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**LILA CANYON PROJECT  
EMERY COUNTY, UTAH**

**ENVIRONMENTAL ASSESSMENT  
UT-070-99-22**

**PREPARED BY**

**USDI, Bureau of Land Management  
Price Field Office  
125 South 600 West  
Price, Utah 84501  
(435) 636-3600**

**COOPERATING AGENCY**

**USDI, Office of Surface Mining  
1999 Broadway, Suite 3320  
Denver, Colorado 80202  
(303) 844-1489**

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# ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AUM	animal unit month
BLM	Bureau of Land Management
BP	Before Present
cfs	cubic feet per second
CFR	Code of Federal Regulations
CR	County Road (Emery)
fps	Feet per Second
FLPMA	Federal Land Policy Management Act
gpm	Gallons per Minute
hp	Horsepower
IMP	Interim Management Plan (BLM)
IPA	Intermountain Power Agency
KOP	Key Observation Point
kV	kilovolt
MFP	Management Framework Plan (BLM)
MLA	Mineral Leasing Act of 1920
MRP	Mine Reclamation Plan
NAS	National Academy of Science
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1986
NRHP	National Register of Historic Places
NRCS	Natural Resource Conservation Service
OSM	Office of Surface Mining
PAP	Permit Application Package (UDOGM)
psf	Pounds per Square Foot
R	Range
ROW	right-of-way
R2P2	Resource Recovery and Protection Plan (BLM)
SLB&M	Salt Lake Base and Meridian
SMRCA	Surface Mining Control and Reclamation Act of 1977, as amended
SPCC	Spill Prevention Control and Countermeasure Plan
T	Township
TDS	Total Dissolved Solids
TES	Threatened, Endangered and Sensitive (Species)
TSS	Total Suspended Solids
UDOT	Utah Department of Transportation
UDWR	Utah Division of Wildlife Resources
UDOGM	Utah Division of Oil, Gas and Mining

UEI	UtahAmerican Energy, Incorporated
UNPDES	Utah Nonpoint Discharge Effluent Source
UP&L	Utah Power & Light
U.S.	United States
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WSA	Wilderness Study Area

# GLOSSARY OF TERMS

Access	Passage to proposed site
Affected Environment	The biotic, abiotic, and human-related environment that is sensitive to changes due to the actions propose in any of the alternatives.
Agency	The land management agency, in this case the BLM and OSM.
Allotment	A unit of land suitable and available for livestock grazing that is managed as one grazing unit.
Alternative	Other reasonable courses of action to any proposal which involves unresolved conflicts, concerns or alternate uses of available resources.
Animal Unit Month	For the BLM allotments, it is the forage consumed by a 1,000 pound cow over a one month period, approximately 800 pounds of forage. An animal unit month is then multiplied by 1.32 for a cow/calf operation and is equivalent to an animal month for purposes of this document.
Assessment	An evaluation of existing resources and potential impacts to them from a proposed act or change to the environment.
Background	The viewing area of a distance zone that lies beyond the foreground -middleground. Usually from a minimum of 3 to 5 miles to a maximum of about 15 miles from a travel route, use area, or other observer position. Atmospheric conditions in some areas may limit the maximum to about 8 miles or increase it beyond 15 miles.
Community	A group of one or more populations of organisms that form a distinct ecological unit. Such a unit may be defined in terms of plants, animals or both.
Contrast	The effect of a striking difference in the form, line, color, or texture of the landscape features within the area being viewed.
Cultural Resources	The archeological and historical remains of human occupation or use. Includes any manufactured objects, such as tools or buildings. May also include objects, sites, or geological/geographical locations significant to Native Americans

Cumulative Effects	As defined in 40 CFR 1508.7, cumulative effects are the impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.
Direct Impacts	As defined within 40 CFR 1508.9, these are the effects which are caused by the action and occur at the same time and place as the action. Synonymous with direct effects.
Endangered species	Any species in danger of extinction throughout all or a significant portion of its range as identified by the Endangered Species Act of 1973 (ESA) . This definition excludes species of insects that the Secretary of Interior determines to be pests and whose protection under the ESA would present an overwhelming and overriding risk to man.
Environment	The surrounding conditions, influences, or forces that affect or modify an organism or an ecological community and ultimately determine its form and survival.
Environmental Assessment	A concise public document which serves to a) Briefly provide sufficient evidence and analysis for determining whether to prepare and EIS or a Finding of No Significant Impact, b) Aid an agency's compliance with NEPA when no EIS is necessary, c) Facilitate preparation of an EIS when necessary.
Ephemeral	Flowing in response only to direct precipitation, and whose channel is at all times above the water table, and restricted to streams that do not flow continuously for at least 30 days.
Erosion	The group of processes whereby earth or rock material is loosened or dissolved and removed from any part of the earth's surface.
Habitat	A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover and living space.

Indirect Impact	As defined within 40 CFR 1508.8, these are the effects which are caused by the action but occur later in time or are removed in distance from the action, but are still reasonably foreseeable. Synonymous with indirect effects.
Key Observation Point	Critical viewpoints that are usually along commonly traveled routes or at likely observation points.
Landscape	That which makes up the various attributes of land surface as a result of geologic activity and weathering, such as plateaus, mountains, plains and valleys. In addition to both biotic features such as vegetation, forest, etc., as well as man-made features-such as: urban landscape.
Mitigation	Mitigation includes a) Avoiding the impact altogether by not taking certain action or parts of actions, b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, c) Rectifying the impact by repairing, rehabilitating, or restoring the affect environment, d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, e) Compensating for the impact by replacing or providing substantial resources or environments.
Public Lands	Federally owned lands administered by the Bureau of Land Management.
Raptor	A bird of prey.
Right-of-Way	Public lands authorized to be used or occupied pursuant to a right-of-way grant.
Riparian	Any area of land directly influenced by permanent water that has visible vegetation or physical characteristics reflective of permanent water influence. This can include streams, springs, seeps, wet meadows, aspen stands, and similar habitats.
Scoping	Procedures by which agencies determine the extent of analysis necessary for a proposed action, (i.e., the range of actions, alternatives, and impacts to be addressed; identification of significant issues related to a proposed action; and the depth of environmental analysis, data and task assignments needed).

Species	A group of individuals of common ancestry that closely resemble each other structurally and physiological and in nature interbreed producing fertile offspring.
Threatened species	Any species likely to become endangered within the foreseeable future throughout all or a significant part of its range.
Visual Resources	Classification of landscape based on scenic quality, sensitivity to change, and distance from the observer. Determines the amount of visible change to a characteristic landscape that is acceptable.

# CHAPTER 1.0 PURPOSE AND NEED FOR THE ACTION

## 1.1 Purpose and Need for the Action

The underlying need for the proposed action is to access and produce 1.5 million to four million tons of coal per year from 5,605.66 acres of federal and State of Utah leased coal reserves held by UtahAmerican Energy, Incorporated (UEI). These reserves are located in the Book Cliffs coal field in Emery County near East Carbon and Sunnyside, Utah (PLATE I). These reserves include several pre-Federal Land Policy Act of 1976 (FLPMA) federal coal leases under serial numbers SL-066145 (Issued 6/19/46), SL-066490 (Issued 12/31/47), SL-069291 (Issued 4/1/50), and state leases U-0126947 (Issued 12/1/47), U-014217 (Issued 2/1/55), and U-014218 (Issued 2/1/55). These lease areas are shown on PLATE II. The general area along this portion of the Book Cliffs is currently accessed by numerous unmaintained dirt roads and routes. These existing roads and routes are inadequate to facilitate the haulage of approximately 1.5 million to four million tons of coal annually from the proposed mining operation, nor the associated personnel, vendors and supply vehicles a mine of this magnitude would necessitate.

## 1.2 Authorizing Actions and Permits

### 1.2.1 Conformance with the Bureau of Land Management Land Use Plan

The proposed action is in conformance with the objectives and recommendations of the Bureau of Land Management (BLM) Price River Resource Area Management Framework Plan (MFP), approved in 1983 and as amended. Table 1.1 list the pertinent objectives of the MFP that the proposed action is covered by and in conformance with.

