SUWA's petition, based on the fact that OSM may not intervene in the Division's permitting process (based on *Bragg vs. West Virginia Coal Association, among other Federal Court decisions)*, because they do not possess concurrent or parallel jurisdiction, since the State of Utah has been granted Primacy under the Act. OSM additionally determined that SUWA has already pursued the matter of administrative completeness under the procedures allowed by Utah's laws, and any interference by OSM would circumvent the statutory scheme.

There are no occupied dwellings within 300 feet of the Lila Canyon Extension, but there is a public road within 100 feet of the mining boundary. The Permittee 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 began, the Permittee complied with the requirements of R645-103-234.200 through R645-103-234.300 and provided opportunity for a public hearing. This hearing was conducted on September 4, 2007 in Emery County (R645-301-115 *et seq.*).

Findings:

The information found in the Application 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 Division issued the five year permit on May 18, 2007, after public notice and a County hearing on the County Road construction and realignment was held September 4, 2007;

and after OSM determined that a mining plan approval was not required by letter dated June 27, 2007.

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

- The initial permit term is five years. Anticipated starting and termination dates for the life of the mine in Section 116. Vegetation grubbing began January 3, 2008.
- The Permittee describes the disturbed acres in Table 4-2.

- Permit area is shown on Plate 1-1 and disturbed area on Plate 1-2.

Until July 1, 2008, any further increase in construction activity is subject to the protocol developed for the golden eagle and Rocky Mountain sheep exclusionary periods (2008/Outgoing/0011.pdf).

Findings:

Information provided in the Application 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.

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.

Before construction of the mine began, the Permittee complied with the requirements of R645-103-234.200 through R645-103-234.300 and provided opportunity for a public hearing

concerning re-alignment of County Road 126. This hearing was conducted in Emery County on September 4, 2007.

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 Application 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:

The Permittee met the Filing Fee requirements of the regulations.

PERMIT APPLICATION FORMAT AND CONTENTS

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

Analysis:

This Application is a Significant Revision to the existing C/007/0013 permit, proposing an extension to the Horse Canyon Mine. Although the Application is largely a stand-alone document, there are baseline data and current legal/financial information in the Horse Canyon Mine MRP (MRP-Part A) that are relevant to this Application. There are two separate water-monitoring plans: one in Part A, and one in the Application. There are two Probable Hydrologic Consequence (PHC) discussions: one in Part A, and another in the Application. The PHC for this Application utilizes data from Part A.

Various terms for coal mine waste used in the Application can be confusing. By the definitions found in the R645 Coal 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.

The Application 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 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 the Application. The Permittee has replaced the term "rock-slope material" with "rock-slope material/mine development waste" in some sections of the Application.

Findings:

The information found in the Application 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 Application 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 Application 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 currently no mining related surface disturbance in the Lila Canyon Extension area.

Findings:

Information provided in the Application meets the Maps and Plans requirements of the Regulations.

COMPLETENESS

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

Analysis:

The Permittee submitted the Application for the Lila Canyon Extension to the Division on February 24, 2004. The Division determined the Application to be *administratively* complete on March 26, 2004. The *technical* adequacy of the Application was made with the Master Technical Analysis (MTA) dated April 27, 2007 and issued with the permit on May 18, 2007.

Findings:

Information provided in the Application 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 Application meets the requirements of the regulations outlined in this section. A general description of the pre-mining environmental resources within the proposed permit area and adjacent areas is provided. The descriptions includes the following subjects:

- 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 in 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 Application under specific Environmental Resource Section headings of this TA.

Findings:

Information provided in the Application meets the General Environmental Resource Information requirements of the Regulations.

PERMIT AREA

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

Analysis:

The Application meets the requirements of the regulations outlined in this section.

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

Table 1-1 shows the acreages for all federal coal leases. Table 4-2 lists the surface acreage according to private, state and federal ownership. Table 4-2A lists the private, state and federal acres of coal ownership.

Plate 5-5, Mine Map, shows mining sequence. Table 3-3 shows that reclamation timetable. The projections on those maps are subject to the date mining actually begins and to market and mining conditions.

Findings:

Information provided in the Application meets the Permit Area requirements of the Regulations.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

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

Analysis:

The Application meets the requirements of R645-301-411 pertaining to historic resources. The Application Confidential Binder includes numerous evaluations of historic resources that focus on or include the permit area. The Application also includes narrative and maps that describe or illustrate locations of historic resources within or adjacent to the permit area. There is a summary of survey reports through 2006 that details the cultural or historic resources within the area (Confidential Binder, Appendix 4-1). There will be proof of coordination efforts with SHPO on February 1, 2008 upon submittal with a C1C2 form requesting insertion to the MRP.

The Division, in consultation with OSM, BLM, and SHPO, considers that the proposed Lila Canyon Extension would have an "*adverse effect*" on cultural resources. A Programmatic Agreement (PA; Attachment 3) drafted by the Division and a Memorandum of Agreement (MOA; Attachment 4) drafted by the BLM are measures designed to address known or unknown potential effects that could occur as a result of this federal action. The Permittee must comply with these documents as agreed to by the signatories (OGM, BLM, OSM, and SHPO) and required by a permit stipulation.

The Permittee will provide proof in the MRP of the completion, by the Division (as per the delegation by OSM on January 4, 2006 pursuant to 30 CFR 944.30 Article VI (C) (4) (g)), of coordination efforts that meet the requirements under The National Historic Preservation Act (36CFR800; R645-301-300.113). The Division received Advisory Council on Historic Preservation (ACHP) letter of receipt and filing of the Lila Canyon Extension Programmatic Agreement (January 16, 2008). The Division provided the Permittee with a copy of the ACHP's letter (email January 23, 2008), which they will re-submit with a C1C2 form requesting insertion to the MRP.

UEI never provided clear and concise information concerning the PA, protection of listed sites, direct/indirect impact, and information on sites within the permit and surrounding area (DOGM letter to Permittee 08032007; Condition 3b). However, the PA is a condition to the permit that is on-going and the Permittee will follow this condition – the PA. Below is taken from the October 15, 2007 letter to the Permittee from the Division.

> 2. UEI will follow the Programmatic Agreement if cultural resource sites are discovered within the permit or adjacent areas. **(This condition is ongoing.)**

The Division concurs with the recommendations provided in archaeological inventory reports that there are three prehistoric sites eligible for listing in National Register of Historic Places (NRHP) within or adjacent to the proposed extension area. One prehistoric site (42EM2517) may be susceptible to impacts caused by vandalism (Montgomery 1999). The BLM will implement the mitigation plan for 42EM2517 as directed in the MOA (signed version), before construction of the facilities site. The other two eligible sites are 42EM2255 and 42EM2256 and are subject to potential subsidence (Montgomery 2006; Miller 1991 and 2006). The Programmatic Agreement (PA, 2007) addresses related protection measures for archaeological resources such as these two sites.

There are other sites within or adjacent to the permit area that are not eligible. Refer to the Application (Confidential Binder) and to the Division's decision memo (Outgoing 2007 #0017) for a full list of these resources.

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

Findings:

Information provided in the Application 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 Application meets the Environmental Description for Climatological Resource Information as provided in R645-301-724.400. The Division finds that these standards are met because the Application provides climatological information about the average seasonal precipitation, the average direction and velocity of the prevailing winds, and the seasonal temperature ranges. The data came from:

- The National Weather Service's cooperative weather station located in Sunnyside, Utah, for the period 1971 to 2000.
- USGS Water Supply Paper 2068.

The Permittee committed in Section 724.411 to the installation of a rain gauge at the Lila Canyon Extension site to comply with reporting requirement of the air quality permit.

Findings:

Information provided in the Application meets the Climatological Resource Information section of the Regulations.

VEGETATION RESOURCE INFORMATION

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

Analysis:

The Application meets the requirements of R645-301-321 because there is adequate discussion of the plant communities observed within the permit area. Volume 2 (Appendix 3-1 and 3-2) contains vegetation surveys, vegetation maps, and productivity estimates for the proposed facilities and reference areas. Plate 3-2 shows plant communities including communities associated with the spring and drainage locations. The Application also includes adequate vegetation analysis or proposed analysis needed for assessing reclamation potential and success.

Findings:

Information provided in the Application 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 Application meets the requirements of R645-301-322 because they provided adequate discussion, supporting documentation, and maps on fish and wildlife resources for the permit and adjacent areas (Vol. 2 Appendix 3-3 through 3-6).

The Division received comments that the Application does not contain:

- Site-specific resource information.
- Information about the high value wildlife habitats.
- Sufficient information to design the protection plan.

The Division, in consultation with DWR and BLM, determined the level of wildlife information required for this project. The agencies declined to require additional monitoring of the wildlife species. However, the agencies agreed that the Permittee should:

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

Complying with the agencies' requests, the Application now includes the Permittee's descriptions of riparian habitat and presence/absence observations of amphibians (Appendix 7-7 PHC). The Division has verified some of the observations provided by the Permittee. The Permittee monitors Stinky Springs as part of the quarterly monitoring program. The Application also now includes water consumption estimates. The Permittee will report actual water depletion values annually in their Annual Report. If values increase over 100 acre-feet of water, the Permittee will mitigate their impact by contributing a one-time fee to the Recovery Program.

During the drafting of the EA (UT-070-99-22 July 2000), DWR, USFWS, and BLM agreed to develop a wildlife enhancement/mitigation plan to help offset impacts to bighorn sheep

as well as mule deer, elk, raptors, and chukars (Section 322.220, 333). (See details of this agreement in Operation Plan section of this MTA.)

Ungulates

The Application includes wildlife information in Section 322.220 and the wildlife map (Plate 3-1, 3-1A). Plate 3-1 shows there is habitat within the Lila permit area for Rocky Mountain bighorn sheep, elk, and mule deer and habitat within the surface facilities area for sheep and mule deer. A large area adjacent to the permit boundary is habitat for pronghorn (Plate 3-1 and 3-1A).

Migratory Birds, Game Birds, and Raptors

There are five golden eagle nests in the cliff habitat above the proposed facility site. These nests are within or close to the 0.5-mile (2640 ft) buffer zone for the facility site.

UEI does not specifically mention the bald eagle in any field survey report. The DWR raptor surveys, however, will note their presence in their survey reports if DWR observes this species during UEI's annual fly-over inventory.

Information from DWR shows that water sources up Lila Canyon are heavily used by chukars. DWR mentioned that mining operations near the mouth of the canyon would affect these birds.

Threatened, Endangered, and Sensitive Species (TES)

The Application meets 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. Appendices for Chapter 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 Emery County TES list includes Barneby reed-mustard, Jones cycladenia, last chance townsendia, Maguire daisy, San Rafael cactus, Winkler cactus, Wright fishhook cactus, bonytail chub, Colorado pikeminnow, humpback chub, razorback sucker, Mexican spotted owl (MSO), black-footed ferret, western yellow-billed cuckoo (candidate), and southwestern willow flycatcher. Documents in Appendix 3.3 show that there are no known occurrences of TES species, but there may be suitable habitat for certain species.

<u>TES Plants</u>

The Division, in consultation with DWR and BLM, determined that the Lila Canyon Extension area includes 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 before construction (Section 321.100)

Mel 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 TE species could occur near the Lila mine. The Division does not impose further requirement at this time to conduct field surveys for these species.

Mel Coonrod (EIS; and staff) surveyed for many TES plant species (May 1999, August 2000, April 2002, May 2002). The observations for individual plants were positive only for canyon sweetvetch.

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 Section 333, the Permittee agrees to conduct "formal" MSO calling surveys two years prior to reaching potential MSO habitat under two conditions: 1) the habitat areas are identified by the 2000 model (or currently accepted model) and supported by the Willey flyover results, and 2) the areas are classified as subsidence zones.

Findings:

Information provided in the Application 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 Application meets the requirements for soil survey and characterization. The Permittee discusses soil resources in Chapter 2, Sections 210 through 224.

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 (Section 3.2, Appendix 2-3).

The disturbed area vegetation consists primarily of 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. The Permittee has the soil horizons 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 Application 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 Application meets the requirements for providing information in the MRP Part A and the Application about the land use resource. Chapter X, Section 10.3 of the MRP Part A describes pre-mining land was use by wildlife and for access to grazing allotments.

In Section 410 and 411, the pre-mining land-use description includes wildlife habitat, grazing, recreation and mining. The Permittee listed the grazing allotments on Table 4-3 and allotment boundaries 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 (Section 411.130). In March 1999, the Emery County Board of Commissioners approved a "Large Scale Industrial Site Plan for the Lila Canyon Operation" (Appendix 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 (Chapter 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 (Section 411.200, Appendix 5-4, Plates 5-1 and 6-2 and Plate II-2, MRP Part A). EC 126 into Lila Canyon was built in the 1950's to provide access for coal exploration.

Findings:

Information provided in the Application 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 Application meets the requirements for alluvial valley floor determination. The information provided in Chapters 2, 6, and 7 of the Application was adequate for the Division to determine that there is no probable existence of an alluvial valley floor. The Division made the determination of because:

- Information presented in the Application shows there is insufficient surface or spring flow to sustain surface or subirrigation or flood irrigation agricultural activities.
- There is no valley in or near the Lila Canyon extension that has a perennial or intermittent-functioning stream in the permit area (Section 724.200).
- 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.
- There is no farming activity upstream or downstream of the proposed permit area.

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 Application 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 Division in consultation with the Natural Resources Conservation Service (NRCS) determined in 1998 that there are no prime farmlands at the proposed disturbed site (see Appendix 2-1).

Findings:

Information provided in the Application 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 Application meets the requirements of R645-301-610 and 620 by providing geologic information for the Lila Canyon Extension permit and adjacent areas in Chapter 6.

The Division received comments that effects from faults on movement of ground water are ignored, especially in the regional aquifer. Faults in the Lila Canyon Extension area are discussed in Section 6.5.3.3. The relationship of faults to ground water is discussed in Section 724.200. The Permittee correlates regional and structural geologic information to the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water (Section 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 (Section 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 (Section 6.5.3.3), and Plates 6-1 and 6-2 projects the Sunnyside Fault as dying-out near the northeast corner of the Lila Canyon Extension.

Geologic maps and cross sections meet 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 the 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.

Plate 7-1 also shows 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.

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 Chapters 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 Section 724.100 and shown on Plate 7-1. The lithology creates two separate ground-water zones, a perched upper ground-water zone (Section 724, Upper Groundwater Zone) in the undifferentiated Colton/Flagstaff-North Horn Formation units and a deeper saturated lower zone, underlain by the Mancos Shale (Section 724, Lower 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 Section 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.

Sufficient geologic information has been collected within and adjacent to the permit area to assist in preparing the subsidence control plan. Section 6.4.1, Plates 6-3 and 6-4 describe the depth of cover, seam thickness, 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.

Sections 6.3 - 6.5 include descriptions of the regional and structural geology and other parameters that could influence reclamation. The information is for all strata down to, and immediately below, the coal seam to be mined. It includes the permit and adjacent areas. These descriptions are accompanied with 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 pyretic sulfur (Appendix 6-2), published geologic information (see Reference Sited section), 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. The pieziometric surface is presented on Plate 7-1 and projected onto the cross sections of Figures 7-1 and 7-1A. Appendix 6-1 contains drill logs, water pump tests, and water analysis data for S-32 (Plate 7-1), an exploration hole drilled by Kaiser and temporarily used to monitor water levels and quality. 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 Section724.100.

Thickness and engineering properties of strata immediately above and below the coal seam are discussed in Section 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. R645-301-624.200 does not apply to the Horse Canyon Mine Lila Canyon Extension because strata down to the coal seam to be mined will not be removed and there are no unweathered strata exposed. The Permittee has met the requirements of R645-301-624.300. Drill-logs in Appendix 6-1 note the presence of visible pyrite, indicating some acid-forming potential in strata above and below the Sunnyside Seam. Appendix 6-2 includes analyses 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 Lila Canyon Extension area (Plate 6-2). The report also provides information on total metals extracted using EP-Toxicity procedures and saturated paste extractions for calculation of sodium adsorption ration (SAR). The Division concluded from this report that two key parameters to monitor in the rock slope development waste will be hot water soluble boron and SAR.

Analyses of material from the old Horse Canyon Mine waste rock pile have been added to Appendix 6-2. This appendix also includes analysis results for samples from strata immediately above and below the seam being mined that were collected at the Lila Canyon fan portal by BXG.

As explained in Section 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 the waste and burying it under four feet of fill, and establishing drainage off and away from the covered pile (Section 731.121, Appendix 5-7). The refuse pile is to be incised into thin pediment deposits and underlying Mancos Shale (Plates 5-2 and 6-1), and there are no ground- or surface-water resources at the site of the refuse pile (Section 746.211). Periodic sampling of the materials placed in the refuse pile will provide a record 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, as described in R645-301-624.300. This waiver applies to the initial Lila Canyon Extension application only. It does not preclude the Division from requiring such information in the future, for areas either inside or outside the permit area. The Division is not waiving the Permittee from any other sampling and analysis requirements.

The Division finds that the collection and analysis of additional data from test borings or drill cores for the initial Lila Canyon Extension extension Application 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 commitments to analyze coal mine waste for acid- and toxic-forming properties (Appendix 5-7, Refuse Testing) and to handle earth materials, runoff, and ground-water discharges to minimize acidic, toxic, or other harmful drainage or infiltration to ground-water systems (Sections 731.111 and 731.121). Information from additional test borings or drill cores would not serve to further reduce potential impacts.

The Division does not require the analysis of pyretic 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 pyretic sulfur.

There are no gas or oil wells in the permit or adjacent areas.

The disturbed area will be subjected to neither opencast mining nor subsidence, and geologic information is sufficient to determine that reclamation can be accomplished.

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 7-1B now include Range Creek drainage. The geology of the Range Creek drainage, particularly as it relates to the Lila Canyon Extension, is discussed in Chapter 7 and the PHC (Appendix 7-3). The Permittee has identified the potential influence mining may have on the springs and streams of Range Creek (Section 724.200).