**TABLE 1.1  
PROPOSED ACTION CONFORMANCE WITH THE OBJECTIVES OF  
THE PRICE RIVER MANAGEMENT FRAMEWORK PLAN**

<b>Resource</b>		<b>Objective</b>
Cultural	C-1	Protection and Promotion of Cultural Resource Values
Lands	L-2	Right-of-Ways and Land Use Permits
Minerals	M-1	Development of Leasable Minerals
Range Management	RM-1	Allocation and Production of Grazing Lands
Recreation	R-1	Preservation and Protection of Visual Resources
	R-2	Review and Identification of Wilderness Values

**TABLE 1.1**  
**PROPOSED ACTION CONFORMANCE WITH THE OBJECTIVES OF**  
**THE PRICE RIVER MANAGEMENT FRAMEWORK PLAN (Continued)**

<b>Resource</b>	<b>Objective</b>	
Recreation	R-3	Value of Paleontological Resources - Negative Determination based on lack of suitable geologic layers.
	R-8	Maintenance of Undeveloped Recreation Resources
Watershed	W-2	Protection of Watersheds
	W-3	Protection and Enhancement of Water Quality
Wildlife	WL-1	Management of Mule Deer Habitat
	WL-2	Management of Icelandic Antelope Herd
	WL-3	Management of Elk Habitat
	WL-6	Management of Bighorn Sheep Habitat
	WL-8	Management of Raptor Habitat
	WL-9	Management of Non-Game Species Habitat
	WL-10	Special Management of Threatened, Endangered or Sensitive Species

### **1.2.2 Relationship to Other Statutes, Plans and Required Permits**

The area of the proposed action is located upon federal lands administered by the BLM, Office of Surface Mining Reclamation and Enforcement (OSM), State of Utah, and private jurisdictions. Various federal, state, local, and private statutes, permits, and easements would be required for actions associated with the proposed development.

The granting of the rights-of-ways (ROW) by the BLM is pursuant to the requirements of Title 5 of the FLPMA, and regulations found within Title 43 of the Code of Federal Regulations (CFR), part 2800. These requirements would cover all actions proposed that are off the coal lease area.

The coal lease would be administered under the requirements of the Mineral Lease Act of 1920 (MLA), and regulations found within Title 30 of the CFR (U.S.C. 181-287). The proposed operation and mining activities would be administered by OSM under Chapter 7 of Title 30 of the CFR (700-895) and by the Utah Division of Oil, Gas and Mining (UDOGM) under State of Utah the R645 administrative rules for coal mining (100-402). The Surface Mining Control and Reclamation Act of 1977, as amended (SMCRA) gives OSM primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations in the United States. Pursuant to Section 503 of SMCRA, UDOGM developed and Secretary of the Interior approved, Utah's permanent regulatory program authorizing UDOGM to regulate surface coal mining operations and surface effects of underground coal mining on private

and State lands within Utah. In March 1987, pursuant to Section 523(c) of SMCRA, UDOGM entered into a cooperative agreement with the Secretary of the Interior authorizing them to regulate surface coal mining operations and the surface effects of underground coal mining on federal lands within the state.

Pursuant to the cooperative agreement, federal coal lease holders in Utah must submit a permit application package (PAP) to OSM and UDOGM for proposed mining and reclamation operations on federal lands in the state. UDOGM reviews the PAP to ensure that it complies with the approved state permanent program and other statutes. If it does comply, UDOGM issues the applicant a permit to conduct coal mining operations. OSM and other federal agencies review the PAP to ensure that it contains the necessary information for compliance with the coal lease, MLA, NEPA, and other applicable federal laws and attendant regulations. OSM recommends to the Assistant Secretary of the Interior, Land and Minerals Management the (1) approval of the MLA mining plan, (2) approval of the MLA mining plan with conditions, or (3) disapproval of the MLA mining plan. Before making a recommendation on the mining plan, OSM must obtain input from certain other federal agencies, including the surface management agency and from the BLM in relation to the Resource Recovery and Protection Plan (R2P2).

UDOGM would enforce the performance standards and permit requirements during the mine's operation and have primary authority in environmental emergencies. OSM retains oversight responsibility of this enforcement. BLM would have authority in emergency situations in which UDOGM or OSM inspectors cannot act before environmental harm or damage would occur.

The area of the proposed action is zoned as MG-1, mining and grazing, by the Emery County Planning Commission, and is consistent with the existing land use plan for the county.

TABLE 1.2 is a summary of the permits and approvals from federal, state and local agencies that UEI would need to obtain for the project.

### **1.3 Project Initiation, Public Participation, and Issues Identified for Analysis**

Project initiation was started with a request for a ROW with the BLM Price Field Office in February 1998. Agency scoping was initiated in September of 1998. A request for public comments in the scoping process was initiated on March 2, 1999. A news article requesting public comment and input was printed in March 4, 11, 18 and 25 issues of the *Sun Advocate*.

Six parties, organizations or agencies responded to the public scoping process with comments, questions or issues regarding the proposed action. Three responses were received concerning the project as of April 6, 1999. APPENDIX A contains a summary table of the comments received throughout the public participation and formal scoping process. Comments are grouped by organizations and by resource issues. The scoping response number appears followed by a narrative summary.

### 1.3.1 Issues To Be Analyzed

Based on public input and agency recommendations, the following issues were determined to be relevant:

- **Surface Subsidence**
- **Soils, Slope Stability and Rehabilitation Potential**
- **Ground Water and Surface water**
- **Livestock Grazing**
- **Vehicular Traffic**
- **Visual Resources**
- **Vegetation Potential for Loss in Species Diversity, Cover and Productivity**
- **Wilderness Values**
- **Displacement and Direct Disturbance of Wildlife**
- **Cultural Resources**

### 1.3.2 Comment, Concerns and Critical Elements of the Human Environment Not Analyzed in Detail

The following resources have not been identified within the area of the proposed project, and therefore will not be addressed in the discussion of associated on-site resources (Affected Resources).

**Air Quality** - The proposed action would not impact regional air quality.

**Areas of Critical Environmental Concern** - No such areas occur within or would be impacted by the proposed project.

**Environmental Justice** - The proposed action would not have any impact to human health and environmental effect on minority or low-income populations.

**Prime or Unique Farm Lands** - A negative determination by the Natural Resource Conservation Service (NRCS) of the presence of such lands within the proposed project area is included as APPENDIX E.

**Flood plains and Wetlands** - No such areas occur within the proposed project area or along the proposed ROW's.

**Native American Religious Concerns** - The proposed project area does not contain any known sites of Native American Religious concern.

**Threatened and Endangered Species** - A biological assessment was completed for the proposed action area utilizing information within Utah Endangered, Threatened, and Sensitive Plant Field

Guide, correspondence with the USFWS, and information gathered from a field inventory of the project area conducted in the spring of 1998. A four hundred foot corridor along the proposed action transportation routes, and similar area surrounding the proposed mine surface facility and power line were surveyed for threatened, endangered and sensitive plants (TES). No endangered or threatened plant or wildlife species were identified within the vicinity of the proposed action. Several candidate/sensitive species were indicated by USWFS and BLM as potentially occurring within the area. No candidate or sensitive species were located within the project area. Therefore, activities associated with the proposed action would not impact any TES species. APPENDIX G contains the report on the TES surveys and biological assessment conducted.

**Wild and Scenic Rivers** - The proposed project area does not include, nor would any action associated with it impact any eligible and/or designated waterways.

**TABLE 1.2 PERMITS AND OTHER LEGAL REQUIREMENTS**

<u>Agency</u>	<u>Act or Regulation</u>	<u>Requirement</u>
<i>Federal</i>		
Council for Environmental Quality	National Environmental Policy Act of 1969 (NEPA), as amended (40 CFR 1500)	Environmental Assessment.
Bureau of Land Management	Public Law 91-90, 42 U.S.C. 4321 Federal Land Policy Act of 1976 (FLPMA) (43 CFR 2800 & 3100) Public Law 94-579 (10/21/76) Mineral Lease Act of 1920 (Title 30; U.S.C. 181-287) Administrative Regulations 30 CFR (30 CFR 700-895) Mineral Lease Act of 1920 (Title 30; U.S.C. 181-287) Endangered Species Act of 1973 (ESA) (16 U.S.C. 1539)	Right-of-Way, Notice to Proceed, Temporary Use Permits, and Consultation. Mining plan approval. Coal lease development and mine operation. Mining plan document preparation Provide biological opinion of wildlife and plants that are federally listed, and impacts of the proposed action to listed species. Consultation and review of impacts to listed species. Consultation and review of impacts to golden eagles.
Office of Surface Mining	Migratory Bird Treaty Act (16 U.S.C. 703-711) Bald Eagle Protection Act (U.S.C. 663a)	
Fish and Wildlife Service		
<i>State of Utah</i>		
Department of Transportation	Permit to Encroach Road Easement Permit to Cross a Road Easement	Consider issuance of permit to intersect state road ROW. Consider issuance of permit for crossing of road ROW.
Department of Natural Resources	Permit to Alter a Natural Drainage Channel Alteration Permit GP-40 Permit for Mine and Reclamation (R645-301)	Mine plan approval and operation.
Department of Community & Economic Development	National Historic Preservation Act (CFR 800, Section 106)	Consider NRHP eligibility and mitigation of cultural resources.
Utah State Historical Society		
Department of Environmental Quality	Permit to Affect Air Quality Construction and Operational Permits	Notification of Intent UNPDES and Storm Water Discharge Permits.
Division of Air Quality		
Division of Water Quality		
<i>Emery County</i>		
Planning Commission	Large site development permits County Zoning Ordinances Road Use Permits (Ordinance No. 8-7-85A)	Determine compliance with existing land use designation. Road Encroachment
Road Department		
<i>Private</i>		

Confirmation and Review of ROW

Obtain Easements

# CHAPTER 2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

## 2.1 Introduction

This chapter describes the alternatives developed in response to the issues and concerns addressed in CHAPTER 1.0 and as identified within the scoping process.