Figure 7-4 shows three areas in the Colton Formation (the only formation exposed in Range Creek down dip of the mine), within the permit area that act as a potential recharge area for Range Creek. The areas total 182 acres and lie on the tips of the ridges west of the drainage divide that separates the surface drainages of the permit area from the Range Creek drainage. The Permittee has identified a very low potential that impacts from subsidence would affect surface and ground-water sources adjacent to the permit or further east in Range Creek. Conservative calculations of geologic units that support the recharge area of the upper (perched) groundwater zone from the permit area identify less than one percent of the recharge source for springs and the stream in Range Creek lie within the subsidence zone of the permit area. The Permittee also concludes that the high shale and mudstone units within the Colton Formation, which make up approximately 33.4 % of the formation, and the very high content of shales, mudstones, and clays in the North Horn/Flagstaff Limestone, which make up approximately 79.0 % of that formation, will retard both vertical and horizontal (down dip) movement of groundwater. The Permittee also mentions that the areas outlined as potential recharge to Range Creek have substantial overburden between the formation and the coal seam, approximately 2,000 feet.

Relevant to assuring protection of springs in Range Creek, the Permittee describes that only a small percentage of the precipitation is absorbed into the ground from the likely recharge source, the Colton Formation and undifferentiated Flagstaff /North Horn Formations. Because the Colton Formation is the only formation exposed on the east-facing slope of Range Creek, all spring flows on that slope would have to recharge from the Colton Formation. The Flagstaff Limestone is only a mere remnant near the permit area. Only the lower layers of the Colton Formation are exposed in the permit area, and it contains high amounts of shale, clay, and mudstone layers and would absorb substantially less precipitation. The multi-layer of clays, silts and shales greatly restrict groundwater flows both horizontally and vertically in the formation. This is reflected in the low flowing springs in the draws adjacent to the permit area.

Groundwater will usually tend to flow in the direction of the formation's dip slope or seek the path of least resistance when a pressure head exists. When there is a recharge source at the end of ridges or escarpments groundwater will tend to flow to the lower pressure areas as the Permittee shows in Figure 7-3. This is also reflected in the locations of spring adjacent to the permit area.

The Permittee complied with the requirements of R645-301-630. The subsidence-monitoring plan is in Section 525.440; subsidence-monitoring points are shown on Plate 5-3. The Lila Canyon Extension will use planned subsidence (Section 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 (Section 525.453). Section 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 (Sections 525.451 and 525.454). Section 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 (Section 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 (Section 765); however, no additional drilling is planned (Section 755).

Findings:

Information provided in the Application meets the Geologic Resource Information requirements of the regulations.

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 Application to address the requirements of the regulations pertaining to hydrologic resource information. The following sections support why the Division considers that the Application addresses the regulations.

Sampling and Analysis

Section 723 states that water quality analyses 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 meet this standard.
Baseline Information

The Application meets the hydrology Environmental Description for Baseline Information as provided in R645-301-724. Hydrologic baseline information for the proposed permit and surrounding areas is discussed in Section 724. Hydrologic baseline data for the Lila Extension and Horse Canyon Mine areas are presented in Appendices 7-1 and 7-2, respectively.

The groundwater, surface water, and geologic information provided met the standards as provided in R645-724.100, .200, and .300, respectively. Furthermore, the baseline information was used to make probable hydrologic consequences determination (PHC) for the proposed permit area (Appendix 7-3), an assessment of the viability of reclamation, and an assessment of the potential for material damage outside of the permit area. A brief description of the baseline data collection is presented below.

Baseline Information

Ground-water Information

The Permittee has provided sufficient information in Section 724 to describe the ground-water regime on and adjacent to the permit area. There are two ground-water systems that are spatially and hydraulically isolated from each other. The main potential recharge areas for the upper ground-water zone, the outcrops of the undifferentiated Colton/Flagstaff-North Horn Formation and Price River Formation, are shown on Plate 7-1A and discussed in Section 724.100, Recharge and Discharge Relations. The lower zone is in the Blackhawk Formation. Recharge to the lower zone is limited due to the restricted area of exposure of the formations, steep outcrops, and the presence of low-permeability units in the upper Blackhawk and overlying North Horn and Price River Formations. Ground water in the lower zone does not have a specified use, and these deep, saturated strata are not a regional aquifer. Depth to the water in the coal seam and adjacent strata is shown on Plate 7-1 and discussed in Section 724, Mine Inflow Information. The potential of ground-water recharge to the Range Creek drainage from areas in and adjacent to the Lila Canyon Extension is discussed in Section 724.200.

Plate 7-1 provides names and locations of the ground-water resources that include seeps, springs, wells, and piezometers on and adjacent to the proposed mine permit area. Appendices 7-1, 7-2, and 7-6 and the Division's database contain adequate baseline data on ground-water quality and quantity. Section 724.100 describes seasonal baseline water-quantity, flow rates, and usage, although snow cover and other weather related factors preclude year-round access to some monitoring sites.

Water-rights information is provided in Table 7-2 and locations are shown on Plate 7-3. The information describes the location, use, and ownership of water rights. Ground water from springs provides water for livestock and wildlife. The Permittee has supplied data sufficient to characterize the seasonal variation of quality and quantity with regard to the intended use in Appendix 7-3 and the Division's Water Quality Database.

The Division received comments that extrapolation of the potentiometric surface on Plate 7-1 ignored faults, ignored information from the rotary-car dump located within the Horse Canyon Mine, ignored the most recent data, and covered an unacceptably large area based on just three closely spaced data points. Water level information from the rotary-car dump has been

incorporated into the potentiometric surface shown on Plate 7-1. In parts of the permit area, this surface is an extrapolation of available data. However, the information provided meets the requirements of R645-301-724.100 because the potentiometric surface and the projected water-coal contact shown on Plate 7-1 provide a reasonable approximation of the depth to water in the coal seam, in water-bearing strata above, and potentially impacted strata below the coal seam.

The relationship of faults to ground water is discussed in several places in Section 724.200.

The Horse Canyon Well was included in the transfer of property to CEU (Plate 4-1) in October 2005. There are no plans to transfer any other wells (Section 731.400).

Regional Aquifer

The Division received comments concerning ground water and the existence of a regional aquifer. The comments relate to previous use descriptions and terms describing the ground-water resources in reports and other mine permits. The comments state that, "the regional aquifer is not described, there is no information on discharge areas and discharge rates for the regional aquifer, and the permittee has not established that the saturated zone is not an aquifer".

The Permittee has submitted complete information in Section 745.100 to describe the recharge of discharge, geologic and functional characteristics of the lower saturated zone. Based on all available information and the definition in the State coal mine regulations (R645-100-200), there is no aquifer in the lower saturated zone. The ground water is not developed for a specific use, the zone does not store or transmit water in sufficient quantities for a specific use, nor does this zone contribute base flow to streams or otherwise play a key role in the hydrologic system of the permit and adjacent areas. There has been no use of the deep ground water zone, no known discharges, and no likelihood the water will be developed in the future.

The BLM's July 2000 EA (UT-070-99-22) of the Lila Canyon Extension 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 1981 baseline study for Kaiser's South Lease permit Application did not identify any springs below the coal seam along the face of the Book Cliffs (Section 724.100, Mancos Shale). Furthermore, the 1993 - 1995 survey of the area around Lila Canyon by EarthFax (Plate 7-1A) did not identify any seeps or springs issuing from strata below the upper Price River Formation (Appendix 7-1). The IPA piezometers were completed within the Sunnyside Sandstone, the basal member of the Blackhawk Formation, and the first stratum below the coal seam with identifiable water. The water is confined (Section 724.100, Blackhawk Formation).

Information indicating that ground-water flow in the permit and adjacent areas is from local rather than regional systems is discussed in Section 724 (Upper Groundwater Zone, Permit Area Surface Water Resources, and Groundwater Systems.

Two seeps were identified in 2002 that flow near the top of the Mancos Shale. The two seeps were found in an unnamed drainage near the southwest corner of the permit area. The Permittee named these Stinky Springs (Big and Little) and initiated monitoring at sites L-16-G and L-17-G. Monitoring data for these springs are in the Division's electronic water monitoring database. The drainage, now identified as Stinky Springs Wash on maps in the Application (Plates 7-1 and 7-1A), is included in the Surface Water characterizations in Appendix 7-7. These seeps are not a public water supply nor are they a State-appropriated water supply. They emit a very low flows and smell of hydrogen sulfide. Because Stinky Springs lie below the coal seam in elevation, subsidence should not impact these springs. Information in the Application indicates that the flow to these springs is most likely through a local system associated with the fractured rock adjacent to one of the faults bounding a graben (Appendix 7-3, Groundwater and Surface Water Availability - Potential for Decreased Spring and Stream Flows). Plate 7-1 shows the relationship of these seeps to the Graben Fault. Water chemistry is consistent with waters from the Mancos Shale in the Book Cliffs (Section 724.100, Mancos Shale).

Lines' model applied to Range Creek

The Division received comments that the block-diagram in Figure 8 of USGS Water-Supply Paper 2259 (Lines, Gregory C., 1985, The Ground-Water System and Possible Effects of Underground Coal Mining in the Trail Mountain area, Central Utah) supports the hypothesis that there is discharge to Range Creek from a regional aquifer. In addition, the figure is a model for interaction between the Lila Canyon Extension area and Range Creek and 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 Section724.200 (Permit Area Surface Water Resources) in the Application.

1) 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. (Lines' model shows a stream that has eroded through the saturated lower Blackhawk Formation and into the Star Point Sandstone and receives gravity-driven base flow 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.

2) Horizontal separation: Lines' block-diagram has no scale, but proximity of the stream to the impacted saturated strata is implicit, i.e., they are in direct contact. In

contrast, the shortest distance between the planned Lila Canyon Extension workings and Range Creek is approximately four miles.

Mine Inflow

A large section of the Horse Canyon Mine is below the potentiometric surface as 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, and the data are in Appendix VI-1 of the Application. 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 (Section 724.100). The Division specified a maximum discharge rate of 500 gpm (1.1 cfs), two to five times the discharge rate for other Book Cliffs mines, be used in developing plans for potential downstream effects (Section 724.100, Mine Inflow Information).

Ground Water Baseline Data Adequacy

The Division received comments that the Application contains numerous water analyses from the mined area of the Horse Canyon Mine that do not represent pre-mining conditions, that the JBR data are not pre-mining, and that 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 an important part of the required description of the existing, pre-mining hydrologic resources of the permit and adjacent areas. (OSM has used "affected" and "unaffected" to distinguish baseline data collected from areas already disturbed by mining and data from areas not disturbed.) The Division finds that although the JBR, EarthFax, and other older data alone are not sufficient baseline data, they are a useful and valid part of the baseline data. In addition to the JBR and EarthFax data, the Permittee submitted more recent data for the springs, streams, and piezometers.

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. The Division finds that the Permittee is in compliance with the R645-301-724. 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 Permit includes a condition that by March 31, 2008 the Permittee will commence a comprehensive, on-the-ground survey for discharges from seeps or springs in the area between

the top of the Sunnyside Coal and the old tram road (at 5,750 foot elevation) and from Lila Canyon to the Williams Draw Fault line near the southern limits of the permit area. In addition, as part of the 2008 survey, locations of all seeps and springs in the permit and adjacent areas are to be determined by a GPS survey. The Permittee and the Division may add seeps and springs identified in the 2008 survey to the quarterly monitoring program.

The Division received comments that IPA-1, -2, and -3 are the only potential sources of information on water quality in the saturated zone. Water-quality information in the MRP-Part A and the Application adequately describe the quality of the ground water in the lower zone in the Lila Canyon Extension. Sampling of water specifically from the IPA piezometers is not necessary to satisfy the requirements of the Coal Mining Rules. Appendix 7-11 contains a discussion of potential methods and equipment for obtaining water-quality samples from these piezometers: because of the construction and depth of these piezometers, they are not suitable for water-quality monitoring. Appendix 7-11 contains construction diagrams for these piezometers. 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.

The Permit includes a condition requiring that if drilling is done from the surface into the coal seams for coal evaluation or other purposes, the Permittee will establish at least two of those boreholes as monitoring wells. They will incorporate these wells into the monitoring program and monitor water level and water quality for at least two years.

The Application contains a water-monitoring plan in Sections 731.200 through 731.225. If ground water is encountered in the mine in a quantity that requires discharge, it will be held in sumps as long as possible to promote settling, sampled to ensure compliance with UPDES standards, and pumped to the surface for discharge under the terms of the UPDES permit (Sections 724.100, Mine Inflow Information, and 728.333).

The Division received comments that the Permittee had not described seasonal variation in ground water – especially with maps or cross sections in compliance with R645-301-722.100. The Division finds that the Permittee is in compliance with the rule. Water levels of the lower saturated zone, measured in the IPA piezometers, are tabulated in Appendix 7-1 and Figure 7-2B. Figure 7-2B also graphically shows the temporal water level variations in these piezometers. Water levels in the lower zone 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, portraying what might be considered a minor seasonal effect in the lower zone. Seasonal variation in spring flows is documented in Appendix 7-1, 7-2, and 7-6, and in data submitted to the Division's database. Changes in spring flow are direct indicators of changes of head in the local ground-water systems that sustain the springs. Contour maps and cross sections are not amenable to showing the seasonal variation of these flows.

Monitoring - Inside vs. Outside the Permit Area Boundary

The Permittee developed an adequate monitoring plan to meet the requirements of R645-301-724.200. The Division received public comment that an insufficient number of seeps and springs are being monitored, and that the majority of the springs are outside the proposed permit area. The number of springs monitored on one side or the other of the permit area boundary is not relevant because the permit boundary is not drawn based on hydrologic factors, and the R645 Coal Rules require baseline and operational monitoring of both the permit and adjacent areas and protection of hydrologic resources both inside and outside the permit area. The Division finds that the number of monitored springs, on one side or the other of the proposed permit area boundary, is sufficient because the selected springs are representative of other springs and ground-water systems in the area.

The Division received comments that 14 EarthFax data monitoring points are within the proposed permit area, but data was collected for only one. During the EarthFax water monitoring survey of 1993 – 1995, data was collected for all 14 seeps and springs located inside the permit boundary (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 Coal 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 electronic water monitoring database.

The data collected by EarthFax during the 1993 - 1995 survey are 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 (Section 731.211). At sites that have been selected for operational monitoring, monitoring was resumed in 2001 (data are in the Division's database). The Permittee has modified the monitoring plan when needed. Additionally, 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 Coal Rules.

The Division received comments that seeps and springs cannot be treated as systems or groups, that each source is a separate resource as regards to hydrology, wildlife, and vegetation. The survey results from 1993, 1994, and 1995 in Appendix 7-5 document the seasonal, and 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. This pattern is typical, as documented throughout the Book Cliffs and Wasatch Plateau coalfields as well as many other locations. This pattern is due to the involvement of hydrologic systems, rather than discrete point sources.

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 ground-water information in relation to the Lila Canyon Extension, which 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 or system, was added to the monitoring plan in 2001. L-6-G was dropped from the monitoring plan in 2003.

Surface Water Information

The Permittee has submitted information to identify the names, locations and ownership of all surface water bodies on and adjacent to the proposed permit area. Plate 7-1 shows the location and elevation of springs, streams, and stock ponds (water right identification) on and adjacent to the permit area. The premining hydrologic conditions are addressed in Chapter 7 and associated appendices. Plate 5-1 shows the previously mined areas that have established the surface and ground water premining conditions. The Application identifies baseline hydrologic conditions to be used to ensure the hydrologic balance is maintained.

The regional surface-water flow pattern for the proposed permit and adjacent areas is described in Section 724.200. There are no perennial streams on or adjacent to the permit area that will be impacted by mining. The closest perennial stream to the permit area is Range Creek located approximately six miles to the east. There is no surface drainage from the permit area to Range Creek. All surface water that flows from the permit area enters Grassy Wash or Little Park Wash. The Price River is 9.5 miles downstream of the permit area by way of Lila and Grassy Wash and over 13 miles downstream of the permit area by way of Little Park Wash. The Application identifies the streams on and adjacent to the permit area as ephemerally functioning, that is, they flow only in direct response to precipitation in the immediate watershed or in response to melting of snow and ice. There are no fisheries in any of the channels that flow from the proposed permit area.

There is one existing culvert on the ephemeral drainage identified as the Right Fork of Lila Wash. The Permittee has submitted plans to remove the culvert to be replaced by culvert UC-1 in conjunction with surface development. The only other existing diversion structure is five miles below the permit area, where Grassy Wash passes under Utah Highway 6. There are no hydrologic structures on Little Park Wash or Stinky Springs Wash.

Section 722.200 of the Application states, "There are no extensive perennial or intermittent streams, lakes or ponds or irrigation ditches known to exist within the proposed

permit or adjacent areas". A review of the surface water data in Appendix 7-1 and in the Division's water monitoring 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 channels of Little Park Wash in the mountainous region above the mine.

Climatological data provided in Section 724.410 and Appendix 7-10 indicates relatively low average annual precipitation in the area of the proposed Lila Canyon Extension. Table 7-1C shows the precipitation probability in a one-day period for Sunnyside, Utah. Based on that table, the probability of a storm of one inch or greater is only one to two percent during snowmelt periods and in the monsoon season, during late summer. A one-inch storm is the approximate amount of a 5yr-6hr precipitation event of 1.04 inches, or a 2yr-24hr precipitation event of 1.36 inches, and the amount calculated to cause flow in stream channels (Table 7-1A and Appendix 7-10). This means that it takes a significant storm to cause flow in the channels, and that there is a high probability the channels are dry most of the time. A rain gauge with a data logger was installed at the base of the escarpment, near the proposed surface facilities area, in March 2008, and another is to be installed in Little Park Wash in late spring to early summer 2008. Data will be collected no less than monthly between May 1 and October 30 and otherwise monthly unless access is not feasible. Data will be downloaded quarterly and included in an annual report.