## 2.2 Alternatives Considered in Detail

### 2.2.1 Alternative A - No Action

Under the No Action alternative, the ROW would not be issued and mine plan proposed would not be developed.

### 2.2.2 Alternative B - Proposed Action

The proposed action would be located in Emery County, approximately five miles north-northwest of U.S. Highway 191/6 (See PLATE I). The project would be implemented in two phases:

**Phase I** - This phase involves the construction and operation of the Lila Canyon Mine for conventional room and pillar mining, as well as the construction and operation of its associated surface facilities, utilities and transportation routes. Based on current conditions, exploratory drilling would not be expected to be required for the development of the coal lease. To facilitate the development and operation of the proposed mine, the existing Lila Canyon Road that ties into Emery County Road (CR) 125 at the existing Horse Canyon Mine Site would be upgraded to facilitate personnel and construction equipment travel. Concurrent with upgrading the existing access road, a separate operational coal haul road would also be constructed. An acceleration and deceleration intersection would be constructed at the junction of U.S. Highway 191/6 in the SE 1/4 SW 1/4 of Section 6, T. 17 S., R. 14 E.. The proposed road would proceed northwest 4.7 miles, terminating at the proposed Lila Canyon Mine surface facility. A ROW for an underground telephone line/utility corridor would be established within the proposed road ROW. The phone line would be adjacent to the paved surface and would follow the road to the mine site. A 46 kV power line that ties to the existing Moab/Price/Green River line approximately one mile south of the proposed mine facilities would be constructed to provide the necessary power requirements.

**Phase II** - This phase would be based on an anticipated projected increase in coal production over the next five years. The mine would move from conventional room and pillar to long wall mining, and the coal haul road would be paved to accommodate up to four million tons of coal haulage annually. For sake of discussion, activities as currently proposed for Phase II are presented.

However, the implementation of this phase would be dependent on coal sales and market conditions. As previously indicated in Phase I, exploratory drilling would likewise not be required for the anticipated actions of Phase II.

**Description of Physical Facilities of the Proposed Action - Phase I** The proposed action to be taken by UEI on public, state, and private land for the development and operation of Phase I includes:

- Upgrade of the existing Lila Canyon Road.
- Proposed coal haul road development.
- Development of the 46 kV power line to the proposed mine surface facility.
- Development of the Lila Canyon Mine surface facility.
- Conventional mining of existing coal reserves.
- Wildlife enhancement projects

The planned surface routes of the existing and proposed roads and power line, as well as the area of the proposed mine surface facility and lease area are shown on PLATE II. Details of the proposed surface facilities associated with mine are shown on PLATE II-A. The following section describes each of the attributes of the proposed action.

**Upgrade of the Existing Lila Canyon Road** - The existing Lila Canyon Road was constructed in the early 1940's with the intent of developing the Horse Canyon Mine South Lease area. Over the last 50 years, the road has received little if any maintenance, but has remained accessible by four wheel drive vehicles. The road, with an average width of 50 feet, was constructed to a standard that would accommodate coal haulage with an average grade that does not exceed four percent. Culverts were installed at all drainage crossings, and with associated barrow ditches. Currently this road is controlled by Intermountain Power Agency (IPA) with easements in place for future development and use by UEI.

UEI would upgrade 2.8 miles of the Lila Canyon Road in cooperation with IPA and Emery County. The majority of the road, within a deeded 50 foot ROW, crosses private land owned by UEI (16.28 acres). Approximately 600 feet (0.69 acres) would be on public land near the tie-in with the proposed mine surface facility. No additional disturbance is proposed outside of the existing ROW. The proposed upgrade would establish a 30 foot unpaved two lane road, designed for a maximum speed of 35 miles per hour. All culverts would be replaced, the surface regraded, and approximately 27,400 cubic yards of granular road base hauled and placed onto the road surface. All road base material would be purchased from an existing commercial supplier and transported to the site over the current Emery County Road system. Borrow ditches would be reestablished and the road would be posted with the necessary speed and caution signs to ensure vehicular safety.

Construction crews associated with the development of the proposed action would travel to and from the work site via U.S. Highway 191/6 and CR 125. During construction of the proposed road approximately 30 people would be employed. The existing Horse Canyon Road (CR 125) would

be used to gain access to the existing Lila Canyon Road. No modifications nor upgrade to this road would be required or conducted during the proposed construction related use. A letter from the Emery County Road Department is attached as APPENDIX B, and details the requirements of use in association with this road. Upon completion of the proposed mine surface facility and proposed haul road, the existing Lila Canyon Road would be gated at the intersection with the Horse Canyon Road to prohibit public access on this route into the mine area.

A plan and profile, showing grade, drainage, and culvert placement, as well as a typical cross-section is attached as APPENDIX B.

**Coal Haul Road Development** - A proposed two lane, 30 foot gravel surface Class B road, totaling 4.7 miles, would transect public and state land. The proposed road, designed for a maximum speed of 45 miles per hour, would be constructed according to the standards of the American Association of State Highway and Transportation Officials (AASHTO) and the Utah Department of Transportation 1992 Standard Specifications for Road and Bridge Construction. The total acreage of the proposed 100 foot construction and 70 foot operational ROW for the new coal haul road upon public and state land is shown in TABLE 2.1.

**TABLE 2.1  
SUMMARY OF ROW ACREAGE ASSOCIATED WITH THE PROPOSED NEW COAL  
HAUL ROAD**

<u>Ownership</u>	<u>Miles</u>	<u>Acres-100' ROW (Construction)</u>	<u>Acres 70' ROW (Operational)</u>
BLM	3.54 (18,691.20 feet)	42.90	30.04
State of Utah	1.16 (6,124.80 feet)	14.06	9.84
<b>TOTAL</b>	<b>4.7miles (24,816 feet)</b>	<b>56.96 Acres</b>	<b>39.88 Acres</b>

The area to be disturbed as a result of the construction would vary in width from 50 feet to approximately 100 feet depending on the natural terrain. The desired construction ROW would be 100 feet (56.96 acres) to allow the construction of cut and fill slopes. Upon completion of the road, the temporary construction ROW would be stabilized and reclaimed to BLM and/or state standards, thus minimizing the permanent operational ROW to a width of 70 feet (39.88 acres), or 35 feet on each side of the center line of the travel surface. A three wire strand fence built to BLM range and wildlife standards would be constructed on each immediate side of the proposed operational ROW.

FIGURE 2.1 is a typical cross-section of the proposed coal haul road. Twelve inches of granular borrow would be used for the sub-base. The base course would consist of six inches of enzyme treated mineral aggregate. This well graded gravel would have a maximum size of one inch. The enzyme treatment would help stabilize the road surface and reduce dust emissions. The 30 foot graveled surface would be wide enough for future asphalt paving. Upon completion, an enzyme armor coating would be applied to the proposed road.

Construction of the coal haul road would involve the same access and crew sizes required for the upgrade of the existing Lila Canyon Road. Operational use of the coal haul road would be associated with transport and production of an estimated 2.5 million tons of coal a year during Phase I. This number is based on UEI's proposal in the Resource Recovery and Protection Plan submitted to the BLM in December 1998. Vehicular use would include the personnel associated with the mine, delivery of material to the mine, and the transport of the coal via the proposed road to U.S. Highway 191/6 and the loadout site on the Ridge Road near Wellington. UEI has indicated that at full capacity after seven years, as many as 273 coal haul trucks per day (547 round-trip) and 88 personal and delivery vehicles per day ( 175 round-trip) could travel to and from the proposed mine via U.S. Highway 191/6 during the anticipated 24 hour, seven day a week operating schedule of the mine. Coal haul travel would utilize U.S. Highway 191/6 through Wellington, and onto the loadout site on Ridge Road off U.S. Highway 191/6 near Wellington, an approximate 64 mile round-trip from the mine.

In association with the development of the coal haul road, an acceleration and deceleration intersection on U.S. Highway 191/6 would be constructed. This four lane intersection, within the Utah Department of Transportation (UDOT) ROW, would be approximately 2,300 feet in length and allow for heavy truck traffic to leave and enter the highway. The intersection would be constructed concurrent with the construction of the proposed coal haul road, and be completed prior to initial coal haulage. A typical design for the proposed intersection is shown in FIGURE 2.2. APPENDIX C, contains a copy of the UDOT ROW Encroachment Permit filed by UEI for the proposed activity.

In association with the construction areas that would be reclaimed upon completion of the proposed project, an effort would be made to reclaim existing roads and routes on public lands that intersect the proposed road. This would be completed to minimize the potential disturbed area and number of approaches to the proposed coal haul road. As much as four miles of roads and routes could be reclaimed. Roads and routes required to facilitate grazing management (movement and water) and access would be left in place. Where existing areas are eliminated, cuts would be pulled back to the approximate original contour and drainages would be reestablished. Concurrent with recontouring, revegetation using an approved BLM seed mix (TABLE 2.2) would be completed.

**Utility Corridor** - UEI would install, upon completion of the new proposed coal haul road, a telephone line within a corridor adjacent to the road to serve the proposed mine. The line would be buried at a depth of 24 to 36 inches, approximately ten feet from the edge of the surface. A junction box would be installed approximately 3,000 feet from the intersection with U.S. Highway 191/6. At approximately 6,000 foot intervals along the length of the road, similar boxes would be installed. The four by five inch boxes, colored an approved BLM color, would stand approximately 36 inches above the surface. A 10 foot wide (5.7 acre) corridor on the cut, or uphill, side of the road, would be located within the permanent ROW of the proposed road. The utility corridor would be located entirely within the disturbance associated with the new road and could accommodate any future utilities (i.e., gas, water and/or sewer lines) during the life of the mine.

**INSERT FIGURE 2.1**

**INSERT FIGURE 2.2**

**46 kV Power Line Development** - A 1.3 mile 46 kV (46,000 volt) power line located on public land would be constructed concurrent with construction of the surface facility and proposed road. The proposed power line would tap the existing Utah Power 46 kV Moab-Price #1 power line in T. 16 S., R. 14 E., Section 16 and proceed east to the proposed mine surface facility. Construction within a 100 foot wide ROW (15.76 acres) would be conducted by ground crews using tracked and/or rubber tire vehicles. Specific steps to complete the power line includes pole placement, cross arm assembly, line suspension and tension, installation of a switching station at the tap point, and metering station and substation within the area of the proposed mine surface facility. Upon completion of the line, the operational ROW would be minimized to 80 feet (12.61 acres). The proposed route of the power line and associated facilities are shown on PLATE III.

The power line would require the establishment of approximately 15 pole sites. Pole types would be single "C2T" and "HPS" structures, double "ES" structures, and triple "C3P" structures (FIGURE 2.3, 2.4, 2.5, and 2.6). Structures would be constructed using wood poles, with heights ranging from 60 to 80 feet. All features of the line hardware (insulators, wire, poles) would be non-reflective and designed to be raptor-safe, as described by the Raptor Research Foundation in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996.

Construction of the power line in the second year of construction could employ as many as 20 people. No new roads would be created during the construction, operation or maintenance of the proposed power line. Access for all phases of the power line would be gained by the existing roads within the area. Where accessible, rubber tired construction/maintenance vehicles would travel perpendicular from the road or trail to each pole location. The proposed power line has been designed to minimize the number of employees necessary to maintain its length. Maintenance of the line and associated operational facilities would be on an as-needed/emergency basis. Maintenance access would be along established roads by 4x4 vehicle or snow machine and within the 80 foot operational ROW. The proposed power line would be compatible with the other ROW's. The power line would be intersected to the proposed coal haul road ROW at the surface facility site. However, no interference with this line or any other line within the area would be anticipated.

The staging areas would be located within the proposed surface facility area, and would be utilized for equipment and material storage and assembly. The construction vehicles to be used would include two line trucks, two bucket trucks, a wire trailer, a pole trailer, and a crew truck. A crew consisting of 12 individuals and a line truck with an auger attachment would be used to dig the holes within accessible areas along the ROW. Holes would be excavated to a depth of eight to 10 feet and 14 feet where anchor structures are required. In areas of limited access, the 20 foot boom on the line trucks could be used to auger holes. All holes would be located as to create as little disturbance as possible.

Poles would be transported to the site by truck, where the structure components (cross pieces and insulators) would be assembled on the ground and erected by a truck-mounted crane. In areas of thick vegetation and/or where vegetation may impede the performance of the active line, vegetation would be cleared by hand-held chainsaws. This cut vegetation would be stockpiled and used later to scatter over any reclaimed areas to provide solar protection on newly revegetated sites.

FIGURE 2.3

FIGURE 2.4

FIGURE 2.5

FIGURE 2.6

When the structures are in place, the conductor would be strung. A sock line would be laid along the route by hand and light vehicle. Ground crews would place the sock line in pulleys on each structure at the insulator location. The conductor would then be pulled up by the pulleys and through the insulator with the assistance of a reel truck, or by hand, before moving to the next pole location. Wire stringing lengths for this project would be limited to 0.5 miles between pull sites due to the angles, terrain, and inability of the wire pulling equipment to pull the conductor into place. Locations within the proposed power line route would be utilized as pull sites during stringing activities. These pull sites, approximately 0.25 acres in size, would be situated within the ROW. A switching station may be installed where the proposed power line would tap the existing power line. Location of the switching station would be located on a 200 foot by 200 foot area adjacent to the existing power line.

**Development of the Lila Canyon Mine Surface Facility** - Construction would commence concurrently on the surface facilities associated with the development of the Lila Canyon Mine. The proposed surface disturbance area is shown on PLATE I and II. These plates depict the maximum potential disturbance around the facilities that would be used for the life of the mine. The proposed facility area would be approximately 39.6 acre, but only composed of an anticipated on-the-ground disturbance of 35 acres. This area would be the total disturbance needed for the 20 year life of the mine and would be reclaimed following the completion of underground mining activities. Surface structures and facilities for the Lila Canyon Mine, an underground mine, would be constructed in Lila Canyon near the fork in the canyon located at T.16 S., R.14 E., Section 15, SE 1/4 SW 1/4 (PLATE II and PLATE II-A). The function of the surface facility area would be to provide for mine access, mine ventilation, coal storage, coal loading, warehousing, offices, and the bathhouse.

The Lila Canyon Mine is currently within the permit review process of a Mine and Reclamation Plan (MRP) Permit Application for the UDOGM (Review in Progress). This permit application with the UDOGM requires that all proposed mine and mining activities be described in full detail in relation to legal issues and bonding, as well as engineering and how it relates to soils, biology, land use, geology, and hydrology. In association with the proposed Lila Canyon Mine engineering actions, mitigation as recommended by the UDOGM in the form of operational stipulations and creation of successful reclamation procedures upon the cessation of mine operations have been incorporated into each resource discussion within the MRP. Therefore, each action as proposed within this EA has taken into consideration the various resources present and UDOGM requirements to minimize impacts to them. Actions as described within this EA have been summarized from the detailed Lila Canyon Mine analysis.

The mine site surface facilities would be located in Lila Canyon where the Lower Sunnyside coal seam outcrop is accessible. Because of the narrowness of the canyon in this area, surface facilities would be confined to a narrow strip along the bottom of the canyon. Suitable surface area for the mine site would be created by constructing a series of earthen pads within the canyon bottom. This would be accomplished by cut fill material and by leveling out the area in the bottom of the canyon drainage. The average gradient of Lila Canyon in the mine site area is approximately 10 percent. Therefore, the mine pads would be constructed as a relatively level pad with a cut at the base of the escarpment. Each individual pad would be dedicated to a specific function as part of the overall

mine site operation. Access roads would connect the various pad levels with one another, as well as to an underground rock slope to the portal bench.