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 Appendix 7-8. The Permittee is monitoring the developed springs on and adjacent to the proposed permit area. It appears that there have been no recent attempts to maintain the springs for several years. The springs on and adjacent to the proposed permit area flow for a very short distances compared to the lengths of the drainages and do not contribute to base flow in any of the stream channels.

Drainage Summaries

There are five drainages that carry surface flows away from the proposed permit area. Lila Wash, the Right Fork of Lila Wash, an unnamed wash between the Right Fork of Lila Wash and Stinky Springs Wash, and Stinky Spring Wash drain the west slope of the Book Cliffs to Grassy Wash. Little Park Wash and its tributaries drain the dip slope of the Book Cliffs escarpment and Roan Cliffs that form the mountainous region above the mine site. Horse Canyon is the major drainage to the north and adjacent to the permit area.

Lila Wash: The Lila Canyon drainage is an ephemerally functioning drainage located at the northwest portion of the permit area. The wash drains an area greater than one-square mile and contains several seeps and springs at its upper reaches that flow during the springtime. The Horse Canyon Mine operations undermined some of these springs and much of the Lila Canyon drainage. Although much of the drainage is within the proposed permit area, only a small portion of the drainage falls within the predicted subsidence zone for the proposed mine.

Right Fork of Lila Wash: The Right Fork of Lila Wash is an ephemeral drainage located at the west-central portion of the permit area. The wash drains an area less than one-square mile and contains no known seeps or springs. Much of the drainage is located above the proposed mine facility area and a portion (approximately 535 feet) will be diverted beneath the sedimentation pond. The upper part of the Right Fork of Lila Wash will be undermined.

Unnamed Wash: This wash is a small ephemeral drainage along the west Book Cliff escarpment. The drainage contains no known seeps or springs and drains an area less than one-square mile, only a portion of which is within the proposed permit area.

Stinky Springs Wash: Stinky Springs Wash is an ephemerally functioning drainage that drains the southwest portion of the proposed permit area to the west toward Grassy Wash. The wash drains an area greater than one square mile and contains two seeps located at the lower portion of the Book Cliffs escarpment outside of the permit area. Two water rights (91-4648 and 91-4649) are listed for stock watering and wildlife use from reservoirs along the Stinky Wash drainage within the proposed permit area. The reservoirs are not maintained and do not appear to be functioning. The upper part of Stinky Springs drainage area will be undermined.

Little Park Wash: Little Park Wash and its tributaries drain most of the surface above the mine site. Tributaries to the wash within the proposed permit area include three unnamed drainages at the north end, Cottonwood Wash, IPA #1 Wash, Pine Spring Wash, and Pine Spring Wash. The Permittee has assessed the drainage area and has determined that it is ephemerally functioning except in the immediate areas around some springs. However, the springs have been shown not to provide base flow to the stream channels. Much of the Little Park Wash is proposed to be undermined. The least amount of cover above the coal seam is in the southern part of this drainage area and ranges about 600 feet. The cover rapidly increases to the north to over 1,500 feet within the main channel and over 2000 feet within the tributaries. The Permittee shows the relationship of the Little Park Wash and tributaries to mining on Plate 5-3. Plate 5-5 shows the stream channels and areas to be undermined.

Horse Canyon: The Horse Canyon drainage is located north and adjacent to the Lila Canyon permit area. However, the portion of the Horse Canyon drainage that lies closest to the Lila Canyon permit area has already been undermined by the Horse Canyon Mine operations and will not be impacted by the Lila Canyon Extension operations. Monitoring information collected by the Permittee substantiates that the channels on the permit area are dry during most of the year, and that even when there is flow in one or both of the upper forks of Horse Canyon Wash, there is typically no flow in lower Horse Canyon Wash or in the neighboring drainages.

Ephemeral Characterization of Streams

All five drainages within the permit area have been characterized as ephemeral drainages in the Application. As defined by the R645 Coal Rules, an ephemeral stream "means a stream which flows only in direct response to precipitation in the immediate watershed, or in response to

the melting of a cover of snow and ice, and which has a channel bottom that is always above the local water table" (R645-100-200). The Application presents monitoring data (Appendix 7-1 and Plate 7-1), references monitoring data submitted to the Division's electronic database (http://ogm.utah.gov/coal/edi/wqdb.htm), presents surface water characterization information (Appendix 7-7), and presents water rights information (Chapter 7, Table 7-2 and Plates 7-1 and 7-3) to demonstrate that the drainages behave in a manner that fits the definition of an ephemeral stream. The Division finds that the information provided supports an ephemeral characterization of the drainages based on the following:

- Monthly monitoring data during accessible months (typically March through November) for a minimum of two years shows no flow and therefore no base flow in the drainages,
- The only surface water sample collected during the monthly monitoring was from the upper reaches of Lila Wash in March 2005 that was reported to be flowing in response to snowmelt,
- Observed vegetation in the drainages is generally consistent with ephemeral drainages,
- Springs within the drainages typically flow for only a short distance until flow infiltrates into the alluvium; demonstrating a losing stream, and
- There are few State-appropriated surface water rights on the drainages within the permit area or on the drainages downstream of the permit area indicating a lack of base flow to support use.

Of the five drainages within the permit area, three drain watersheds that are greater than one-square mile. Appendix 7-7, Table 1 lists total drainage basin volumes above and within the permit area for Little Park Wash (9.21 square miles), Stinky Springs Wash (1.08 square miles), and Lila Wash (1.71 square miles). Because the R645 Coal Rules definition of an intermittent stream includes, "a stream, or reach of a stream, that drains a watershed of at least one square mile" (R645-100-200), these three drainages are considered ephemerally functioning and intermittent by rule.

Surface Water Baseline Data Adequacy

The Division received comments that the Application does not contain baseline information on seasonal flow rates or water quality descriptions for any of the ephemeral or intermittent streams within the permit area. It was stated that there was no baseline data collected for the surface-water monitoring plan, therefore, there will be no basis for comparison during monitoring.

The R645 Coal Rules require that baseline information for surface water provide, "information on surface-water quality and quantity sufficient to demonstrate seasonal variation and water usage" (R645-301-724.200). In addition, the Division's Guideline Tech. 004, Water

Monitoring Programs for Coal Mines, recommends monthly baseline sampling for water quality and flow measurements during periods of flow for intermittent streams. The guideline also recommends baseline sampling to occur for a duration of two years, adequate to describe seasonal variation.

Because an ephemeral drainage has no base flow, no seasonal variation can be demonstrated. An ephemeral drainage generally has no flow regardless of the season. Flow only occurs in response to specific storm events or snowmelt. Sampling during these events would not demonstrate seasonal variation, but only conditions during that specific event. Therefore, the ephemeral drainage characterization itself demonstrates seasonal variation, i.e., no flow. The Division finds that the Application provides adequate surface water baseline information because monthly monitoring was conducted for a period of at least two years for the drainages that have been characterized as ephemeral. In addition, the Application demonstrates surface water usage by presenting water rights information (Chapter 7, Table 7-2, and Plates 7-1 and 7-3), regional surface water resources (Section 724.200), and stream channel characterizations (Appendix 7-7).

The Division received comments that the Permittee has not used single stage, or automatic samplers to collect stream quality and quantity.

In Section 724.200, the Permittee discusses the feasibility of using automatic samplers in the Lila Canyon area. The Permittee concludes that these methods would not provide reliable water-quality or -quantity data. The Division agrees with the Permittee's assessment. Due to the erratic nature of ephemeral flow, water-quality and -quantity samples are of questionable value. In addition, due to the remote locations required for automatic samplers in the Lila Expansion area, sample preservation and holding time requirements would be difficult to meet. The Division finds that the time, money, and effort required to implement a remote or automatic monitoring program is not justified for the limited information it would provide. Nevertheless, to satisfy continued concerns, the Permittee has agreed to install, maintain, and inspect crest-stage gauges and single-stage or siphon samplers at several locations in the major ephemeral drainages; USGS protocols are to be followed. Gauges and samplers are to be installed as soon as weather permits in 2008. The Permittee will collect two years of additional quarterly surface water-quantity and -quality data from these sites; water-quality analyses will be done for the baseline parameters identified in the MRP. Based on analysis of the data after the first year, the Division can require additional monitoring locations.

Surface Water Rights

State-appropriated water rights for the proposed permit and adjacent areas are summarized in Table 7-3 and shown on Plate 7-3. There are two surface water rights identified within the permit area (water right nos. 91-4648 and 91-4649). The water rights are owned by the U.S. Bureau of Land Management for the use of stock watering and wildlife within the upper portion of the Stinky Springs watershed. Two stock watering ponds are reported in the drainage, but they have not been maintained and are filled with silt.

Adjacent to the permit area, several stock ponds (water right nos. 91-2617 through 91-2621) located west of the Book Cliffs escarpment (the Cove area) were evaluated by the Permittee and Division personnel in December 2006 to identify their association with the drainages of the Right Fork of Lila Wash and Stinky Springs Wash (Division Inspection Report 1174). The Permittee reports that there was once a diversion on the Right Fork of Lila Wash that delivered flow to a stock pond adjacent to Grassy Wash, but now reports that the diversion is breached and flow no longer is transported to the stock pond. It was also found that the stock pond was damaged and did not have a water right. Several other ponds were visited and evaluated on the same visit. Several stock ponds were functional and held water, but were not associated with flows from any of the streams (Lila Wash, the Right Fork of Lila Wash and Stinky Springs Wash) originating on the mine permit area.

Baseline Cumulative Impact Area Information

The Division Cumulative Hydrologic Impact Area (CHIA) finds that the proposed mining and reclamation operations at the Lila Canyon Extension will not cause material damage to the hydrologic balance outside the permit area. Refer to the CHIA document for specific information.

The Division selected the Cumulative Impact Area (CIA) based on information submitted in the PHC, and other data and information submitted by the Permittee. The Division evaluated potential impacts to the Range Creek drainage, with respect to surface waters and ground waters. The Division evaluated potential impacts to down stream water resources and channels of streams leaving the proposed mine site. The Division evaluated the potential impacts to drinking water sources and state appropriated water resources from subsidence. The CIA was established based on information submitted by the Permittee, and information collected from research, reports and public comment.

A map of the CIA is shown in the CHIA as Plate 2. The assessment eliminated the potential impacts for Range Creek and it was not included in the CIA. The boundary was drawn to include potential impacts to channels and water resources downstream of the proposed permit area, and thus included the stream and channels down to the Price River. Information presented by the Permittee showing the nature of the site and the regulatory requirements defining protected resources has narrowed the potential for offsite impacts far less than the down stream CIA boundary.

Comments received by the Division expressed concerns that data are inadequate to prepare the CHIA finding and that potential adverse impacts to a regional aquifer and Range Creek have not been addressed in the CHIA. The CHIA is a stand-alone document, separate from this Technical Analysis and the Permittee's MRP. The Permittee is not required to provide data specifically for the CHIA determination but may gather and submit relevant information. The Division is not limited to information in the MRP in preparing the CHIA; however, data in

the Horse Canyon Mine's MRP Part A and Application for the Lila Extension have been used in preparation of the CHIA.

The Permittee has evaluated the probability of hydrologic impacts east of the permit area to Range Creek. The overlying strata above most of the planned mining zone is well over 1,000 feet in the eastern half of the permit, and in most eastern areas of the permit the overlying strata above the coal seam is near 2,000 feet thick. Due to the extensive thickness, it is not likely that subsidence impacts will occur. The Permittee explains that there are two zones where groundwater can be found. The upper zone is in the Wasatch Group associated with the base of the Colton Formation, the Flagstaff Limestone and North Horn Formation. The lower zone is in the Mesa Verde Group (Price River Formation, Castlegate Sandstone, and the Blackhawk Formation).

The Division has received comment that subsidence will impact stream channels above the mine and surface flows will be interrupted.

The Permittee has identified in the PHC that subsidence impacts could take place, but it doesn't mean that impacts will occur. There is substantial stratigraphic cover between the coal seam to be mined and the surface, ranging from 600 feet to 2300 feet. The overlying stratigraphy contains a high percent of clays, silts and mudstones that are elastic and tend to bend instead of fracture. Clays, silts and mudstone units can be mobile when they come in contact with water. They can provide a healing potential by expanding as they become wet, thus blocking off flow in cracks and fractures. If fracturing does take place in a stream channel the fracture will likely fill with sediments washing down the stream channel. If natural healing does not happen the operator has presented and committed to implementing a subsidence monitoring, control and mitigation plan (Section 525). The Permittee has also addresses water replacement and mitigation in Section 727 of the Application.

Modeling

Runoff flows from some undisturbed area drainage areas were simulated for the 6-hour and 24-hour rainfall events. The typical 6-hour event is most typical of local, isolated high intensity thunderstorms, while the 24-hour events are typical or large frontal type storms. Rainfall data were obtained from precipitation the frequency data server from NOAA web site. The simulation was conducted using the Hydroflow program prepared by Intelisolv. This program uses the NRCS unit hydrograph method with selected rainfall distributions. It also incorporates channel routing and hydrograph addition to allow multiple watersheds to be simulated and modeled to determine the effect on combined watershed flows. The runoff volumes were modeled using a weighted curve number for the entire watershed. The value was determined using the professional judgment of Tom Suchoski, Consulting Hydrologist for UEI. The curve number incorporates soils and vegetation types. Modeling information is submitted in Appendix 7-9.

The Permittee submitted calculated stream transmission losses for the Right Fork of Lila Wash based on the 500 gpm value the Division requested. The value was an estimate based on twice the flow value discharged from other mines (Soldier Creek and Horse Canyon Mine) in the Book Cliffs. The Permittee calculated that a continuous flow discharged from the mine would travel down the channel 3.4 miles as it seeped into the alluvium. The distance was calculated based on the concepts presented in the US Soil Conservation Service National Engineering Handbook Chapter 19-Transmission Losses (1985).

The Permittee used the program "Office of Surface Mining Watershed Model" Storm Version 6.21, a program based on the SCS-TR55 Method for Type II storms to model disturbed surface flows to design hydrologic diversion ditches and culverts for the surface facilities, Appendix 7-4.

Alternative Water Source Information

The Permittee states that they conducted a water rights search for a mile outside the proposed permit area. They showed the locations of those water rights on Plate 7-3, and provide descriptions of the rights in Table 7-2. The Permittee indicates that UEI owns the rights to approximately 1.5 cfs in the area, and if any adverse effects on water resources result from the operation, UEI may replace from their rights. Other options for water replacement are identified in Section 727. The Permittee has committed to include: sealing of cracks, piping, trucking water in, or constructing wells.

Probable Hydrologic Consequences Determination

The PHC determination is submitted in Appendix 7-3. It identifies the consequences of mining, and also identifies and evaluates areas that are could be influenced 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, stream channel changes and deplete state appropriated water resources.

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.Information on water quality and time and magnitude of flow in these drainages is not needed to design, build, operate, or reclaim the mine; minimize disturbance to the hydrologic balance; or otherwise meet requirements of the R645 Coal Rules.

The Permittee has addressed these consequences and potential impacts in the PHC and other parts of the Application. The Permittee points out that contamination from acid and toxic

materials is unlikely, because the rock and soils surrounding the mine site are carbonaceous, a natural buffering material that neutralizes acids. The Permittee states in Section 731.311 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/or 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 used in for equipment such as fuel, oils solvents and non-coal waste. All water discharged from the mine site will have to meet water quality standards and UPDES limits. A parameter list is shown in Table 7-4.

The Horse Canyon Mine PHC determination is in Section 6.7 of MRP-Part A. The PHC determination for the Lila Canyon Extension is in Appendix 7-3 of this Application, and is also discussed in Section 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 Application. In preparing the PHC determination in the Application, the Permittee used information from the Columbia and Horse Canyon Mines along with baseline data collected for the Lila Canyon Extension.

Potential impacts identified in the PHC include acid and toxic material contamination, increased sedimentation, potential interruption or diminution in spring and stream flows from subsidence, potential increases in stream flow, increased total dissolved solids (TDS), water quality degradation, and stream channel changes.

The Permittee discusses the potential of contamination of total suspended solids (TSS) and TDS. Data presented in Appendices 7-1 and 7-6 and summarized in Section 724.100 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 impacts include "the displacement of fines on the channel bottom, and minor widening of the channel." The Permittee points out that the "degree of widening will likely be minimized by the increased vigor and quantity of vegetation which will be sustained along the stream channel". As stated above, the report in Appendix 7-9 indicates that the maximum anticipated mine water discharge of500 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 Section 525. The Permittee states that no impacts are expected, since most of the areas of the stream

channels lie above extensive stratigraphic cover. Some surface expressions of tension cracks, fissures or sinkholes may be experienced, however the Permittee has proposed to mitigate any of those situations (Section 525). The Permittee has established a subsidence-monitoring plan. The Permittee provides the sequence and timing of mining in Sections 522 and 523, and 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 are 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 Sections 525.120 and 525.500, the Permittee describes how any potential impacts will be mitigated. Dirt roads above the mine and stream channel areas sustaining damage will be repaired by regrading and filling of any sinkholes, fissures or cracks. All but a couple springs in the vicinity of the mine operation are outside the permit area or outside the area of subsidence. Spring L-9-G has been identified in the area of influence of subsidence, however it sits in an areas with about 2,000 feet of overburden separating the surface from the coal seam and will not likely be impacted. 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 in Sections 525.480 and 727.

The Permittee submitted sufficient data and information in Chapters 5, 6 and 7 of the Application to define the baseline hydrology and nature of the site with respect to R645-301-742.200. The submittal identifies baseline hydrologic conditions. The submittal identifies baseline hydrologic conditions to be used to ensure the hydrologic balance is maintained R645-301-731. The Permittee has submitted plans to control and contain discharges from disturbed areas (Appendix 7-4). The Permittee will monitor water and make sure it meets water quality standards before it is discharged (Appendix 7-5). Water monitoring, sediment control, and subsidence monitoring will continue through operational and reclamation phases. The Permittee has also committed to mitigate impacts to streams and streams in the event unforeseen impacts should occur (Section 525.400).