The proposed mine site is located upon an alluvium bench in an area where the two forks of Lila Canyon converge. The mine office, parking lot and a sediment pond would be located within the main canyon. The proposed road which provides access to the mine site would enter the mine yard in this area. The truck loop and truck loadout would be located within the confluence area. The confluence area would also contain the crusher building, the coal storage pile, a topsoil storage area, the employee parking area, bath house, substation, portal area, and a shop/warehouse material storage area. The left fork would contain the water treatment facility and storage tanks.

As part of the overall mine site development plan, certain major construction tasks must be accomplished in a prescribed manner. Most of these construction tasks are common to many, if not all of the area described above. The following tasks are listed in order in which they would generally be expected to occur within any given area of the mine site. However, in practice many of these construction tasks would be occurring simultaneously, but at different areas, throughout the mine site. This is attributable to the fact that the mine site construction would be started at the base of the alluvium bench and proceed toward the escarpment and up the canyon. As primary initial tasks are completed at the lower reaches of the site, secondary tasks can begin even though the primary tasks may not yet be completed in the upper reaches of the site. A more detailed construction and reclamation plan, as prepared by UEI for their MRP is included as APPENDIX D.

- **Clearing and Grubbing** - One of the earlier phases of construction would involve the removal of all trees and shrubs from the mine site area. Since there are no large commercially valuable trees, a BLM timber appraisal would not be necessary to determine the value of these resources. Smaller pinyon and juniper trees would be cleared and transported to a green wood storage area within the proposed ROW for public fuel harvesting use. Shrubs and all other slash material would be buried in a controlled manner within the pad fill in nonstructural areas such as the coal storage pad and the material storage area. In order to avoid compaction complications, slash would be buried away from any structure that would be installed in the general area.
- **Construction of the Sediment Pond** - Once the initial grades are established the construction of the initial sediment pond would commence. The sediment pond would consist of an 8.4 acre- foot retention pond with an emergency spillway and decant device. The pond could be decanted into the existing drain ditch adjacent to the road where it would flow unimpeded to the adjacent undisturbed drainage. In this manner the sediment pond would be installed as early as possible in the construction schedule. The pond would then be in place for the entirety of the remaining construction activities and would provide maximum sediment control for the rest of the project.

The pond would be constructed in the lowest quadrant of the disturbed area whereby most mine site disturbed area drainage would drain initially to the pond. The capacity of the pond would be well in excess of the 10 year, 24 hour precipitation event requirements. However,

if the total pond capacity was exceeded, the over flow from the pond would exit through a riser-type culvert primary spillway equipped with an oil skimmer. This riser spillway would lead directly to the main drainage located below the surface facility area. One advantage of the pond is its proposed location adjacent to the roadway. This would greatly simplify sediment monitoring and clean out. It would also simplify the process of decanting the pond in a manner that meets Utah Nonpoint Discharge Effluent Source (UNPDES) requirements. The open channel spillways would be constructed to pass the 10 year, 24 hour storm event. The spillway would be lined with concrete or grouted rip-rap, and have a bottom width of five feet; a freeboard depth of two feet; and 2:1 sideslopes. The pond would also be equipped with an open channel emergency spillway capable of handling a 25 year, 6 hour storm event. Rip-rap would be installed at the outlet of the open channel spillways to protect the earthen structures from erosional forces.

- **Topsoil Removal, Salvage and Stockpiling** - Available soil over the area ranges from about six to 48 inches, of which an average soil layer of about eight inches thick would be removed and stockpiled as topsoil. The upper six to twelve inches is the most suitable soil, however, the subsoils over much of the area support root growth to depths of about 48 inches. Topsoil would be salvaged with backhoes, trackhoes, and/or front end loaders and hauled by dump trucks to the designated UDOGM topsoil storage area within the permit area. As much as 43,000 cubic yards of topsoil would be salvaged. In conjunction with topsoil salvage, the large boulders of approximately three feet in diameter and larger would be separated and piled near the topsoil stockpile or placed at appropriate sites in the area.

The topsoil storage area is proposed in the southwest corner of the facilities site near the sediment pond. The stockpile would be protected from erosion and sediment production by roughening the surface, revegetation, berms, and silt fences. Subsoil materials would be used over the area for facilities site development and then retrieved for soil reconstruction during reclamation.

- **Face Up of Coal Seam/Preparation of Portal** - Two underground rock slopes (approximately 1,200 feet long) would be tunneled up from the toe of the mountain on a 12 percent grade to intercept the down dipping coal seam. The coal would be mined to the south to break out at the escarpment face approximately 500 feet above the mine facility yard. At this point, the mine ventilation and belt portal would be developed. As soon as possible after construction begins, the coal seam would be faced up and the portal area excavated on the southeast side of canyon within the right fork. Prior to facing up the portals, the area would be cleared and grubbed, and topsoil stored. The pad would be constructed long enough to accommodate at least two portal openings for a travel-way and belt, while minimizing the height of the cut face. Minimizing the extent of the cut face is an important consideration not only in the initial mine development but also and even more so for final reclamation. The portal pad would be constructed and stabilized as necessary to conform to the safety requirements of Mine Safety and Health Administration (MSHA). In order to achieve minimum disturbance of the canyon side slope, the portal pad would be built on fill.

- **Construction of Earthen Pad and Access Roads** - According to computer models of the mine site earthwork, all borrow would be generated within the site to achieve the proposed mine yard configuration. Fill would be placed in 18 to 24 inch lifts and compacted to a minimum 90 percent density for nonstructural areas, and to 95 percent density in structural areas. Nonstructural areas include parking lots, material storage areas and coal storage areas. Structural areas include all areas under buildings, conveyor belts, substation, backfilled areas around culverts and reclaim tunnels, roadways, mine fan and reinforced earth retaining walls. Experience has shown that this material can usually exceed 95 percent compaction using standard wheel rolling methods, although vibratory compaction would be used in critical structural areas. All earthwork would be required to meet a minimum of 4,000 pounds per square foot (psf) load-bearing capacity. Construction emphasis and priority would be given to those pad levels that are designed to accommodate key structural elements of the surface facilities. These include the pad levels associated with the coal pile reclaim system, the substation, the elevated conveyor gallery, bath house, and shop/warehouse building. Some pad construction would involve cutting into the existing side slopes. Cuts would be minimal, and would not usually extend up-slope more than about 20 feet above the completed pad level. The primary purpose of the sideslope cuts is not to generate fill volumes. Cut slopes area would also be necessary to define the limits of the pads for the purpose of layout and engineering design. Clear slopes would also be needed to assure long term site maintenance. Before any slope cuts are made, topsoil would first be salvaged and stockpiled. After the topsoil has been removed and protected as described previously for topsoil stockpiling, the substrate material would be excavated.
- **Installation of Drainage Controls** - As previously stated, the sediment pond would be constructed as early as possible in order to provide maximum sediment control during the term of the construction project. Once the pad levels are constructed, along with the interconnecting roadways, drainage control ditches and culverts would be constructed and culverts installed. Disturbed area ditches and culverts would be designed to handle a 10 year, 24 hour storm event. Where necessary, ditches would be lined with concrete or rip-rap to prevent erosion where velocities are expected to exceed five feet per second (fps). Culvert inlets would be designed to provide adequate freeboard for design flows; outlets would be rip-rapped where necessary to prevent scouring.
- **Construction of Coal Handling and Associated Facilities** - Construction of the coal handling facilities would be scheduled to allow the mine to get into full production as quickly as possible. The underground mining operation cannot function smoothly until the elevated conveyor gallery and discharge structure are fully operational. On the other hand, the mine conveyor cannot become fully operational until the mine working area is developed far enough underground from the portals to allow the conveyor to be extended into the mine works and become an integral working part of the continuous miner production section. Once the initial mine works have begun, connected up underground with crosscuts, the conveyor can then become operational.

Other integral components of the coal handling facilities necessary for full production include the coal reclaim tunnel, crusher building, truck loadout and interconnecting conveyors. Only after this system is completely operational, can mine development and coal production begin in earnest. Other important structures necessary for full-scale mine surface production include the main substation, water delivery system, and mine ventilation fan.

After the critical path coal handling facilities and mine development structures are fully operational and the underground mine development is proceeding on course, full attention would be focused on completing the ancillary surface facilities. Once the permanent structures are finished, the temporary accommodations used during construction can be removed from the site.