The Permittee conducted surveys of the stream channels to characterize channel reaches according to stream type (Appendix 7-7), 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. The Permittee sectioned the streams into channel lengths consisting of similar characteristics. Table 2 of the appendix presents the vegetation, bed type, gradient, fauna, and use of the present, as well as the represented stream type, described in the definitions under R645-301-100. This Appendix includes photographs of stream channel monitoring sites. Based on the surveys and water monitoring data, the Permittee has determined that there are no flows in the channels most of the time. Flow appears after a large precipitation event or in early spring when snowmelt

occurs. Some of these streams are classified as intermittent by the definition in R645-301-100, but they function as ephemeral streams naturally.

Table 7-3 of Section 731.220 presents the monitoring frequency of the stream channels. Plate 7-4 and Table 7-3 show surface water monitoring site locations within and adjacent to the proposed 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).

Sediment control structures at the new mine site will be constructed to minimize impacts according to the methodologies and specifications 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).

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 (Section 728.333 (2)).

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 and mine-water will discharge into the Right Fork of Lila Wash. As summarized 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 stream bank 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 Application 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 (Section 728.333 (3)) and to take remedial action if needed (Section 728.333 (4)).

Because of infiltration, diversion to a stock watering 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 10yr - 6hr peak flow, based on information in Appendix 7-4 (Tables 4 and 5), is 31.24 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 Extension 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 (Section 761). There are no diversions planned for perennial or intermittent streams (Section 742.320). Diversions of miscellaneous flows are designed to safely pass the peak runoff of a 2yr - 6hr precipitation event. Reclamation channels have been designed to safely pass the peak flow from a 10yr - 6hr or 100yr - 6hr precipitation event, as appropriate (Appendix 7-3, Flooding or Streamflow Alteration). These designs meet the standards for diversion as specified in R645-301-742.300. Methods, parameters, and calculations are detailed in Appendix 7-4, which were prepared by a State of Utah registered professional engineer and a registered professional geologist.

Ground-Water and Surface-Water Availability;

The Application includes information on water rights within and adjacent to the permit area. Water rights are identified in Section 645-301-727 and Table 7-2. The locations of those rights are shown on Plates 7-1 and 7-3.

No known impacts to flow or water quality of springs within the Horse Canyon Mine permit area have been identified. The Permittee expects the same for the Lila Canyon Extension (Appendix 7-3, Potential for Decreased Spring and Stream Flows). However, the Permittee commits to repair or replace any State-appropriated water supply damaged by mining operations as presented in Section 727.

There are approximately 14 seeps and springs located within the projected subsidence zone of the proposed permit area. Three are springs that have water rights filed on them (water right nos. 91-2539, 91-810, and 91.2517). All of the drainages within the projected subsidence zone have been classified as ephemerally functioning. There are two surface water rights for watering stock and wildlife directly on a reservoir located within the projected subsidence zone (water right nos. 91-4648 and 91-4649). These stock ponds are currently not being used or maintained. As discussed in Section 525.120, thick overburden separates the shallow ground-water systems and surface flows from the mined coal seam reducing the possibility of significant deformation at the surface. Impacts to surface and ground water resources are not expected.

Range Creek is the perennial stream closest to the Permit area. 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).

The USFWS has determined that water depletions from the Upper Colorado River System are a major source of impact to four endangered fish species. The Permittee submitted the required value that reflects the amount of water that may be consumed annually by the mining operations (Appendix 7-3). This value is projected at 80.81 acre-ft of annual water depletion. The Permittee will report actual water depletion values in their Annual Report.

Findings:

Information provided in the Application 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 Application meets the requirements of this section of the R645 – Rules because the affected area boundaries are shown on several maps including Map 1-1, Permit Area Map.

Archeological Site Maps

The Application meets 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

The Application meets the requirements of this section of the R645 Coal Rules by providing the information provided below.

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 on Plates 6-1 through 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 (Chapter 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). Interpretations of fault alignments, which are based on detailed mapping by Kaiser Corporation consultants, differ slightly from those on maps published by others (Section

6.4.2), 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 Application and Plate II-2 of MRP-Part A, limited mining to the east in the Horse Canyon Mine. The Permittee believes this fault lies east of the proposed Lila Canyon Extension (Section 6.5.3.3). 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 Application extend as far as Patmos Ridge but include only a small portion of the Range Creek drainage. Geologic maps, and cross sections that extend from the Book Cliffs to the Range Creek drainage are included in the Application as Plates 7-1A and 7-1B. Some water right locations near Range Creek are included on Plate 7-3.

Cultural Resource Maps

The Application meets 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 Application meets the requirements for this section of the R645 Coal Rules by showing:

- That there are no buildings inside, or within 1,000 ft, of the proposed permit area.
- That the only man-made features within the Lila Canyon area are: a 60 in culvert, a 48 in culvert, and the Little Park road. The culverts are located in or near the disturbed area (Plate 5-1A). The existing roads, powerlines and railroads in and around the Lila Canyon area are shown on Plate 5-1.
- That there are no existing areas of spoil, waste, coal development waste, noncoal waste disposal, dams, embankments, other impoundments, water treatment, or air pollution control facilities within the proposed permit area.
- That there are no existing sedimentation ponds, permanent water impoundments, coal processing waste banks, or coal processing waste dams and embankments within the proposed permit area.

Existing Surface Configuration Maps

The Application meets the requirements for supplying the Division with existing surface topographic maps and cross sections. Plate 5-1A shows the existing surface configuration for the Lila Canyon disturbed area. The map is at a scale of 1:1000, and the contour lines are on 5 ft intervals. The contour lines extend more than 100 ft beyond the disturbed area boundaries.

The submittal contains a series of cross sections and profiles that show the pre-disturbed topography at the Lila Canyon Extension 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 ft 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 Application meets the requirements for showing previously mined areas in and around the proposed permit boundaries at the Horse Canyon Mine (Plate 5-1).

The old mine workings include the Horse Canyon Mine 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 1940's to the 1980's.

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 Application shows the location of exploration entries. 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.

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

Monitoring and Sampling Location Maps

The Application meets the requirements for this section of the R645 Coal Rules by providing the information below.

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. Plate 7-1 also shows information for S-32.

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. Elevations and locations of seeps and springs monitored in 1985 by JBR and in 1993-1995 by EarthFax are on Plate 7-1. The extent of EarthFax's survey area is shown on Plate 7-1A. Locations of current operational water-monitoring sites for the Horse Canyon Mine and baseline and current operational water-monitoring sites for the Lila Canyon Extensions are on Plates 7-1A and 7-4.

Horse Canyon Mine UPDES discharge points UT022926 - 001, - 002, and - 003 (monitored from 1979 to 1991) are on Plates 7-1 and 7-1A. UT040013- 002A, the only currently monitored UPDES discharge point, and UT040013-001A, which was dropped from the UPDES permit in 2003, are shown on Plates 7-1, 7-2, and 7-4. The projected locations for Lila Canyon Extension UPDES points L-4-S (UTG040024-001, sedimentation pond outfall) and L-5-G (UTG040024-002, mine water) are shown on Plates 7-1A and 7-4.

Permit Area Boundary Maps

The Application meets the requirements for this section of the R645 Coal Rules by providing the information below.

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.

Plate 1-2, which shows the disturbed area boundaries. This plate has UTM coordinates, which make it easier to illustrate the disturbed area in relationship to the permit boundaries.

Subsurface Water Resource Maps

The Application meets the requirements of this section of the R645 Coal Rules by providing the following information below.

The map and cross section on Plate 7-1B show the relationship of geology and topography to the saturated zone in the lower Blackhawk Formation. The cross section extends from the Book Cliffs to Valley Mountain, east of Range Creek.

Water-level elevation contours are on Plate 7-1. Water levels for the IPA piezometers are tabulated in Appendix 7-1. The data do not indicate seasonal variations of head; however, Figure 7-2A (Chapter 6) and Figure 7-2B depict some small non-seasonal variations of head that have been indicated by the data.

The MDC and Horse Canyon wells, which are both 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 were measured in the Horse Canyon Mine during 1986 and 1993 are on Plate 7-1. These ground-water elevations were used in projecting the possible intersection of the Lila Canyon Extension workings with ground water (Plate 7-1).

Surface and Subsurface Manmade Features Maps

The Application meets the requirements of this section of the R645 Coal Rules by providing the following information below.

- There are no buildings inside, or within 1,000 ft of, the proposed permit area.
- The location of surface and subsurface manmade features within, passing through, or passing over the proposed permit area on Plates 5-1, and 5-1A.
- Each public road located inside, or within 100 ft of, the permit area on Plates 5-1, and 5-1A.

Surface and Subsurface Ownership Maps

The Application meets the requirements of this section of the R645 Coal Rules by providing coal ownership information on Plate 5-4, and surface ownership information on Plate 4-1.

Surface Water Resource Maps

The Permittee has met the requirements of this section of the R645 Coal Rules. Locations of streams and seeps and springs are shown on Plate 7-1. Water rights locations are shown on Plate 7-3.

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 are included in the Application (Plates 7-1A and 7-1B).

Location of the Right Fork of Lila Wash, 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 stock watering pond, located roughly two miles downstream from the disturbed area, are shown on Figure 1 in Appendix 7-9.

Vegetation Reference Area Maps

The Application 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 Appendix 3-1 shows the boundary for the reference area.

Well Maps

The Application meets the requirements of R645-301-722.400 by depicting the locations of all water wells (including piezometers) 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 Application.

Contour Maps

The Application meets the requirements for this section of the R645 Coal Rules. The Permittee submitted several plates showing the contours 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 Application 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 Application meets 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, Section 523, 528.100);
- Anticipated annual and total production of coal (200,000 tons/yr increasing to 4,500,000 tons/yr, Section 523);
- The major equipment to be used (Section 523); and
- Facilities to be constructed and removed or left as part of the postmining land use (Section 523, 526, 528).

The Permittee chose to develop the new mine facilities at 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 (Section 528.110);
- The existing Horse Canyon facilities are not suitable for a large-scale longwall operation (Section 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 Application 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 coal mine 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 Application meets the Mining Operations and Facilities requirements of the regulations.

EXISTING STRUCTURES:

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

Analysis:

The Application meets the requirements of the Existing Structures section of the regulation by describing the existing structures in the permit area in the Application (Section 526.110, Appendix 5-4). The existing structures are depicted on Plates 4-1, 5-1, and 5-1A.

Findings:

Information provided in the Application meets the Existing Structures requirements of the regulations.

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

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

Analysis:

The Application meets the requirements of R645-301-411.144 because the Permittee identified parks or cultural and historic resources that mining operations may adversely affect are identified and provided adequate information pertaining to a protection plan.

A Programmatic Agreement (PA; Attachment 3) drafted by the Division and a Memorandum of Agreement (MOA; Attachment 4) drafted by the BLM are measures designed to address known or unknown potential effects that could occur as a result of this federal action. The PA includes many stipulations that the Permittee must follow, for example, if there is a discovery during any construction or any type of monitoring or survey tasks, or prior to any changes to the 2007 proposed mine plan dated. The Division has the obligation to insure the Permittee follows all stipulations of the PA.

The BLM will conduct a data recovery project for eligible site 42EM2517. This project will begin following the Notice to Proceed, which is issued by BLM following mine plan

approval. The BLM will be the overseeing agency and will follow the agreements in the MOA (signed version). The recovery project would occur prior to construction of the facilities area.

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 Application 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 Application meets the requirements of R645-301-526.116 by:

- Showing that no public road will be relocated (Sections 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 EC 126 and BLM route RS2477 (Section 526.116, Appendix 1-4, and Plate 5-2).

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 EC 126, and eventually connects with the first route. These routes were constructed in the early 1940's and are commonly referred as the Lila Canyon Road and EC 126, respectively.

Future access to the Lila Canyon site will be from 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. Emery County will maintain jurisdiction and responsibility for all construction upgrades and continued maintenance of these roads.

On December 14, 2001, the Board of Oil, Gas and Mining Department of Natural Resources of the State of Utah released their findings on the matter of Southern Utah Wilderness Alliance verses the Division of Oil, Gas and Mining, Department of Natural Resources, State of Utah. The Board used the following tests to determine if the road should be permitted:

- Was the road constructed, reconstructed or sued exclusively for coal mining and reclamation activities; i.e., a multiple use, open access public road?
- Was the road acquired by a governmental entity and not deeded to avoid regulations?
- Is the road maintained with public funds or in exchanged for taxes and fees?
- Was the road constructed in a manner similar to other public roads of the same classification?
- Are the impacts from mining on the road insignificant under Utah's definition of "affected area" and "surface coal mining operations"?

The Board ruled that on each point that the Division's findings and analysis are reasonable and supported by substantial evidence in the record.

The Application proposes to connect culvert UC-1 to Emery County's 60-inch 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 (Appendix 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 Appendix 1-4, letter from the Emery County Road Department dated January 10, 2001.)

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).

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

Findings:

Information provided in the Application 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 Application meets 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.

Findings:

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

COAL RECOVERY

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

Analysis:

The Application meets the requirements for coal recovery by providing a description of the measures to be used to maximize the use and conservation of the coal resource (Section 522; 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 Application 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 Application meets 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 Sections 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 stock watering, 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.

State-appropriated water rights within and adjacent to the proposed permit area are presented in Table 7-2. (Locations of allocated water rights, as shown on Plate 5-3, are accurate only to the nearest quarter-section.) The Division will apply this information to resolve any problems involving water replacement issues. The water replacement program is described in Section 727. In Section 525.130 of the Permittee states that either they or the BLM own all State-appropriated water rights. 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.

The Permittee lists the renewable resources that exist in the permit area in Section 525.120 of the MRP. Because there are renewable resources within the permit area, the Permittee included a subsidence control plan as outline in R645-301-525.400.

Subsidence Control Plan

The Application meets the requirements of R645-301-525.400 and R645-301-525.500 by providing methods of coal removal (Sections 522, 523, and 525.410); a map of the underground workings (Plate 5-5; Plate 5-5 Confidential Binder that includes raptor nest location); illustration of Range Creek Recharge Evaluation (Fig. 7-4); descriptions of the geo-physical conditions, which

affect the likelihood or extent of subsidence and subsidence-related damage (Sections 525.120 and 525.430); plans for subsidence monitoring (Section 525.440), control (Section 525.450, Plates 5-5, 5-5 Confidential Binder, 5-3, and 7-1), and degree and effects (Section 525.460, Map 5-3 of the Application, and page V-12 of the MRP-Part A); plans for replacement of adversely affected State-appropriated water supplies and plans for mitigation efforts of subsidence-related damage to the land (Sections 727, 525.120, 525.480, and 525.500).

Subsidence is not considered surface disturbance (April 27, 1999, U.S. District Court of Appeals for District of Columbia decision). The Permittee does not need to demarcate areas that will be undermined within 100 feet of a stream where no surface disturbance will take place.

Performance Standards For Subsidence Control

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

Notification

The Permittee plans to notify all owners and occupants of surface property and structures above the underground workings at least six months prior to mining Section 525.130. (At the time of permit issuance there is no water conservancy district for this area.)

Findings:

Information provided in the Application meets the Subsidence Control requirements of the regulations.

SLIDES AND OTHER DAMAGE

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

Analysis:

The Application meets the requirements of R645-301-515.100 and R645-301-515.200 by committing to immediately contact the Division if a slide occurs (Section 515.100) and provide a mitigation 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 (Section 515.200).

Findings:

Information provided in the Application meets the Slides and Other Damage requirements of the regulations.

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 does not meet the R645-301-333, R645-301-342, or R645-301-358 requirements of the regulations because there is not adequate discussion, supporting documentation, or maps on fish and wildlife resource for the permit and adjacent areas. The MRP provides narrative, supporting documentation, and maps, but does not provide adequate or clear discussion to design protection and mitigation plans for raptors. The Permittee will comply with all provisions outlined in Condition 3 as well as the accompanying explanations provided in the Operations Section ("Migratory Birds, Game Birds, and Raptors") of this MTA. The Permittee must follow all provisions **in addition** to what is included in the MRP.

The conveyor from the rock tunnel to the run of mine coal stockpile will be elevated to avoid restriction of large mammal movement. The only fence will be 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 Application discussed the possible benefits of water in the sediment pond to wildlife in Section 333.300.

During the drafting of the EA (UT-070-99-22 July 2000), 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 (Section 322.220, 333). The plan includes a habitat enhancement project for about 70 acres of pinyon-juniper woodland, shrubs, forbs, and grasses, as well as installation of 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 (Section 333). The plan will include project goals, expected benefits, project procedures, company commitments, implementation dates, project locations and agency contacts.

The Permittee states that the vegetation project would be "70 + acres" (Sections 333 and 342.200; pgs 18, 26). The EA, however, states that the project would be approximately 93 acres (EA pg 27). The Permittee sent in a letter from BLM that addressed why the mitigation project acreage is presented as 70+ in the MRP instead of approximately 93 acres as stated in the 2000 EA (deficiency from DOGM technical memo 01232007).

Protection and Enhancement Plan

The wildlife exclusionary periods include: raptors (Feb 1 - July 1), deer/elk winter range (Dec 1 – April 15), deer/elk calving (May 15 – July 5), bighorn sheep rutting (Dec 1 – April 15), bighorn sheep lambing (May 1 - June 15), and pronghorn (May15 – June 20).

Ungulates

There is habitat within or adjacent to the permit area for Rocky Mountain bighorn sheep, elk, mule deer, and pronghorn. The Permittee will adhere to exclusionary periods when initiating construction and final reclamation projects.

Fish, Amphibians, and Reptiles

Below are many concerns that were submitted concerning fish. Because the Permittee does not plan to discharge water from mining operations, the Permittee did not submit specific protection plans. Once operations begin and if water is discharged, then these concerns should be readdressed and the Permittee should submit specific protection measures.

The USFWS commented that there should be an evaluation of the effects of water discharge to the Price River on the Colorado pikeminnow. This discharge line was apparently proposed earlier, but is no longer included in the Application. UEI must report actual annual water depletions to OSM – Western Regional Coordinating Center by September 30 of each year.

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 they were not concerned about the increase in salinity from this project, but was concerned about selenium deposition. The Permittee, however, does not expect to discharge.

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.

The Division received comments that subsidence could damage snake dens. During the writing of the EA (UT-070-99-22, July 2000), the Division, 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 at that time did not require snake-related surveys.

There are springs or wet meadows that could support amphibians within the permit area. None of the springs are within the facility disturbance area. During the writing of the EA, the Division, DWR, and BLM determined that the Permittee did not need to conduct formal amphibian-related surveys. However, the agencies required that the Permittee characterize the springs, including noting observations of amphibians. The Permittee has provided personal observations and states that he has not observed amphibians while conducting water monitoring (Appendix 7-7, PHC). If subsidence occurs, the Permittee commits to regrade and fill subsidence-related cracks, fissures, or sinkholes.

Migratory Birds, Game Birds, and Raptors

For future edits of this MTA, DOGM reviewers must be clear that most of the paragraphs in this Section provide clarifying statements for the on-going Permit Condition. Removal of these supporting paragraphs could result in our agency not complying with concurred decisions made among the USFWS, BLM, OSM, DWR, and DOGM.

There are five golden eagle nests within approximately 0.5 mile from the surface facility area. During the writing of the EA (2000), USFWS, DWR, and BLM determined that there would be no adverse affect to the raptors because of the facility site disturbance (~93 acres of raptor habitat), but the project would directly affect nesting habitat within 0.5 mile of the facility. The agencies projected that the birds would abandon these nests, and would probably nest in alternative cliff zones through the life of mining operations. They determined that the limiting factor in this area is the availability of prey and not the availability of nesting habitat. To help mitigate the potential impact caused by the surface disturbance, the agencies agreed to plan and oversee an approximate 70-93-acre vegetation enhancement project that would increase prey base for the raptors. The Permittee agreed to this mitigation project, which will be managed by BLM, in Sections 322.20 (p. 11) and 330 (p. 18).

Also, during the writing of the EA, the agencies determined that construction of the Lila Canyon extension would indirectly affect raptors that may be tending nests or nesting within 0.5 mile of the facility. They projected that the birds would abandon a nest if construction begins during the breeding season. The agencies agreed that the mine should prohibit initiation of construction activity within 0.5 miles of occupied nest sites from February 1 to July 15 to avoid this impact. The Permittee agreed to this avoidance recommendation in Section 333.30 (pg 19).

Following a meeting on June 19, 2007 with BLM, DWR, and USFWS, the Division determined that the Permittee must provide additional protection measures to those recommended in the EA and committed to by the Permittee in the MRP. UEI objected to certain measures and therefore, the MRP does not include all the measures as stated below. However, these measures were outlined as Condition 3 of the permit and issued to the Permittee (October 15, 2007 letter to the Permittee from the Division). The Permittee must comply with all provisions outlined in Condition 3 as well as the accompanying explanations provided in this Section of this MTA (Operations Section "Migratory Birds, Game Birds, and Raptors"). The Permittee must follow all provisions **in addition** to what is included in the MRP.

3. UEI will: 1) provide for conducting yearly fly-over raptor surveys; 2) immediately contact UDOGM, USFWS, UDWR and BLM if raptors are tending nests or are nesting in areas near the area to be mined (mining in the subsidence zone and below the cliffs next to the subsidence zone) in the current nesting season or in the coming nesting season (the following year); 3) implement the Best Technology Available (BTA) to provide for the protection of the raptors and their nests. This BTA will be determined by the agencies and then implemented by UEI. Implementation of BTA measures may include fencing of the nests, or avoidance of the area and/or may also include the need to apply for a 'take' permit from USFWS; and 4) provide a complete report of the yearly surveys to UDOGM." **(This condition is ongoing.)**

The Permittee agreed to conduct yearly fly-over raptor surveys starting in 2005 in Sections 322.220 (pg 10) and 330 (pg 18). The Permittee will refer to the mining map overlaid with potential cliff habitat (Plates 5-3 and 5-5) for guidance. Pre-construction surveys will provide baseline and post-disturbance will provide data sufficient to determine or update protection plans or enhancement/mitigation measures as operations change. As part of this normal mining operation requirement, the Permittee must submit all results of the raptor fly-over surveys to the Division in Annual Reports and must immediately contact the Division, BLM, and USFWS following any raptor survey that shows that eagles are tending nests or nesting. The agencies will immediately coordinate to determine if the Permittee must implement appropriate measures. If the agencies recommend mitigation, the Permittee must submit mitigation plans to the Division for incorporation into Appendix 3 of the MRP. These provisions are included in Section 358.100 on page 38 as well as in Section 333.300 as part of the existing "protection" list.

Although the Permittee agrees to adhere to raptor exclusionary periods, the provisions in this paragraph add additional protection in the event of unforeseen changes in construction or mine plans, or in the case of emergency situations that may force the Permittee to conduct activity near or within the 0.5 mile buffer zone of raptor nest and during raptor exclusionary periods (February 1 to July 15 for golden eagles). The MRP must include a provision that states that, in the event of unforeseen events, the Permittee will immediately contact the Division,

BLM, DWR, and USFWS. The agencies will immediately coordinate to determine appropriate measures that may include: 1) conducting ground surveys, in coordination with DWR, to confirm if birds are tending nests or nesting and possibly determine the life stage of the offspring; 2) developing a mitigation plan, in coordination with the agencies, for possible impacts to nests or birds; or 3) ceasing operations until the end of breeding season to avoid 'take'. If the agencies recommend surveys, the Permittee must submit all survey results to the Division in Annual Reports. If the agencies recommend mitigation, the Permittee must submit all mitigation plans to the Division for incorporation into Appendix 3 of the MRP. These provisions are included in Section 358.100 on page 38 as well as in Section 333.300 as part of the existing "protection" list.

The Permittee must clearly illustrate the number of all raptor nests (not just golden eagle) within the subsidence zone. If the mining plan shows that there are one or more raptor nests located within the subsidence zone, the Permittee must provide a mitigation plan for possible subsidence of the nest(s). The Permittee must coordinate with the Division, DWR, USFWS, and BLM to develop mitigation plan similar to the plan developed for the Bear Canyon Mine between 2006-2008. The plan must include the name of the lead agency, proposed date of implementation, a reporting mechanism, as well as the mitigation proposal. The MRP must include a provision that states the Permittee will apply for a nest 'take' permit, through the USFWS, if the mitigation plan includes preventing raptors from accessing nests. The Permittee must apply for 'take' permits 6-12 months prior to potentially subsiding nests. The Permittee must submit all mitigation plans and final reports to the Division for incorporation into Appendix 3 of the MRP. The MRP includes the requirement of this paragraph in parts. The Permittee must follow any measures of the condition that are not specifically stated in the MRP.

The Permittee removed the conflicting information on pages 10 and 16/17 (DOGM letter to Permittee 08032007; Condition 3g). DOGM considers that this commitment was an oversight and should not have been included in the list. The Permittee had addressed this issue prior to the May 17, 2007 submittal, but DOGM re-reviewed this latest version to make sure and could not find any more conflicting information in the biology section concerning protecting the raptor nests through leaving pillars, which was in conflict with stating that they were going to subside the area. DOGM engineer also looked in the engineering section (September 24, 2007) and reported that there was no conflicting information in the engineering section.

The Permittee plans to have below ground power lines within the disturbed area (Section 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 or employees report road kills (Section 333). These measures will help reduce vehicle collisions with raptors feeding on road kill.

DWR mentioned that chukars rely heavily on water sources up Lila Canyon and that mining operations near the mouth of the canyon would affect these birds. The BLM enhancement project will help reduce this predicted impact.

Threatened, Endangered, and Sensitive Species (TES)

The Division, in consultation with USFWS, determined that the Lila Canyon Extension project "may affect", but "is not likely to adversely affect" Mexican spotted owl or its critical habitat; and that there will be "no effect" on the other threatened or endangered species listed for Emery County with the exception of the Colorado River fish. The Office of Surface Mining completed the formal Section 7 consultation for the fish in January 2006.

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 Section 333. The last survey report for these species was in 2007.

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). The optimum months to survey Cliff's blazing star and creutzfeldt-flower are late June to middle August and late April to June, respectively. 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 (Section 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): The Permittee will conduct MSO calling surveys at least two years prior to reaching areas with MSO habitat and that are within the subsidence zone. The Permittee will follow the USFWS MSO survey guidelines that includes: two years of calling surveys each with four night time surveys with no more than one survey prior to end of April and at least three surveys prior to end of July. The Permittee will submit the results to USFWS, DWR, and the Division immediately following each of the nighttime surveys. If owls are observed, the agencies will immediately coordinate to determine appropriate measures.

The Permittee must be aware of the mine progression in relationship to MSO habitat locations. The Application provides a mine map with an overlay of the potential MSO habitat (Plates 5-3 Lila Confidential Binder).

Colorado River Fish: The USFWS has determined that water depletions from the Upper Colorado River System are a major source of impact to four endangered fish species (Colorado pikeminnow [squawfish], humpback chub, bonytail chub, and razorback sucker). The Permittee estimated that mining operations would use an average of approximately 81 acre-feet of water, annually. The USFWS considers that this volume of water will adversely affect the four endangered Colorado River fish. The USFWS Recovery Implementation Program is the reasonable and prudent alternative to avoid the likelihood of jeopardy to these fish. The Permittee will report actual water depletion values annually in their Annual Report. If values increase over 100 acre-feet of water, the Permittee will mitigate their impact by contributing a one-time fee to the Recovery Program.

Southwestern Willow Flycatcher: The 2004 USFWS TE list now includes the southwestern willow flycatcher for Emery County. The Division received comment that mining operations could influence Range Creek and hence this flycatcher. The Biology and Hydrology sections of the Application describe the vegetation and geological constraints for potential habitat for or mining impacts to this species or Range Creek. (Sections 322.210, 724.200; Appendix 7-3 PHC.) The lack of perennial streams and dense riparian vegetation near surface water or saturated soil within the permit area make it unlikely habitat for the southwestern willow flycatcher.

Bald and Golden Eagles

The DWR has not observed bald eagle nests within or adjacent to the permit area during over flight surveys. Bald eagles may use the area during the winter months, but the area is not considered critical habitat even as wintering range.

Refer to the *Migratory Birds, Game Birds, and Raptors* section for the discussion on the five golden eagle nests near the surface facility area.

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 Application includes a plan to monitor vegetation with color infrared photography every five years. This commitment is consistent with Division requirements for other mines and is acceptable.

There are springs and wet meadows within the permit area. None of these areas are within the facilities disturbance area, but there are a few within the permit area. The Permittee

commits to regrade and fill subsidence-related cracks, fissures, or sinkholes if they observe subsidence cracks.

The Permittee will help protect escarpment habitat from subsidence with a minimum of 200 ft barriers.

Findings:

Information provided in the Application meets the Operations - Fish and Wildlife Information requirements of the regulations because there is not adequate discussion to design protection and mitigation plans for raptors.

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 Section 116.100, Section 542.200, Appendix 5-8). However, topsoil will be removed from only 25.30 acres (Available Soil Resources Table Section 232.100) to develop the surface facilities described in Section 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 (Section 231.100, Section 234.220, and Plate 5.2).

The Permittee will install an enclosed conveyor (Section 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 (Section 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 (Section 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 Section 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 Section 232.100 estimates 50,236 bank yd^3 or 59,278 loose yd^3 will be salvaged (volumes include rock fragments 36 inches or less in size). Soils will be removed from the 25.3 acres to be disturbed with a crawler-tractor, grader, front-end loader, and/or track hoe.

Soils will be removed from all disturbed areas including stony areas to a depth of eighteen inches or to shale (Section 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 (Section 232.710);
- The two supports to be constructed for the conveyor (Section 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, Section 232.100); and
- 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.]

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

The Permittee agrees in Section 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 Section 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 (Section 232.500). Further, there is a commitment to develop As-Built maps showing where subsoil materials have been used as fill material (Section232.500), 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^3. This figure represents a replacement depth of 15 in over the proposed 25 disturbed acres, depending upon rock content of the stored topsoil. 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^3 of topsoil and rock will be in a stockpile (Section 232.100 Available Soil Resources Table) with the approximate dimension 26 ft high X 246 ft long X 146 ft wide (Section 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 Appendix 7-4). The stockpile will be loosely piled with a rough, irregular, pitted surface to retain moisture and reduce erosion (Section 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 (Section 231.400). Table 3-4 is a mix of native grasses, forbs and shrubs chosen to control erosion. Section 231.100 and Section 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 (Section 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 (Section 234.230). The biologic soil crusts established on the topsoil pile will be later harvested for inoculation of the reclaimed site (Section232.100).

Storage of topsoil from the access road to and around the topsoil storage area will be in berms around the topsoil stockpile (Section 232.100). Storage of topsoil from the fan portal will be in a berm around the fan disturbance (Section 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 (Section 234.100).

Subsoils

Section 232.500 states that about 18,000 yd^3 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^3 (Table 1, Appendix 5-4). Subsoil will also be used as cover over the waste rock disposed of in the refuse area, Appendix5-7). Section 232.700 specifies the subsoil recovery based upon recommendations found in Part 3.4 of Appendix 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 (Sections 232.500, 241, and 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 (Section 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 Application meets the Topsoil Salvage requirements of the regulations.

VEGETATION

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

Analysis:

The Application meets 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 Section 340 (revegetation plan) 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 MTA.

Findings:

Information provided in the Application 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 Application meets the requirements of R645-301-527 by classifying all roads, except the coal pile road, as a primary road (Section 527.100). The Coal Pile Road is an ancillary road because it will be 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 MTA for more details on the Division's findings.

Plans and Drawings

The Application meets 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 (Section 527.200, Appendix 5-4, and Plate 5-2). The description includes:

- A map (Plate 5-2);
- Appropriate cross sections (Appendix 5-4);
- Specifications for each road width, road gradient, road surface, road cut, fill embankment, culvert, bridge, drainage ditch, and drainage structure (Appendix5-4);
- A maintenance plan describing how roads will be maintained throughout their life to meet the design standards throughout their use (Section 527); and
- 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 (Section 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 Application meets 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
- 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 Section 534, Plate 5-1 and Appendix 5-4.

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

Primary Road Certification

The Application meets the requirements of R645-301-512.250 by having a professional engineer, licensed to do business in the State of Utah certify the road designs found in Appendix 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 Application meets the requirements of R645-301-527.200 (other transportation facilities) by showing and describing each conveyor they will use at the Lila Canyon facility (Section 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 conveyor will be totally enclosed.

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

Findings:

Information provided in the Application 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 Application meets the requirements of R645-301-528.330 and R654-301-754 by including plans to dispose of noncoal mine wastes in Sections 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 (Section 542.640).

Coal Mine Waste

The Application meets 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 (Section 528.320, Map 5-2, and Figures 1 and 2 in Appendix 5-7).

The Permittee will place coalmine waste in the refuse pile. The Permittee shows the location of the refuse pile on Plate 5-2. Section 520 (Refuse Piles) states the refuse- pile capacity as 44,400 CY. In Appendix 5-7, the Permittee explains that 25,000 cubic yards of excavated rock from the tunnel development will be used as structural fill in a portion of the refuse site and that the remainder of the refuse site could hold 19,473 cubic yards of coal processing waste. A minimum of two feet of cover will be placed over sand and gravel road surfacing materials and

asphalt will be disposed off-site. Concrete will be buried by four feet of cover (Section 542.741) in the location shown on Plate 5-6.

The Application meets 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 Application meets the requirements of R645-301-528.322 by designing the refuse pile in accordance with all applicable regulations (Section 528.322, Map 5-2, and Appendix 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 coalmine waste can be used for structural fill the material can be used in the construction of dams and embankments. Therefore, the Division determined that coalmine waste could 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 and allowed to roll down the slope". The placement of coalmine 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 coalmine 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 coalmine waste.

Impounding Structures

The Permittee will not construct any impoundments from coalmine waste. The only impoundment structure at the Lila Canyon site is the incised sedimentation pond described in the Hydrologic Information Section of this MTA (Section 533.200).

Burning And Burned Waste Utilization

The Application meets the requirements of R645-301-528.323 by providing a plan to extinguish coalmine 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 coalmine waste will be removed from the permitted disposal area (Section 528.323, and Appendix 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 Application 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 Application meets the requirements for providing hydrologic information for the operational plan by describing the features and characteristics of the ground and surface waters on and adjacent to the proposed permit area. The Permittee obtained this information from field evaluations, studies and reports identified below. The Permittee has established operational water monitoring and surface runoff control plans specific to the local hydrologic conditions to minimize disturbance to the hydrologic balance, as described below.

Groundwater Monitoring

The Application meets the requirements for operational ground water monitoring as provided in R645-301-731.210. The Division finds that these standards are met because an operational ground-water monitoring plan has been proposed that is based on the PHC determination and baseline information presented in the Application. The operational ground-water monitoring plan is described in Section 731.210 and summarized in Table 7-3. The plan

includes the monitoring of nine seeps and/or springs, three piezometers, and mine water discharge. Ground water monitoring parameters for operational and reclamation periods are listed in Table7-5. Monitoring locations are presented on Plate 7-4.

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.
- Been developed for use by the water right holder.
- The greatest or most consistent flow of the group of springs or zone stratigraphy.