Buildings to be constructed at the mine site include: an administrative office, a shop/warehouse building, and a bathhouse/lamphouse building. The shop/warehouse would be used to repair and store mine equipment and supplies. The yard area around these buildings would be used for additional outside storage and parking. The bathhouse and office buildings would be sized to accommodate a workforce of approximately 140 people.

PLATE II-A is an overview of the mine surface facility. The following facilities would be constructed in conjunction with the mining operation:

*Administration Office/Bathhouse/Lamphouse-* The main office would be a framed building measuring approximately 80 feet wide by 250 feet long. It would handle the administrative functions such as accounting, engineering, payroll, marketing and management. The bathhouse would be sized to accommodate the anticipated workforce. Located at one end of the bathhouse building would be the lamphouse. The main office would be located on a dedicated pad at the lower (western) extent of the mine yard. Parking would be made available in the area adjacent to the main office.

*Mine Fan* - The mine fan would be located at the return air portal. It would be a 12 foot diameter, direct drive, 1,000 horsepower (hp), axial vane exhausting type fan. The fan housing would include airlock travel doors for machinery and personnel. The exhaust duct work would be equipped with acoustical sound-proofing material to minimize noise levels.

*Shop/Warehouse* - The shop/warehouse building would be a prefabricate metal structure measuring approximately 100 feet wide by 150 feet long. It would be located in the southwestern part of the mine yard conveniently adjacent to the mine road. A storage area for materials and supplies would be located nearby, as would be the fuel storage, rock dust storage and garbage repository (dumpster) facilities.

*Coal Stockpiling Facilities* - Coal would be brought out of the mine and delivered to the surface via a 2,000 ton per hour, 60 inch wide mine conveyor belt. The mine conveyor would exit out of a portal located about 40 feet high on the west side of the right fork of Lila Canyon. Even though the mine portals are located in the right fork, the run-of-mine coal

would be stockpiled in a storage area located in the confluence of the forks. Coal would be transported from the right fork portals to the stockpile by a 600 foot long, elevated overland conveyor gallery. This 2,000 ton per hour, 60 inch wide conveyor would be covered and supported along a series of box truss galleries, elevated approximately 50 to 60 feet above the mine yard. These conveyor truss galleries would be supported by several two-legged steel bents spaced approximately 120 feet apart. After crossing the point that separates the right and left forks, the conveyor would terminate at a cantilevered discharge structure at a location above the coal stockpile area. A conical coal pile would be built directly below the discharge structure. The pile would be about 80 feet high at full capacity and contain about 30,000 tons of coal. Storage can be obtained by pushing the pile northward onto the coal storage pad.

*Coal Reclaiming Facilities* - A 13 foot diameter multi-plate reclaim tunnel would be located below (underneath) the coal pile. Two reclaim draw down ports located at the end of the tunnel would allow coal to be reclaimed from the bottom of the pile directly onto a 54 inch reclaim conveyor located within the tunnel. Each reclaim port would contain a pile activator, a hydraulically operated single bladed shut-off gate, and a discharge chute leading to the reclaim conveyor. Each port would be capable of loading the reclaim conveyor at a full capacity of approximately 1,400 tons per hour. Once the coal has been loaded onto the reclaim conveyor, it would then be transported out from underneath the pile. The reclaim conveyor would bring the coal out of the tunnel and transport it to a crushing/screening building.

The crusher building would be an open steel structure containing a 40 hp, eight by 20 foot scalping screen which would remove all minus two inch coal ahead of the crusher. The plus two inch coal from the top screen deck would be fed to a 300 hp hammermill impact crusher where the coal would be reduced to a two inch product. All transfer points within the crusher building would utilize enclosed chute work to contain and control fugitive dust emissions. These transfer points include the transfer from the reclaim conveyor to the screen, the screen unders (minus two inch) to the loadout conveyor, the screen overs (plus two inch) to the crusher, and the crusher discharge (minus two inch) to the loadout conveyor.

Within the crusher building would also be located a self cleaning tramp iron magnet (located at the reclaim conveyor discharge pulley ahead of the crusher), and an automated sampling system. The crusher building and the coal reclaim tunnel would be separated by a 25 foot wire reinforced earth wall. The crusher building would be located on a bench on the lower (down-canyon) side of the wall and positioned in such a manner that gravity flow would aid the movement of coal through the screening, crushing, and sampling operations.

From the crusher building the crushed and screened two inch coal would then be loaded onto a covered 48 inch wide loadout conveyor operating at a rate of 1,400 tons per hour and pass to one of three product piles or transport storage pile (approximately 100,000 tons). The coal would then be transported to an automated truck or loadout station. The truck loadout would be an elevated steel frame structure constructed high enough to allow the trucks to be

positioned under a contained chute during loading. Electronic sensors would determine when the truck is properly positioned under the chute. The feed conveyors (i.e., loadout conveyor and reclaim conveyor) would start and stop automatically to load the individual truck trailers with a predetermined amount of coal. Certified belt scales would be used to control the loading process.

The truck loadout would be located at the upper end of the truck loop. The loop would be long enough to accommodate up to four empty trucks in the queuing lane waiting to be loaded. After being loaded, the trucks would leave the mine site and haul the coal to an off-site unit train loading facility. All conveyors would be covered and all conveyor transfer points would be enclosed.

*Electrical power* - The proposed 46kV overhead power line would terminate at a substation on the mine site. Located in the right fork below the portal bench, the substation would contain a 12 MVA 69 kV/12.5 kV transformer, along with various other electrical power control apparatus (air-break switches, visual disconnects, bussing, ground fault detection, vacuum circuit breakers, power factor capacitor banks, metering equipment, and a control room). From the secondary side of the substation, power would be distributed throughout the mine yard and to the underground workings at 12.5 kV. At various locations within the mine yard, the power would be routed through a set of 12.5 kV/4160 V/480 V transformer banks and motor control centers to operate the surface equipment. These combination transformer/motor control center units would be located at the crusher building, overhead conveyor drive station, mine fan, and shop/warehouse.

*Water Facilities* - A water right would be filed with the Utah Division of Water Rights for use of the water from the flooded Horse Canyon mine works. Upon approval of the water right application, a water line within the underground workings from the flooded works to the storage facilities within the surface facility area would be constructed to serve the potable requirements of the proposed mine. Water storage facilities (tanks) would be located on the surface to provide storage for usage and as pre-storage before being pumped into the mine to an underground storage sump for use in the mining operation. The surface storage tanks would be located above the bath house to provide sufficient static head (pressure) for yard distribution. Sewage from the administrative office and bathhouse would be treated by separate underground septic tanks and drain fields. Culinary water would initially be hauled to the mine site from an approved water source. Once the mine started making water, a treatment plant may be incorporated to make the necessary water to meet culinary demands.

Water usage, based on a one million tons of coal per year production, would be:

Bath House/Office (Culinary Water)	1,260,000 gallons per year
Mining	4,500,000 gallons per year
Fan Evaporation	1,183,000 gallons per year

**Total**                    **6,943,000 gallons per year**

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**(21 acre feet per year)**

Mine water usage would increase as the tonnage of production increases from one million tons per year to four million tons per year. As production increases to two million tons per year, the acre feet of water used would increase to 35.12 acre feet. Water usage would increase to 48.93 acre feet at three million tons annually before peaking at 62.74 acre feet at four million tons of coal at full production.

*Telephone Service* - Telephone service would be provided using conventional phone service provided via a fiber optic line as described in the utility corridor section.

*Other Structures* - Additional, smaller structures include miscellaneous storage sheds, pump house, above ground storage tanks (for fuel, water, and dust control chemicals), powder magazines, rock dust storage tanks and trash containment structures. All buildings and structures would be made of conventional construction materials including wood, masonry, or steel. Buildings would be color coordinated to blend in with the natural surroundings.

**Conventional Mining of Existing Coal Reserves** - Mining would begin in Section 15, T.16 S., R.14 E.. A detailed explanation of coal geology and anticipated reserves are described in the R2P2 and the MRP. In the Lila Canyon area there are primarily two coal seams located in the Blackhawk Formation, the Sunnyside main seam (Upper Sunnyside) and the lower seam (Lower Sunnyside). The two seams have merged within the anticipated area of mining. The Upper Sunnyside seam averages 12.4 feet thick according to estimated in the R2P2 and the MRP. The Lower Sunnyside seam in the southern portion of the mining area, where it separates again from the Upper Sunnyside, is much thinner (0 to 5.7 feet). Due to the thinness of the coal and separation expected, the Lower Sunnyside seam would not be mined in the southern portion of the mining area.