Ground-water data collected through October 2002 is presented in Appendix 7-1. More recent data can be found in the Division's electronic database. Station L-5-G is the potential mine discharge point. If ground water is encountered in the mine in a quantity that requires discharge, it will be monitored in accordance with requirements of Section731.210 and a site-specific monitoring plan to be proposed at the time. It will be collected, sampled to ensure compliance with UPDES standards, treated as necessary, and pumped to the surface for discharge under the terms of the UPDES permit (Section 728.333; 724.100). Three piezometers, IPA-1, -2, and –3, will be monitored quarterly for water levels only (Section 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 monitored. There are no water rights associated with these springs, and they are well outside the zone of projected subsidence.

Baseline water levels for 1994, 1995, and 1996 have been established at IPA-1, -2, and -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 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 (Section 731.513).

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

Surface Water Monitoring

The Application meets the requirements for operational surface-water monitoring as provided in R645-301-731.220. The Division finds that these standards are met because an operational surface-water monitoring plan has been proposed that is based on the PHC determination and baseline information presented in the Application. The operational surface-water monitoring plan is described in Section 731.220 and summarized in Table 7-3. The plan

includes monitoring at eight stream channel sites and the sedimentation pond discharge. Surface-water monitoring parameters for operational and reclamation periods are listed in Table7-4. Monitoring locations are presented on Plate 7-4.

Surface-water monitoring will continue through mining and reclamation until bond release (Section 731.224). The Permittee commits to properly install, maintain, operate equipment, structures and other hydrologic devices (Section 731.215) used in conjunction with monitoring, controlling and storing surface water on- and off-site. The Permittee commits to remove hydrologic equipment and structures when no longer needed (Section 731.225).

The baseline surface monitoring site in Little Park Wash, L-13-S, will be discontinued for operation and reclamation monitoring. An additional site, L-19-S, will be established below the permit area on Little Park Wash approximately one-mile downstream of L-13-S. The purpose of the replacement site is to monitor surface flows in Little Park Wash off the permit area. Since there are no springs between the two sites, their discharges should be similar.

Acid- and Toxic-Forming Materials and Underground Development Waste

The Application meets the requirements for mitigating any acid- and toxic-forming materials (Section 731.300) and underground development waste. All coal-mine waste will be placed in the refuse pile. The Permittee will examine and test the materials to determine acid- or toxic-forming potential (Section 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 (Appendix5-7). Table 2 of Appendix 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 (Sections 553.300 and 731.311, Appendix 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 and adjacent Horse Canyon Mine lies well below the level of the mine portals (Section 731.520 and .521, Figure 7-1).

Water-Quality Standards And Effluent Limitations

The Application meets the requirements for compliance with all applicable state and federal water quality laws and regulations for effluent limits. The Utah Division of Water Quality (DWQ) has issued UPDES (Utah Pollution Discharge Elimination System) Permit No.

UTG040024 for the Horse Canyon Mine. The permit is a general permit for coal mining that specifies the reporting and self-monitoring requirements for two UPDES points: UPDES 001 – discharge from the sediment pond to Grassy Wash; and UPDES 002 – discharge from the mine portal to Grassy Wash. (Discharge is actually planned for the Right Fork of Lila Canyon, which discharges to Grassy Wash. At the time the UPDES permit was issued, the Right Fork of Lila Canyon was unnamed (Jay Marshal, personal communication). Effluent limitations set by the permit include total suspended solids (TSS) limits of 70.0 mg/L for a daily maximum discharge, 35 mg/L for a 7-day average discharge, and 25 mg/L for a 30-day average discharge. Total dissolved solids (TDS) limitations are set at one ton (2,000 lbs) per day from a grab sample collected monthly. Total iron limitations are set at 1.0 mg/L from a grab sample collected monthly. Oil and grease limitations are set at 10 mg/L from samples collected upon observed visual sheen. The UPDES permit became effective on October 1, 1999 and expired on April 30, 2003. However, the DWQ has issued an extension for the UPDES permit effective May 1, 2003. The UPDES permit and extension letter are provided in Appendix 7-5.

Monthly discharge monitoring reports (DMRs) will be submitted to the DWQ for the two UPDES outfalls. The UPDES permit specifies that the Permittee shall report to the DWQ any non-compliance that may seriously endanger health or environment. The report shall be made orally within 24 hours and written within 5 days from the time the Permittee first became aware of the circumstance. The DMR data will also be submitted quarterly to the Division's electronic database along with other required quarterly water monitoring data outlined in Tables 7-3 through 7-5 of the Application. When analysis of any water sample indicates non-compliance with the permit conditions, the Permittee will promptly notify the Division and take action as described in Section 731.223.

Hydrologic structures that provide for the control and treatment of disturbed area runoff are described in Sections 732, 733, 742, 743 and 744. Designs and calculations for the structures are presented as Appendix 7-4. These structures are addressed in sections below of this MTA. Discharged water will come from either the sedimentation pond or from underground mine workings. Mine water will be treated by the use of in-mine sumps to remove sediments and oil and grease from the water prior to discharge (Section 731.513).

Diversions: General

The Application meets the requirements for diversions as described in sections below. Plates 5-2, 7-2 and 7-5 identify all of the undisturbed and disturbed area diversions. With the exception of the alternative sediment control area (ASCA) around the fan portal, all disturbed area drainage will be diverted to the sedimentation pond. Undisturbed areas UA-2, UA-3, UA-4 and UA-6 will also be directed to the sedimentation pond (Table 5, Appendix 7-4). All temporary diversions are designed to transmit the flow of a 10yr - 6hr precipitation event with a minimum freeboard of 0.5 feet. Ditches that exhibit flow velocities of 5 fps or greater will be lined with riprap. Tables 1 through 6 of Appendix 7-4 describe the hydrologic characteristics of

the watersheds. The information in the tables is used to calculate the flow capacity for each structure. To calculate watershed flows and ditch capacities, the Permittee used the computer program by the "Office of Surface Mining Watershed Model" Storm Version 6.21. To calculate culvert capacities, the Permittee used the computer program Haestad Methods, Flowmaster, Version 6.0. Computer calculations are provided at the end of Appendix 7-4.

In general, all diversions will be designed, located, and constructed to prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area.

Diversions: Perennial and Intermittent Streams

The Application meets the requirements for the diversion of perennial and intermittent streams. There are no proposed diversions of perennial or intermittent streams, or streams that are intermittent by rule and ephemeral by nature, in the Application. The only diverted stream proposed in the Application is the diversion of the Right Fork of Lila Wash beneath the sedimentation pond through a 60-inch culvert. The Right Fork of Lila Wash upstream of the proposed diversion is an ephemeral stream that drains a watershed that is less than a square mile. The Right Fork of Lila Wash diversion is discussed in the miscellaneous flows section below.

Diversions: Miscellaneous Flows

The Application meets the requirements for diversions of miscellaneous flows as described in this section. The Application identifies 17 diversions within the proposed permit area: one undisturbed area culver (UC-1), 13 disturbed area ditches (DD-2 through DD-14), and six disturbed area culverts (DC-4 through DC9). Design calculations and construction diagrams are presented for each of the diversions in Appendix 7-4. The diversions are depicted on Plate 7-5. All diversions are temporary and will be removed upon final reclamation.

Undisturbed Area Culverts

A 60-inch diameter culvert is proposed to divert the undisturbed drainage form the Right Fork of Lila Wash and the sedimentation pond overflow beneath the sedimentation pond. Watersheds UA-1 and UA-5 contribute runoff to the Right Fork of Lila Wash above the culvert (Appendix 7-4, Table 6). The culvert is designed to safely pass the calculated peak flow of a 100yr-6hr precipitation event from the watersheds combined with the calculated peak flow of the 25yr - 6hr design overflow from the sedimentation pond spillways. Table 10 of Appendix 7-4 lists a total peak flow used to calculate the culvert capacity of 63.16 cfs, which is the 100yr - 6hr peak flow from watersheds UA-1 and UA-5 of 31.72 cfs (Table 4) combined with the spillway peak flow of 31.44 cfs (Table 11). The calculated minimum diameter culvert required to safely pass the peak flow is 2.72 feet, much smaller than the proposed design diameter of 5 feet (60

inches) (Table 10). The proposed UC-1 culvert exceeds the required design to handle peak flows of a 2yr - 6hr precipitation event for a temporary diversion (R645-301-742.333).

Disturbed Area Culverts

Six culverts (DC-4 through DC-9) are proposed to divert the disturbed area drainage. Ditches contributing to the respective culverts are presented in Table 6 of Appendix 7-4. The culverts are designed and sized to collect and transmit the peak flow from a 10yr - 24hr precipitation event. This design exceeds the required design to handle peak flow from a 2yr - 6hr precipitation event for a temporary diversion (R645-301-742.333). Table 9 of Appendix 7-4 summarizes the culvert designs based on the sizing calculations provided in the appendix. All six culverts are designed to exceed the minimum diameter to safely pass calculated peak flows from their respective contributing ditches.

The culverts are designed with trash rack and riprap inlet structures to reduce potential obstructions and undercutting. According to the Application, outlets to ditches are to be protected by riprap if the flow velocity exceeds 5 fps. Table 9 shows that outflow from culverts DC-5, DC-6, and DC-7 will be protected with riprap because outflow velocities will exceed 5 fps for a 10yr-6hr precipitation event.

Disturbed Area Ditches

Thirteen ditches (DD-2 through DD-14) are proposed to divert disturbed and undisturbed drainage to the sedimentation pond. Watersheds and ditches contributing to each respective ditch are presented in Table 6 of Appendix 7-4. Plate 7-2 presents the disturbed and undisturbed area watersheds that contribute to the ditches. Plate 7-5 present the layout of the ditches within the disturbed area. Contributing watersheds and ditches are listed for respective ditches in Table 6. The ditches are designed to collect and transmit the peak flow from a 10yr - 6hr precipitation event with a minimum freeboard of 0.5 feet. This design exceeds the required design to handle peak flow from a 2yr - 6hr precipitation event for a temporary diversion (R645-301-742.333). Ditch design summaries are presented in Table 8. All ditches are to be trapezoidal with 2:1 side slopes, with the exception of DD-13, which will be triangular with 2:1 side slopes. The general ditch design is shown as Figure 3.

According to the Application, the ditches are to be protected by riprap if the flow velocity exceeds 5 fps. Table 8 shows that ditch DD-11 will be protected with riprap because it is the only ditch with calculated flow velocities to exceed 5 fps for a 10yr - 6hr precipitation event.

Berms

Plate 7-5 shows that berms will be used to divert water away from the topsoil storage area located north of the sedimentation pond. The berm is described as an alternate sediment control along with the fan site. However, the topsoil storage area will drain to the sedimentation pond

and the berm is designed simply to divert water away from the area. The berm will be constructed a minimum of two feet high and have 2:1 side slopes.

Stream Buffer Zones

The Application meets the requirements for establishing stream buffer zones. Surface disturbance will only take place along Lila Canyon Wash (north of the proposed facilities), drainage with ephemeral flow that is classified intermittent by the definition in the Utah Coal Mining Rules, and the Right Fork of Lila Wash (south of the proposed facilities), an ephemeral drainage. There is no surface disturbance planned along Stinky Springs Wash or Little Park Wash or its tributaries (Plate 5-2).

Signs will mark the stream buffer zone adjacent to Lila Canyon Wash where the disturbed area is within 100 feet of the wash (Sections 731.600 and 521.261, and Plate 5-2). Undisturbed areas between the wash and surface facilities will be lined with boulders and signs to alert equipment operators of disturbed area boundary limits. There will be no diversion of Lila Canyon Wash (Section 742.320), no runoff from the disturbed area will enter this drainage (Appendix 7-4 and Plates 7-2 and 7-5), no spoil will be placed in this drainage (Section 535), and there will be no road construction in the stream channel (Section 732.410). No potential causal relationship between the planned operation and water quality and quantity in Lila Canyon Wash has been identified by the Permittee, the Division, or other parties, and there are no proximate downstream uses. Therefore, impact of the planned mine operation on Lila Canyon Wash is expected to be nil and pre-mining water quality and quantity data for the wash are not necessary for the Division to make a finding of no adverse impact. The Division finds that the planned coal-mining and reclamation operations within 100 feet of Lila Canyon Wash will not cause or contribute to the violation of applicable Utah or federal water quality standards and will not adversely affect the water quantity and quality or other environmental resources of Lila Canyon Wash. The Division therefore authorizes the Permittee to conduct the planned coal-mining and reclamation activities within 100 feet of Lila Canyon Wash.

Sediment Control Measures

The Application meets the requirements for sediment control measures as described in the sections below. Sediment control measures are designed to prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area; meet the more stringent of applicable state or federal effluent limitations; and, minimize erosion to the extent possible. Structures used for the runoff control plan for the permit area include disturbed and undisturbed area diversions, containment berms, silt fences, and a sedimentation pond. Information is provided in Section 742, Sediment Control Measures, and Appendix 7-4 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 Application meets the requirements for the use of siltation as described in the section below. The sedimentation pond is the only siltation structure identified in the Application. All flow from the disturbed area will be directed to the sedimentation pond. The sedimentation pond will allow sediments to settle and any oils to be skimmed off the water's surface prior to any discharges. The sedimentation pond treatment will ensure discharges to stream channel in the Right Fork of Lila Wash meets the water quality standards of the UPDES Permit. Alternate forms of siltation (or sediment) control such as straw dikes, sediment traps and vegetation may be used as necessary to provide runoff protection from small areas. Undisturbed and disturbed area ditches, culverts and berms will be used in combination with siltation controls, Plate 5-2, to reduce erosion and sediment yield.

Siltation Structures: Sedimentation Ponds

The sedimentation pond is designed to contain the runoff from contributing watersheds from a 10yr - 24hr precipitation event, along with a minimum of three years of sediment storage. To calculate watershed flows, the Permittee used the computer program by the "Office of Surface Mining Watershed Model" Storm Version 6.20. The supporting computer data is presented at the end of Appendix 7-4 and runoff from contributing watersheds is shown in Table 5 of Appendix 7-4. Soil loss for each contributing watersheds was calculated using the Universal Soil Loss Equation (USLE). Soil loss calculations are summarized in a table in Appendix 7-4 (Sediment Yield Calculations – USLE, p. 27). The sedimentation pond design and stage volume information is presented in Tables 11 and 12. The sediment pond plan and cross sections are provided in Plate 7-6.

The following is a brief description of how the R645 Coal Rules for sedimentation ponds are met.

- R645-301-711.300, All methods and calculations are provided in Appendix 7-4.
- 742.221.31, Sediment inflow and storage requirements are presented in the Application. Sediment storage volume was calculated using the Unified Soil Loss Equation (USLE) for each contributing watershed as presented in Section 3.2 of Appendix 7-4. Total yearly sediment inflow is calculated at 0.426 ac-ft, respectively. The total three-year sediment inflow for the pond is calculated at 1.278 ac-ft. The pond is designed to contain this amount of sediment while maintaining adequate volume to contain the 10-yr/24-hr precipitation event.
- 742.221.32, adequate detention time is accounted for to meet the required UPDES effluent limitations because the pond is designed to fully contain the 10yr - 24hr precipitation event.
- -742.221.33, The pond has been designed to contain the water and sediment for the 10yr - 24hr storm event because the design volume at the principle spillway of

8.537 ac-ft exceeds the total required pond volume of 6.522 ac-ft.

- 742.221.34, The pond is designed to be equipped with a decant pipe with a 90 degree elbow positioned on the principal spillway riser one foot above the maximum sediment level. The principal and emergency CMP riser spillways will be fitted with oil skimmers.
- -742.221.35, Short-circuiting will be minimized (in the event of a discharge) because inflows are located across the pond from the spillways, as is standard practice for short circuit prevention. In addition, the pond is designed to fully contain a 10yr - 24hr precipitation event.
- -742.221.36, The pond clean-out level is presented with the stage volume data. The cleanout level is set as the maximum sediment level of three years of sediment inflow. Plate 7-6 indicates that a sediment marker placed in the pond to mark the clean-out level elevation.
- -742.221.37, Assurance that excessive settlement will not occur is provided by the Design and Construction Specifications Sedimentation Pond (Section 3.1, Appendix 7-4) that state, "Fill will be placed in lifts not to exceed 6" and compacted prior to placement of next left (sic). Compaction of all fill materials shall be at least 95%." In addition, the Sediment Pond Summary (Section 3.4, Appendix 7-4) states, "The pond will be constructed according to the regulations and under supervision of a Registered, Professional Engineer".
- -742.221.38, Assurance that the pond will be free of sod, large roots, frozen soil, and acid- or toxic-forming coal-processing waste is provided by the Design and Construction Specifications Sedimentation Pond (Section 3.1, 7-4) that state, "Native material shall be used where practical". In addition, the Sediment Pond Summary (Section 3.4, Appendix 7-4) states, "The pond has been constructed according to the design criteria listed under 'Construction Specifications for Sedimentation Ponds'."
- -742.221.39, Assurance that the pond will be compacted properly is provided by the Design and Construction Specifications Sedimentation Pond (Section 3.1, Appendix 7-4) that state, "Fill will be placed in lifts not to exceed 6" and compacted prior to placement of next left (sic). Compaction of all fill materials shall be at least 95%." In addition, the Sediment Pond Summary (Section 3.4, Appendix 7-4) states, "The pond will be constructed according to the regulations and under supervision of a Registered, Professional Engineer".
- 742.222, The pond does not meet the size or other qualifying criteria of the MSHA, 30 CFR 77.216(a).
- 742.223, Calculations presented in Table 13 of Appendix 7-4 show that a 36-inch diameter riser (9.4248-foot circumference) will discharge the 25yr - 6hr precipitation event at a depth of 1.07 feet over the inflow elevation. Stage discharge curves are presented in Figure 6 of Appendix 7-4. With a 36-inch diameter riser, each spillway can easily discharge the peak flow of a 25yr - 6hr precipitation event because there is greater than 1.07 feet available above each of

the spillway inflow elevations. The principle spillway is one-foot below the emergency spillway, and the emergency spillway is a minimum of 2 feet below the crest of the dam. The spillway construction diagram is presented as Diagram A on Plate 7-6.