Development of the Upper Sunnyside seam would be in a down dip directions toward the east, and would be accessed by two 1,200 foot slopes driven up at 12 percent slope from the base of the cliffs. Phase I production has been estimated at 200,000 tons of coal during the first year and escalating to 2.5 million tons by the fifth year.

Mine pillars would be sized by taking into consideration the coal strength, depth of cover, width, and height of pillars. Mine structural design would incorporate one or more of the following methodologies: Obert-Duvall, Holand-Graddy, Holland, Salamon-Munro, or Bieniawski. Mine experience and past mining history in the area would have as much influence on pillar sizes as do the engineering formulas.

Mine production would begin with the slope construction. Once the coal is encountered development would proceed using continuous miners and various haulage equipment. Battery, cable, or continuous haulage may be used in conjunction with continuous miners in development. Continuous miners would account for all the production during the first two years. Mining would consist of driving mains, developing room and pillar panels. Gate entries would also be proposed for future long wall mining associated with proposed Phase II actions. No exploratory drilling is

anticipated.

Roof control and ventilation plans would be submitted to the Mine Safety and Health Administration and approved prior to any underground mining activities. Ventilation of the mine would be by an exhaust type system. It has been estimated that 900,000 cfm would be required at full production. Intake air would be supplied by slopes and entries from the surface. Dust suppression would be accomplished by the use of sprays on all underground equipment as required. Sprays would also be used along sections of the conveyors and at transfer points.

The workings are expected to produce some water with more water being produced as the depth of mining increases. It is anticipated that 75 percent of the proposed mining activities would be below the projected piezometric surface. Part of this water would be used for dust suppression. The remainder would be collected in sumps and pumped to mined out sections of the mine or to the surface and treated when necessary.

**Wildlife Enhancement Projects** - UEI would provide two rainfall water catchments to benefit bighorn sheep populations and habitat use within the area above the proposed mine site. These guzzlers would be installed by BLM and Utah Division of Wildlife Resources (UDWR) in suitable locations along the cliff-talus habitat south of the Lila Canyon area. This project would be implemented in the same manner as described in detail in the EA "Saddlehorn Water Catchment" EA Number UT-066-97-1 which addressed similar concerns relative to Bighorn Sheep.

In addition to this project, UEI would complete a vegetation treatment project within the affected area to increase small mammal populations, and thus increasing the forage capacity for area raptor populations. Project design would be provided by BLM and UDWR and involve treating and reseeding approximately 93 acres of habitat. The vegetation treatment would be designed to improve diversity and density of vegetation cover types and create a mosaic of treated and untreated areas to maximize benefits of edge for wildlife species.

**Description of Physical Facilities of the Proposed Action - Phase II** Activities associated with Phase II are solely dependent upon market conditions and status of production associated with Phase I. However, the actions currently proposed for Phase II are known and include:

- Asphalt paving of the coal haul road
- Long wall mining of existing coal resources

The following section describes the general proposal for each activity associated with this phase.

**Asphalt Paving of the Proposed Coal Haul Road** - A four inch asphalt layer would be added to the new coal haul road constructed from the mine to U.S. Highway 191/6. This would not constitute additional disturbance, but would allow for increased traffic and speed while resulting in a complete reduction in fugitive dust. Traffic resulting from Phase II development has been estimated at 550 vehicles (staff and coal haulage) per day at full production of four million tons of coal.

**Long wall Mining of Existing Coal Reserves** - The proposed Phase II mining would utilize all of the same equipment, personnel and facilities as described in Phase I. However, a long wall unit may be introduced, thus potentially increasing production to as much as four million tons of coal per year with the same workforce. Long wall mining would allow for a higher recovery rate of reserves at greater depths as compared to the use of continuous mining equipment. The recovery rate is projected to be approximately 37 percent. Due to the high amount of cover above the Lila Canyon Mine, normally the use continuous mining equipment rather than longwall equipment would reduce the overall recovery rate. The use of long wall mining methods would increase the life of the mine by allowing for the mining of approximately 40 percent of the projected reserves that have cover exceeding 1,500 feet.

PLATE II shows what portions of the existing lease areas would be mined with the long wall miner. Surface facilities described in the proposed action as Phase I were designed to accommodate the potential increase in production. No exploratory drilling is anticipated.

**Stabilization, Maintenance and Operation Plan** Procedures that make up the following operation plan are designed to minimize and stabilize disturbances to resources present within Phase I and Phase II of the proposed action during its construction, operation and maintenance. Construction activities as described for the mine surface facility were designed to minimize and stabilize disturbances associated with that portion of the proposed action. Support facilities would be operated and maintained in accordance with the permit issued for the Lila Canyon Mine and located, operated and maintained in a manner that prevents or controls erosion and siltation, water pollution and damage to public, state, or private property. To the extent possible, the best technology currently available would be utilized to minimize impacts to area resources and related environmental values. The support facilities would be designed to minimize additional contributions of suspended solids to the stream flow or runoff outside the permit area and, should any contributions occur, such contributions would not be in excess of limitations of Utah or federal law. A full description of the affected resources and impacts to them are described in CHAPTER 3.0 and CHAPTER 4.0

Soil disturbance during the construction would be restricted to the ROW associated with each portion of the proposed action. Unauthorized cross-country vehicular travel by construction crews would be prohibited. Construction activities would be conducted to minimize erosion and in accordance with the natural topography where possible. Exposed areas resulting from construction and the excavation of the described sites would be stabilized using wood fiber mulch and tackifier with the approved BLM seed mix deemed to stabilize the slope and reduce erosion. On slopes exceeding 2:1, native shrubs with significant root structure may be hand planted on a 10 foot spacing.

In order to minimize watershed and erosion damage during wet or muddy periods, access to the ROW's and mine construction site would be restricted. Construction procedures would be consistent with those described within the Utah Nonpoint Source Best Management Plan for Hydrologic Modification. Where runoff and drainage controls would be required, they would be constructed to BLM and/or UDOGM standards. Culverts underneath the road would be installed at a grade no greater than three percent, with rip-rap armoring on the outflow. In areas that warrant there use,

perforated culverts may be used to minimize alteration of existing surface/subsurface water exchange. The hydrologic regime would be protected by the installation and implementation of protection measures at all proposed crossings and drainage modifications. This would deter the potential for side cutting and further impact to the drainages surrounding the crossing. Where required, other flow control structures may include energy dissipaters and channel to sheet flow dispersion fans. As required, hydrological protection in the form of sediment and runoff controls would be installed below all drainage areas. Straw bales would be installed in the established borrow ditch along all slopes in excess of 12 percent. Activities within all wash and gully areas would be limited.

All drainage from the mine site disturbed area would be conveyed to and treated by a sediment pond located within the disturbed area. The sediment pond size has been calculated based on a 10 year, 24 hour event. Ditch and culvert design are also based on a 10 year, 24 hour event. During routine operation, the pond would be visually inspected daily for unusual conditions and integrity. Maintenance of the mine surface facility would include the periodic cleaning of the sediment pond, drainage control ditches and culverts in order to maintain their function. Clean out material would be disposed of off-site in an approved solid waste disposal facility, such as East Carbon Development Corporation (approximately ten miles northwest of the surface facility). A spill prevention control and countermeasure plan (SPCC plan) has been developed to protect the undisturbed drainages from accidental spills of oil or other petroleum products within the disturbed area. This plan would be available for review at the Lila Canyon Mine site.

In the event of spills of petroleum based products during the construction of the proposed action, procedures outlined in the Emery County and Lila Canyon SPCC Plans would be followed. The BLM, as well as the Utah Department of Environmental Quality, would be notified if the release meets the definition of a hazardous waste as defined in 40 CFR 261.

During the operation and maintenance of the road, the use of covered trucks to prohibit blow off of coal fines along the proposed haul road and U.S. Highway 191/6 would be used. Enforced speed limits of 45 MPH would also reduce the potential of coal blow-off.

To maintain the cultural, historical and paleontological resource integrity of the area, construction crews and staff would be provided with instructional materials regarding the identification, value, legal protection and treatment of these resources. If any cultural, archeological or paleontological resources are discovered during construction or any operations associated with the road, power line, or mine, all activities would cease at the area of the manifestation. The authorized agency would then be contacted to evaluate the importance and potential of the site. Mitigation measures would, at that time, be made for the value of the resource site. Construction and/or maintenance crews would avoid the site until the resource potential has been determined.