Alternative Sediment Control Areas (ASCAs)

The Application meets the requirements for the use of alternative sediment controls (ASCAs). The 0.716-acre area at the fan site is the only ASCA proposed in the Application. The ASCA consists of the use of one or a combination of berms, silt fences, and straw bales to control sediment runoff from leaving the disturbed area. The ASCA is described in Appendix 7-4. The berm will be constructed a minimum of two-feet high, have 2:1 side slopes, and control the flow from a 10yr – 24hr precipitation event. Silt fence construction is shown in Figure 8 of Appendix 7-4. The Division finds that the proposed ASCA represents the Best Technology Currently Available (BTCA) in controlling sediment in this disturbed area that does not report to the sedimentation pond.

Siltation Structures: Exemptions

There are no Small Area Exemptions (SAEs) proposed in the Application.

Discharge Structures

The only discharge structure proposed in the Application is the riprap outlet from culvert UC-1 described in Section 2.10 of Appendix 7-4. The discharge structure is designed to protect the natural channel from the discharge of a 100yr – 6hr precipitation event plus sedimentation pond discharge of 63.16 cfs. The structure is comprised of 12-inch D_{50} riprap apron that is 20 feet long and widens from 5 feet at the culvert outlet to 9 feet with a 0% grade. The calculated flow velocity at the end of the outlet is 4.12 fps (calculations at the end of Appendix 7-4).

Mine water may be discharged to the Right Fork of Lila Wash if excessive water is intercepted in the mine. Plate 7-5 identifies the permitted discharge site for the mine water (UPDES 002).

The Division has assessed groundwater information from what has been presented in the Application and other mines in the Book Cliffs. The Division has determined there is a good probability that water will be intercepted, however, the quantity is unknown at this time. The Permittee has addressed the Division's concern about the consolidation of discharge points to lessen the impacts to receiving stream channels. The analysis in Appendix 7-9 indicates that the maximum discharge conceived for the mine would amount to only three percent of the total two-year flood volume. Therefore, any mine discharge will have much less effect on the channels than natural flows.

Impoundments

The only impoundment proposed in the Application is the sedimentation pond. The sedimentation pond is a temporary structure to be removed upon final reclamation and does not meet the size or other qualifying criteria of the MSHA, 30 CFR 77.216(a). The sedimentation pond is discussed above.

Casing and Sealing of Wells

The Application meets the requirements for casing and sealing wells. The Permittee has committed to sealing the three Piezometers (IPA-1, IPA-2 and IPA-3) in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434. Requirements for sealing the piezometers and any wells drilled during the operation are specified under the Operations section of the Application.

The Application does not propose to develop wells during the operation period.

Findings:

Information provided in the Application 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 Application meets 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 (Section 520, Appendix 5-4, Appendix 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 stream flow 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 Sections 520, 234.220) several means by which deposition of coal fines on the undisturbed slope will be controlled.

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 MTA. Fish and wildlife issues are discussed in detail in the Fish and Wildlife Protection Plan section of this MTA.

Findings:

Information provided in the Application 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 Application meets the requirements of the R645-301-521.200 by committing in Section 521.200 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 Application 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 (Section524.200).

Findings:

Information provided in the Application 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 Application meets 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 Application meets 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 Application meets 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.

Monitoring and Sampling Location Maps

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

Certification Requirements

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

Findings:

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

RECLAMATION PLAN

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 Application meets the general reclamation plan requirements of the regulations by submitting a Reclamation Plan for the disturbed area within the Lila Canyon permit area (Appendix 5-8 and Chapter 2, 3, and 5). This plan describes how the Permittee will achieve environmental protection standards.

Findings:

Information provided in the Application 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 Application meets 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 (Chapter 4). 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 (Appendix 4-2 and Section 412.140).

The Division received comments that the Application failed 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.
- Undeveloped land or no current use or land management.

Findings:

Information provided in the Application 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 Application meets 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 Application.

The EA (UT-070-99-22 July 2000) discusses an enhancement/mitigation plan for the vegetation communities. The BLM, in coordination with DWR, will implement this plan. (See Operations section of this MTA for details.)

The species in the seed mixture will 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.

Findings:

Information provided in the Application 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 Application meets 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 by:

- Restoring slopes at a similar length and grade as the surrounding topography (Section 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. (Section 553.120).
- Achieving a post-mining slope that has a factor-of-safety of 1.3 or higher (Section 553.130, Appendix 5-5).
- Minimizing erosion and water pollution both on and off the site (Section 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 Appendix 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 cut slopes to be retained in order to achieve slope stability.

Findings:

Information provided in the Application meets the Approximate Original Contour Restoration 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 Application meets the requirements for backfilling and grading by providing a plan (Section 553) to backfill and grade the disturbed areas to:

- Achieve the approximate original contour (Section 553.110).
- Eliminate all highwalls, spoil piles, and depressions (Section 553.120).
- Achieve a post-mining slope that has a factor-of-safety of 1.3 or higher (Section 553.130, Appendix 5-5).
- Minimize erosion and water pollution both on and off the site (Section 553.140).
- Support the approved post mining land use (Section 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 Application meets the Backfilling and Grading requirements of the regulations.

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 Application meets the requirements for this section of the regulations by providing a plan (Section 529, 551, Appendix 5-6) to permanently close each exploration hole, drill hole, 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 (Section 529.210)

Findings:

Information provided in the Application meets the Mine Openings requirements of the regulations.

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

The Application meets the requirements for handling and placing topsoil and subsoil during reclamation. The Permittee describes in Section 241 and on Plate 2-3 of the Application how they will:

- Grade all areas where no subsoil is being stored
- Replace subsoil on areas from which it was removed.
- Rip the subsoil to a minimum of 16 inches.
- Replace topsoil.
- Replace boulders.
- Gouge the topsoil.

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 Sections 241, 242.100, and 232.500.

The Division received comments on the depth of topsoil replacement; the commenter believed that the Application called for eighteen inches of topsoil to be replaced over the entire site. However, Section 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 (Section 231.400). If successful, they will use the biologic soil crusts to inoculate the reclaimed site (Section 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 (Section 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 Application 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 Application meets the requirements for this section of the regulations by including plans (Section 542.600) to reclaim all roads within the disturbed area boundary as soon as they are no longer needed for mining and reclamation operations. This reclamation will include:

- Closing roads to traffic.
- 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.
- Scarifying or ripping the roadbed, replacing topsoil or substituting 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 (Section 542.640).

Retention

The Permittee states in Section 642.600 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 Application 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 Application meets the requirements for providing hydrologic information needed for the Division to evaluate the reclamation plan. The Permittee submitted reclamation plans that deals with hydrology for the disturbed area in Section 760, and the reclamation sediment and drainage control plan is provided in Section 4.0 of Appendix 7-4. At the end of mining, the Permittee will remove all mining structures, regrade and shape the disturbed area site to approximate original contour.

Ground-Water Monitoring

Ground water monitoring will continue until final bond release. The same ground-water monitoring plan will be used during mine operation and reclamation with possible modifications approved by the Division during the life of the mine. Table 7-3 lists the monitoring sites and locations are shown on Plate 7-4. Ground-water monitoring parameters are listed in Table 7-5.

Surface-Water Monitoring

Surface-water monitoring will continue until final bond release. The same surface-water monitoring plan will be used during mine operation and reclamation with possible modifications approved by the Division during the life of the mine. Table 7-3 lists the monitoring sites and locations are shown on Plate 7-4. Ground-water monitoring parameters are listed in Table 7-4.

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 (Section 536). In Appendix 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 Appendix 5-7. The Permittee will dispose of the slope-rock material in a refuse pile. The material in the refuse pile will be covered with a minimum of four feet of non-acid and non-toxic forming material. (See Chapters 2, 5, and 7, and Appendix 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. There will be limited contact of precipitation with the

refuse because the cover material will be compacted and the surface shaped to carry precipitation away from the disturbed areas. The disturbed area receives a very low amount of precipitation annually, approximately 10 inches per year, (Waddel, et. al., 1986, Plate 1).

For additional discussion of –acid and toxic-forming materials refer to Operation Plan sections of this MTA (Spoil & Waste Materials/Refuse Piles and Hydrology Acid Toxic Forming Materials).

Transfer of Wells

There are three piezometers (the IPA "wells") and the Horse Canyon Well in, or adjacent to, the permit area (Section 722.400). There is no plan to transfer any of the IPA piezometers to any other party (Section 731.400). The Horse Canyon well was included in the transfer of property to CEU (Plate 4-1) in October 2005.

Casing and Sealing of Wells

The Permittee committed to sealing the three piezometers (IPA-1, IPA-2 and IPA-3) in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434. Requirements for sealing the piezometers and any wells drilled during the operation are specified under the Operations Section.

Discharges into an Underground Mine

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

Gravity Discharges

The Permittee explained in Section 731.520 of the Application 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. The Permittee does 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 Application meets the requirements for compliance with all applicable state and federal water quality laws and regulations for effluent limits during reclamation. The DWQ issued UPDES permit will be in place during reclamation that specifies the reporting and self-monitoring requirements for discharge from the sedimentation pond. Mine water discharge will

cease during reclamation because mine water is not expected to naturally discharge from the mine portal once pumping is stopped. The Permittee will monitor ground- and surface-water according to the plan until final 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 (Sections 731.212 and 731.214).

Sedimentation Ponds

The Application meets the requirement for sedimentation ponds. The Lila Canyon sedimentation pond is considered temporary because it will be removed upon completion of Phase II Bond Release. The sedimentation pond design is applicable during reclamation because the runoff to the sedimentation pond will be the same as calculated during operations, even though diversions will be altered. The Permittee will use the sedimentation pond during reclamation to control runoff until vegetation 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 (Section732.210). Plate 7-7 provides reclamation contours and drainage plans.

Discharge Structures

The Application meets the requirements for discharge structures by providing plans and information for the sedimentation pond to be used at the site to contain and control runoff from the disturbed area. The sedimentation pond has two discharge structures, as well as a decant system. One discharge structure is designed to hold disturbed area runoff in the pond until the volume of a 10yr - 24hr-precipitation event is exceeded. Underneath the sediment pond is a 60-inch culvert that directs water from the undisturbed drainages into Lila Wash. The Permittee will also remove the 60-inch culvert when the pond is reclaimed (Section742.423.4, 742.311).

Diversions: General

The Application meets the requirements for diversions during reclamation as described in sections below. All existing diversions will be removed during reclamation to be replaced by ditches RD-1 and RD-2, which will report to the sedimentation pond. The diversion ditches, sedimentation pond, and culvert UC-1 will remain until the completion of Phase II Bond Release. Plate 5-6 identifies the diversions during reclamation. To calculate watershed flows and ditch capacities, the Permittee used the computer program by the "Office of Surface Mining Watershed Model" Storm Version 6.21. To calculate culvert capacities, the Permittee used the computer program Haestad Methods, Flowmaster, Version 6.0. Computer calculations are provided at the end of Appendix 7-4.

In general, all diversions will be designed, located, and constructed to prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area.

Diversions: Miscellaneous Flows

The Application meets the requirements for diversions of miscellaneous flows during reclamation as described in this section. Design calculations and construction diagrams are presented for the diversions in Appendix 7-4.

Reclamation Area Culverts

All disturbed area culverts from the operations phase will be removed during reclamation. The 60-inch diameter culvert (UC-1) used to divert the undisturbed drainage form the Right Fork of Lila Wash and the sedimentation pond overflow beneath the sedimentation pond will remain during reclamation until the completion of Phase II Bond Release. The culvert design will remain the same as the operations phase during that time because the drainage areas will remain the same. Following completion of Phase II Bond Release, the diversion ditches and sedimentation pond will be removed and culvert UC-1 will be cut and left in place as a permanent diversion to divert runoff from the Right Fork of Lila Wash. The culvert is designed to safely pass the calculated peak flow of a 100yr-6hr precipitation event from the watershed of 65.08 cfs (Tables 14 through 17). The proposed UC-1 culvert exceeds the required design to handle peak flows of a 10yr - 6hr precipitation event for a permanent diversion (R645-301-742.333).

Reclamation Area Ditches

During reclamation, the thirteen existing operations ditches (DD-2 through DD-14) will be removed and replaced by two ditches used to divert the reclaimed area runoff to the sedimentation pond (Plate 5-6). Table 14 lists the contributing ditches as DD-11 and DD-12, which were used to contain all runoff from the site during operations (Table 6). The ditches are designed to collect and transmit the peak flow from a 10yr - 6hr precipitation event with a minimum freeboard of 0.5 feet. This design exceeds the required design to handle peak flow from a 2yr - 6hr precipitation event for a temporary diversion (R645-301-742.333). Ditch design summaries are presented in Tables 16 and 17. The ditches are to be trapezoidal with 2:1 side slopes. The general ditch design is shown as Figure 3. The ditches will be removed upon completion of Phase II Bond Release.

Impoundments

There are no permanent impoundments associated with the Lila Canyon Extension. The sedimentation pond is the only impoundment planned for the Lila Canyon Extension as described above.

Findings:

Information provided in the Application 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 Application meets the requirements for contemporaneous reclamation. The Permittee will reclaim all disturbed areas when no longer needed to support the mining and reclamation activities as soon as possible practical.

Findings:

Information provided in the Application 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 Application meets 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.

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

Appendix 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 plan states that for the woody plant supplement project s "the species and numbers will be determined from the evaluation of the ocular estimates. UEI will consult with the Division and DWR to provide the species and numbers of seedlings following the ocular evaluation (Appendix 5-8 page 3).

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..." (Section 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 (Section 354).

Revegetation: Mulching and Other Soil Stabilizing Practices

Appendix. 5-8 and Section 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, Dr. King, and the Division established a new reference area in 2003, which is slightly southwest from the mine entrance.

The Permittee will follow the Division's "Vegetation Guidelines" to measure revegetation success.

Wildlife habitat is the primary and grazing is the secondary postmining land use.

Findings:

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

STABILIZATION OF SURFACE AREAS

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

Analysis:

The Application meets the requirements for stabilization of surface areas. 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 (if suggested by test results described in Section 243). 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 Section 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, Section 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 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)," 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 Application meets the Reclamation -Stabilization of Surface Areas Configuration requirements of the regulations.

CESSATION OF OPERATIONS

Regulatory Reference: 30 CFR Sec. 817.131, 817.132; R645-301-515, -301-541.

Analysis:

The Application meets the requirements for cessation of operations. The Permittee committed in Section 515.300 of the Application to comply with all regulations in the event of a temporary cessation. In the reclamation sections of the Application, the Permittee commits to reclaim the area according to the approved reclamation plan.

Findings:

Information provided in the Application meets the Reclamation – Cessation of Operations 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 Application meets 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.

Bonded Area Map

The Application meets 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

The Application meets the requirements for showing 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

The Application meets the requirements for 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, the Permittee states that there will not be any surface facilities left after final bond release.

Reclamation Surface and Subsurface Manmade Features Maps

The Application meets 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 area.
- 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.
- Identifying on Plate 5-6 each public road located in or within 100 feet of the proposed permit area.

No roads within the disturbed 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 Application meets the Maps, Plans, and Cross Sections of Reclamation Operations requirements of the regulations.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

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 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 Appendix 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 Appendices 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 Application 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 Application meets the requirements of the Cumulative Hydrologic Impact Assessment (CHIA) as provided in R645-301-729. The Division finds that these standards have been met because the hydrologic information provided in the Application is adequate to update the Book Cliffs Area V CHIA. The Division will update the CHIA by incorporating the proposed Lila Canyon Extension of the Horse Canyon Mine.

Findings:

The information provided meets the Cumulative Hydrologic Impact Assessment Information requirements of the State regulations.

ATTACHMENT 1

Legal Descriptions and Background Information

ATTACHMENT

PERMIT AREA

The Permittee is authorized to conduct coal mining and reclamation operations on the following described lands within the Horse Canyon Mine permit area located in Carbon and Emery Counties, Utah:

Permit Area "A"

Beginning at the SW corner of the SE1/4 SE1/4 of Section 5, T16S, R14E, SLBM; and running thence North 700 feet; thence East 2700 feet; thence North 700 feet; thence East 2025 feet; thence North 550 feet; thence approximately N50°E 4957 feet, more or less; thence approximately N18°W 1228 feet, more or less; thence West 256 feet; thence approximately N18°W 1328 feet, more or less; thence approximately N66°E 682 feet, more or less; thence approximately N11°E 636 feet, more or less; thence approximately N79°W 116 feet, more or less; thence approximately N11°E 1787 feet, more or less; thence approximately S88°E 1023 feet, more or less; thence South 272 feet; thence East 283 feet; thence South 2027 feet; thence East 278 feet; thence approximately S18°E 2111 feet, more or less; thence approximately N72°E 131 feet, more or less; thence approximately S18°E 222 feet, more or less; thence approximately N69°E 2218 feet, more or less; thence approximately N19°W 1092 feet, more or less; thence approximately N67°E 693 feet, more or less; thence East 160 feet; thence approximately S23°E 2921 feet, more or less; thence approximately S60°W 297 feet, more or less; thence South 353 feet; thence West 1071 feet; thence South 301 feet; thence East 450 feet; thence South 370 feet; thence West 322 feet; thence approximately S19°E 1451 feet, more or less; thence approximately S86°E 1200 feet, more or less' thence approximately S35°E 667 feet, more or less; thence approximately S04°W 1012 feet, more or less; thence approximately N87°W 2780 feet, more or less; thence approximately S20°E 2330 feet, more or less; thence approximately N66°E 1090 feet, more or less; thence approximately N24°W 710 feet, more or less; thence approximately N66°E 484 feet, more or less; thence approximately S24°E 618 feet, more or less; thence approximately S66°W 283 feet, more or less; thence approximately S24°E 610 feet, more or less; thence approximately S66°W 414 feet, more or less; thence approximately N24°W 170 feet, more or less; thence approximately S66°W 898 feet, more or less; thence approximately S20°E 1177 feet, more or less; thence East 383 feet; thence South 168 feet; thence East 549 feet; thence South 2827 feet; thence approximately S73°W 341 feet, more or less; thence approximately N10°W 1155 feet, more or less; thence approximately N23°W 1306 feet, more or less; thence approximately S67°W 2297 feet, more or less; thence approximately N20°W 181 feet, more or less; thence approximately S70°W 1940 feet, more or less; thence approximately S20°E 1274 feet, more or less; thence approximately S30°W 427 feet, more or less; thence approximately N20°W 1916 feet, more or less; thence approximately N70°E 2276 feet, more or less; thence approximately N20°W 5822 feet, more or less; thence West 2020 feet; thence South 418 feet; thence West 1350 feet; thence South 1400 feet; thence West 697 feet to the NW corner of the NE1/4 NE1/4 of Section 9, T16S, R14E, SLBM; thence South 1400 feet; thence West 5400 feet; thence North 1400 feet to the Point of Beginning.

Less the following portions thereof:

(a) Beginning approximately 276 feet South and approximately 55 feet West of the NE corner of the NE1/4 SW1/4 of Section 3, T16S, R14E, SLBM; thence approximately S42°W 186 feet, more or less; thence West 942 feet; thence approximately N30°W 277 feet, more or less; thence North 714 feet; thence East 653 East; thence North 882 feet; thence approximately S18°E 1785 feet, more or less to the Point of Beginning.

(b) Beginning approximately 263 feet South and approximately 540 feet East of the NW corner of the NW1/4 SE1/4 of Section 3, T16S, R14E, SLMB; thence approximately N18°W 2329 feet, more or less; thence East 340 feet; thence North 1157 feet; thence West 704 feet; thence approximately N20°W 762 feet, more or less; thence approximately N75°E 1443 feet, more or less; thence approximately S18°E 2137 feet, more or less; thence approximately S68°E 256 feet, more or less; thence approximately S18°E 2453 feet, more of less; thence West 1705 feet to the Point of Beginning.

(c) Beginning approximately 286 feet West and approximately 437 feet North of the SE corner of the NW1/4 SE1/4 of section 3, T16S, R14E, SLBM; thence East 1281 feet; thence approximately S20°E 4945 feet, more or less; thence approximately S67°W 1527 feet, more or less; thence approximately N20°W 4978 feet, more or less; thence approximately N14°E 582 feet, more or less to the Point of Beginning.

Emery County Road to be excluded.

A strip of land, 100.0 feet wide, 50.00 feet on each side of the centerline of the Emery County roads within the above described permit boundary.

Permit Area "B"

T16S R14E

Section 10:	Portions of SE1/4
Section 11:	E1/2
	Portions of W1/2
Section 12:	All
Section 13:	All
Section 14:	All
Section 15:	Portions of E1/2
	Portions of SW1/4
Section 22:	NE1/4 NE1/4
Section 23:	N1/2
	SE1/4
	E1/2 SW1/4
Section 24:	All
Section 25:	N1/2

Section 26: E1/2 NE1/4

T16S R15E

Section 19: W1/2 SW1/4
SE1/4 SW1/4

Section 30: NW1/4

ATTACHMENT

MINING PLAN AND MINING PLAN MODIFICATION INFORMATION BACKGROUND INFORMATION

Horse Canyon Mine

USGS 7.5 minute Quadrangle location map(s): **Cedar, and Lila Point**

Year mine began production: **1942 to 1984 (Horse Canyon Mine)**

Current permit acreage: **1327.75**
Current surface disturbed acres: **74.26**
Total acres of Federal coal within the current permit: **499.61**
Total acres of Federal surface land within the current permit: **170.01**
Recoverable tons of Federal coal remaining in the current permit: **Permit for reclamation only. No coal to be mined.**

Average annual production rate: **0**
Maximum production rate: **0**
Coal seam(s) mined: **None**
Average annual employment: **1**
Life-of-Mine in current permit: **0**

Current Post mining land use: **wildlife habitat, grazing, incidental recreation**

PROPOSED ACTION INFORMATION: Lila Canyon Extension

Total change in permit acreage: **4664.32**
Change in surface disturbed acres: **25.3**
Change in acres of Federal coal: **4663.56**
Change in Federal surface land acres: **4086.36**
Change in recoverable tons of Federal coal: **26 million**
Change in average annual production: **4.5 million**
Coal seam(s) to be mined: **Sunnyside Seam**
Change in annual employment: **+150**
Change in Life-of-Mine: **+ 5 years**

Reclamation bond amount: **$1,686,000.00**

Change in post mining land use: **No change**

ATTACHMENT 2

Commitment List

ATTACHMENT

SUMMARY OF PERMIT COMMITMENTS

The summary of permit conditions is intended to provide the Permittee and the Division a checklist of certain action items that the Permittee agreed to within the text of the MRP. Individual reviewers determine the items that should be included in the checklists. Routine action items should not be included in the lists. Some action items may need action several years after initial review, which the checklist may help serve as a reminder. Information for each commitment is provided with the following headings.

Title: Title or kind of the commitment.
Objective: Brief description of commitment objective or goal.
Frequency: Whether the commitment is conducted annually, monthly, or weekly; or, 'frequency' is not applicable (NA) for a particular commitment.
Status: Whether the commitment is pending, ongoing, or completed; or 'status' is NA.
Reports: Whether the overseeing agency requires a follow-up report (e.g., annual report).
Citation: Volume title, Section, and Page number where the commitment is mentioned in the MRP.

REPORTING OF TECHNICAL DATA

Title: Confidential.
Objective: Submit confidential information in amendments, annual reports, and explorations in a separate folder.
Frequency: NA.
Status: Starting in June 2005.
Reports: NA.
Citation: NA.

OPERATIONS: PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Title: Special Condition #2 Programmatic Agreement for archaeology protection.
Objective: OSM, DOGM, and SHPO entered a PA that provides specific measures concerning the protection of archaeology sites.
Frequency:NA.
Status: On-going..
Reports: Reporting provisions are provided in the PA.
Citation: NA

Title: BLM Memorandum of Agreement for Recovery of Significant Information (42EM2517).
Objective: BLM, OSM, DOGM, and SHPO will enter a MOA to implement a recovery plan.
Frequency: NA.
Status: Pending on the Notice to Proceed by BLM, which will follow mine plan approval.

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Reports: BLM will provide a copy of the mitigation/recovery survey to DOGM and other signatories.

Citation: EA No. UT-070-99-22, July 2000, p. 58; MRP-Part B, Sec. 411.142, p. 11/12.

OPERATIONS: FISH AND WILDLIFE INFORMATION

Title: Wildlife.
Objective: Adhere to wildlife exclusionary periods: raptors (Feb 1 - July 1), bighorn sheep lambing, (May 1 - June 15), and pronghorn (May15 – June 20).
Frequency: NA.
Status: Ongoing – Prior to construction of any new facility projects, structures, and roads; and prior to reclamation.
Reports: NA.
Citation: MRP-Part B, Sec. 330, p. 20.

Title: Special Condition #3 Raptor protection.
Objective: Condition #3.
Frequency:NA.
Status: On-going..
Reports: Reporting provisions are provided in the Condition and accompanying explanations.
Citation: Condition #3. The Permittee did not agree with all the protection measures of this condition, therefore, the MRP does not include all the measures. However, DOGM issued protection measures as a Condition to the Permit and the Permittee must comply with all measures as well as the accompanying explanations provided in this MTA (Operations Section "Migratory Birds, Game Birds, and Raptors").

Title: Raptor Exclusionary Period.
Objective: Adhere to raptor exclusionary periods: raptors in general (Feb 1 - July 1).
Frequency: NA.
Status: Ongoing – Prior to construction of any new facility projects, structures, and roads; and prior to reclamation.
Reports: NA.
Citation: MRP-Part B, Sec. 330.30, p. 19.

Title: Raptor fly-over survey.
Objective: Survey all raptor habitat and nests.
Frequency: Annually.
Status: On going starting in 2005.
Reports: Annual Reports (Confidential Incoming).
Citation: MRP-Part B, Sec. 322.220, p. 10; Sec. 330, p. 20; Sec 358.100 p. 38; Condition #3.

Title: Raptor Exclusionary Period and Unforeseen Events.
Objective: Avoid 'take' by using the BTA as issued by USFWS, DWR, BLM, and DOGM. This provision is in effect when EMERGENCY situations cause the Permittee to initiate construction during exclusionary periods.
Frequency: NA.
Status: On going.
Reports: Dependent on measures and process issued by the agencies at time of consultation.

ATTACHMENT

Citation: MRP-Part B, Sec. 322.220, p. 10; Sec. 330, p. 20; Sec 358.100 p. 38; Condition #3.

Title: Subsidence and raptor/nest protection and possible 'take'.
Objective: If any raptor nests are within the subsidence zone, the Permittee must provide a mitigation plan for possible subsidence of the nest(s).
Frequency: NA.
Status: On going.
Reports: Dependent on the requirements of the mitigation plan.
Citation: Condition #3 as well as the accompanying explanations provided in this MTA (Operations Section "Migratory Birds, Game Birds, and Raptors").

Title: Raptor protection.
Objective: Escarpment barrier of at least 200' to prevent cliff habitat loss.
Frequency: NA.
Status: NA.
Reports: NA.
Citation: MRP-Part B, Sec. 332, p. 13.

Title: Raptors protection.
Objective: Employee educational to remove road kill from the coal haul road.
Frequency: NA.
Status: On going.
Reports: NA.
Citation: MRP-Part B, Sec. 333, p. 17

ATTACHMENT

Title: Habitat enhancement/mitigation.
Objective: Implement the BLM 70+-acre wildlife enhancement/mitigation plan to offset expected impacts to bighorn sheep as well as mule deer, elk, raptors, and chukars from the initial construction of the main facilities site.
Frequency: NA.
Status: Implement the BLM's plan within one year following mine plan approval.
Reports: Provide the BLM's detailed plan and a follow-up report as an appendix to the MRP-Part B.
Citation: MRP-Part B, Sec. 322.220, p. 10, 11; Sec. 333, p. 17, 18; EA UT-070-99-22 July 2000.

Title: Habitat enhancement/mitigation.
Objective: Install 2 guzzles as part of the BLM enhancement/mitigation plan to offset expected impacts to bighorn sheep as well as mule deer, elk, raptors, and chukars from the initial construction of the main facilities site.
Frequency: NA.
Status: Implement within one year following mine plan approval.
Reports: Provide location of guzzles as an appendix to the MRP-Part B.
Citation: MRP-Part B, Sec. 333, p. 18; EA UT-070-99-22 July 2000.

Title: Vegetation monitoring.
Objective: Color infrared photography. Submit and implement a mitigation plan, if results indicate impact from operations.
Frequency: Every 5 years.
Status: On going.
Reports: Annual Report.
Citation: MRP-Part B, Sec. 332, p. 14.

Title: Sensitive plants.
Objective: Survey the Cliff's blazing star, canyon sweetvetch, and creutzfeldt-flower. Initiate and implement a protection/mitigation plan if surveys are positive.
Frequency: Survey at least the year construction begins or one year prior to construction.
Status: On going with last survey in report in 2005.
Reports: Provide a detailed plan and follow-up report as an appendix to the MRP-Part B.
Citation: MRP-Part B, Sec. 321.100, p. 4.

Title: Sensitive plant.
Objective: Implement a protection program for known populations of canyon sweetvetch during construction of the main facilities site.
Frequency: NA.
Status: NA.
Reports: None.
Citation: MRP-Part B, App. 7-3.

Title: Mexican spotted owl.
Objective: Conduct two-year calling survey at least two years but no more than four years prior to undermining identified habitat. Results will be submitted to USFWS, DWR, and the Division immediately following of each nighttime survey. If owls are observed, the agencies will immediately coordinate to determine appropriate measures.
Frequency: Dependent on habitat and mine plan.
Status: On going.
Reports: Final reports in Annual Report (Confidential).
Citation: MRP-Part B, Sec. 333, p. 17.

Title: CO River fish.
Objective: Water depletion reporting for the CO River endangered fish Recovery Implementation Program.
Frequency: Annually.
Status: On going.
Reports: Annual Report.
Citation: Sec. 322.220, p.11.

OPERATIONS: ROAD CONSTRUCTION

Title: Slope between the coal pile road and the portal access road (Plates 2-3 and 5-2).
Objective: No disturbance is anticipated for this slope, consequently, UEI will evaluate the condition of the slope after road construction and label the slope either disturbed or undisturbed, as appropriate, on an As Built site map.
Frequency: Once after construction.
Status: Ongoing.
Reports: As Built site map required.
Citation: Section 520, Support Facilities List item #37.

OPERATIONS: HYDROLOGY

Title: 728.333 Flooding and Streamflow Alteration.
Objective: Outlines steps to be taken if volumes of water encountered underground necessitate discharge to the surface.
Frequency: As needed, although once implemented, some specific steps will be done at least quarterly.
Status: Ongoing.
Reports: Division input and approval before action.
Citation: Chapter 6, Section 728.333.

Title: 724.400 Precipitation Measurements
Objective: Installation and operation of two rain gauges
Frequency: In 2008, as soon as weather permits.

Status: Ongoing.
Reports: Data recorded at least monthly, downloaded from the data logger quarterly, and reported annually.
Citation: Attachment A - SPECIAL CONDITIONS (December 20, 2007).

Title: Crest Stage Gauges and Siphon Samplers
Objective: Collect two years of additional quarterly surface-water quantity and quality data at selected sites.
Frequency: The gauges will be installed, maintained, and inspected as required by normal USGS protocol and on a frequency established by the Division.
Status: Ongoing; installation to begin before March 31, 2008 and continue as weather allows.
Reports: To be included in the regular quarterly monitoring reports, with analysis at they end of the first year to determine if additional gauges are needed.
Citation: Attachment A - SPECIAL CONDITIONS (December 20, 2007).

Title: Seep and Spring Survey
Objective: Survey to locate any previously unidentified seeps and springs; survey all seep and spring locations with a GPS.
Frequency: Quarterly reports for additional sites selected for water-quality and -quantity monitoring.
Status: Begin before March 31, 2008. New sites selected for regular quarterly monitoring to be monitored for at least two years.
Reports: Water-quality and –quantity data to be included in the regular quarterly monitoring reports
Citation: Attachment A - SPECIAL CONDITIONS (December 20, 2007).

Title: Monitoring Wells.
Objective: Monitor ground-water level and quality.
Frequency: If exploratory drilling is done in the future, at least two exploratory drill holes are to be converted to ground-water monitoring wells and are to be incorporated into the monitoring program.
Status: Installation of theses wells depends on future (and as yet unplanned) drilling from the surface into the coal seams for coal evaluation or other purposes.
Reports: Data will be reported as part of the regular monitoring program.
Citation: Attachment A - SPECIAL CONDITIONS (December 20, 2007).

OPERATIONS: SOILS

Title: Employ a qualified soils specialist.
Objective: To oversee the soil salvage, construction of subsoil storage site, and reclamation of the site. Soil pedestals will be left to verify soil removal depths.
Frequency: During construction and reclamation.
Status: Ongoing.

Reports: Records of materials removed, including thickness of topsoil and substrata; and placement of materials either in the topsoil storage pile or in the fill.
Citation: Sections 231.100 and 232.100 and Section 232.500.

Title: Subsoil used for construction fill.
Objective: To record location of subsoil placement for use in reclamation. The location of subsoil with suitable reclamation characteristics will be mapped for ease of recovery and replacement during reclamation.
Frequency: During construction.
Status: Ongoing.
Reports: As-Built maps showing where subsoil materials have been used as fill material.
Citation: Section 232.500, Section 241, Section 242.100.

Title: Soils Handling
Objective: To protect the soil resource, UEI has committed to handling the soils at an optimum moisture content, when the soils are loose and friable, adding moisture or allowing the soils to dry as needed.
Frequency: During construction
Status: Ongoing.
Reports: None.
Citation: Section 231.100.

Title: UEI has committed to gathering eight, five gallon buckets of cryptogamic soil separately from the remainder of the topsoil salvage.
Objective: The surface layer of soil is valuable, for it contains seeds, cryptogam filaments, other microorganisms, organic matter, elevated levels of nitrogen and phosphorus.
Frequency: Prior to soil salvage.
Status: Ongoing.
Reports: Division representative present to record activity.
Citation: Section 232.100.

RECLAMATION: SOILS

Title: Subsoil use in reclamation.
Objective: Subsoils found to be contaminated with oil, grease, or salts through visual evaluation will be hauled to a landfill site.
Frequency: One time.
Status: Ongoing.
Reports: None.
Citation: Section 232.500.

Title: Application of inoculum
Objective: An inoculum will be applied to the reclaimed soil surface to re-establish bacteria, mycorrhiza and mycelium in the soil. At the time of permitting, the exact product to be applied to the soil is not defined, however the Division expects that the best technology available at the time of reclamation will be employed, as per R645-301-333.
Frequency: During reclamation.
Status: Ongoing.
Reports: Division consultation.
Citation: Section 241

RECLAMATION: POSTMINING LAND USES

Title: Seed mix tags.
Objective: Provide the Division biologist with seed mix tags prior to or during interim, contemporaneous, and final reclamation projects.
Frequency: NA.
Status: On going.
Reports: NA.
Citation: NA.

Title: Vegetation test plot.
Objective: To test whether summer seeding will increase establishment of the warm season species.
Frequency: NA.
Status: Implement immediately following construction of sediment pond.
Reports: Provide three years of monitoring results in Annual Reports.
Citation: MRP-Part B, Sec. 341.300 p. 26; Sec. 354, p. 28.

ATTACHMENT 3

Programmatic Agreement

ATTACHMENT

ATTACHMENT 4

Draft Memorandum of Agreement