All existing grazing management facilities (corrals, water sources, etc.) would be replaced concurrent with the construction described. A fence would be constructed along the road prior to its use. This three wire strand fence built to BLM grazing management standards, would take into account wildlife and visual resources, and would prohibit livestock access along the traveled road for the life

of the project. UEI would install and maintain a 12,000 gallon water tank for the life of the project to facilitate livestock use of the allotment on the northern side of the proposed road and fence. A section of the existing route in the NE 1/4 NE 1/4 of Section 32 in T. 16 S. R. 14 E. would be left to facilitate placement and access of the water tank from the proposed coal haul road. Upon review of roads to be removed as described within the proposed action, the establishment of cattle guards on any remaining roads intersecting the haul road would be evaluated. With termination of use of the haul road, maintenance of these facilities would be transferred to the BLM on public lands.

For reducing visual contrast, reduction of disturbance along the route of the road is the most effective operational technique. Consideration would be given to the basic landscape (form, line, color, and texture) to minimize visual change, while meeting the safety and use capacity of the road. When possible, soil would be contoured using equipment necessary to conform with the terrain and adjacent land within the road ROW. All constructed facilities (fences, mine surface facilities, etc.) would be painted an approved BLM flat grey color, developed to reduce line and form contrast with the existing environment. During the operation of the proposed action, the use of enzyme treatment during Phase I and asphalt paving in Phase II on the road surface would minimize and eliminate dust plumes from traffic. An effort would be made to direct light toward the mountain face as opposed to the valley floor to minimize night glow. No long distance views of bare bulbs would be seen and all lights within the surface facility would be shielded.

To the extent possible, all foliage adjacent to the power line would remain undisturbed to provide maximum available screening of the line relative to the landscape character type. Visual disturbances would be minimized by using poles colored a shade darker in tone than the surrounding landscape, the use of non-reflective hardware, and by placing the poles out of public view where possible. To minimize the view of the power line from the proposed road, the construction and operational power line ROW's would be placed approximately 0.75 miles from the junction with the existing line and intercepting the proposed haul road at the proposed mine site.

Potential measures to help improve air quality for construction activities include proper maintenance of the construction equipment and limited travel on the construction ROW and dirt access roads. Dust generation from disturbed areas would be reduced through interim watering of active construction areas. An enzyme armor coating on the proposed coal haul road would minimize dust generated by traffic during Phase I, with paving in Phase II eliminating it all together. Final reclamation, which includes revegetation of all disturbed areas, would eliminate further impacts.

An air quality permit for the Lila Canyon Mine would be obtained from the Utah Division of Air Quality prior to conducting operational activities. Coal dust associated with the operations of the mine surface facility would be controlled on the conveyor system and transfer points by enclosures and sprays. Dust from unpaved mine access roads would be controlled by applying water or a dust suppressing solution. Coal would be reclaimed from the bottom of the stockpile directly onto a conveyor belt located within an enclosed tunnel located under the pile. The coal moisture level within the coal pile would be maintained at approximately 6.5 percent or greater by water sprays located on the main mine conveyor.

Noise reduction and control measures for construction activities would include proper operation and maintenance of manufacturer-installed noise abatement equipment. During operational use, enforced speed limits would limit area wide noise by reducing the need for Jake Brake application on descending grades along the proposed road.

Due to the increase in truck traffic along U.S. Highway 191/6, the operation plan would include the installation of signs warning of heavy truck traffic. Enforcement of posted speed limits, especially from the proposed coal haul road tie-in to U.S. Highway 191/6, would increase the awareness of the truck drivers and the reaction time to potential hazards. There would be an acceleration and deceleration lane to facilitate a safe merging of traffic.

Vegetation removal necessitated by the proposed action would be confined to the ROW. Vegetation removed would be set aside during construction activities, and/or left in place upon completion of construction where possible. Vegetation removed would be limbed, lopped and distributed over the disturbed or reclaimed area to increase solar protection for emerging vegetation. Reclamation or surface contouring to restore all disturbed areas would start upon completion of the project, or as specified by the BLM. Reseeding associated with the road, power and mine surface facility would be completed between October 1 and October 31 for both years. The area would be drill seeded with the seed mix shown in TABLE 2.2. This mix, designed for erosion control and slope stabilization, would be seeded along the edge of the roads and power line corridors and all disturbances anticipated during the life of the mine. The same mix, less the shrubs, would be used on the interim reclamation. Slopes exceeding 2:1 would be hydroseeded and hydromulched at twice the seed rate outlined for drill seeding.

In association with the areas that would be reclaimed, an effort would be made to reclaim the existing roads and four wheel drive trails that intersect the existing haul road. Where road sections are eliminated, cuts would be pulled back to the approximate original contour and drainages would be reestablished. Concurrent with recontouring, 200 pounds per acre of 16-16-8 fertilizer would be incorporated into the top six inches of soil. An additional 100 pounds per acre of 16-16-8 fertilizer would be incorporated into the 2,000 pounds of wood fiber mulch and 200 pounds of tackifier per acre application if hydroseeding is utilized.

Prior to construction and operation of the proposed action, an awareness and appreciation of wildlife would be taught to all employees associated with the project. All activities associated with the proposed action development would be coordinated to avoid optimal habitat use periods and areas for all wildlife species. If active/occupied raptor nests are located within 0.5 miles of any portion of the proposed action, construction would not begin within that area during the period of February 1 to July 15. Completion of all construction would occur on or before October 31 for each year, and prior to any established winter big game use of the area. Construction activity within bighorn sheep habitat would be prohibited during the lambing period of May 1 to June 15. The wildlife enhancement projects proposed should benefit local wildlife populations and their respective habitat uses.

All speed limits would be posted at 45 miles per hour or less on the proposed coal haul road. Where

visibility along the road is limited by vegetation in excess of four feet, selective thinning would be conducted to minimize the potential for collision between vehicles and wildlife. BLM wildlife standards for fence construction would be incorporated into the coal haul road fence to allow for antelope and other wildlife movement, while allowing for livestock grazing management. The fence would be a wire fence, not exceeding 38 inches in height. The bottom strand would be a smooth (barbless), twisted metal strand, no less than 16 and half inches above the ground. The second barbed strand would be 10 inches above the bottom strand, with the top barbed strand 12 inches above the second. Distance between posts would be on exact 16 foot centers. As previously stated, existing roads and trails would be reclaimed.

**TABLE 2.2**  
**RECOMMENDED SEED MIX FOR ALL DISTURBED AREAS**

	<u>LBS PURE LIVE SEED/ACRE*</u>
<b>GRASSES</b>	
Needle and Thread <u>Stipa comata</u>	2.0
Indian ricegrass <u>Oryzopsis hymenoides</u>	2.0
Great basin wildrye <u>Elymus cinereus</u>	1.0
Galleta <u>Hilaria jamesii</u>	1.5
Russian wildrye <u>Elymus junceus</u>	1.5
<b>FORBS</b>	
Lewis flax <u>Linum lewisii</u>	1.5
Yellow sweetclover <u>Melilotus officinalis</u>	1.5
Palmer penstemon <u>Penstemon palmeri</u>	1.0
Globemallow <u>Sphaeralcea ambigua</u>	1.0
Small burnet <u>Sanguisorba minor</u>	1.0
Prostrate kochia <u>Kochia prostrata</u>	0.5
<b>SHRUBS</b>	
Winterfat <u>Eurotia lanata</u>	1.0
Wyoming big sagebrush <u>Artemisia tridentata wyomingensis</u>	0.5
Douglas rabbitbrush <u>Chrysothamnus viscidiflorus</u>	1.0
Fourwing saltbush <u>Atriplex canescens</u>	1.0
<b>TOTAL</b>	<b>20.0</b>

**Time-frame** TABLE 2.3 is a breakdown of activities proposed for both phases.

**TABLE 2.3**  
**CONSTRUCTION TIME FRAME FOR PHASE I AND PHASE II**  
**(In Months from Approval)**

***Phase I***

**Month 1**

- Upgrade existing Lila Canyon Road to proposed surface facility site.
- Replace old culverts, borrow ditches and resurface and initiation of rock slopes.
- Implement interim drainage controls, earthwork for pad and site facilities
- Completion of rock slopes

**Month 2 -3**

- Construct surface facility structures
- Begin construction of coal haul road

**Month 3 - 5**

- Construction of coal haul road/acceleration, and deceleration lanes.
- Complete surface facilities (structures)
- Permanent sediment controls, sediment pond and all drainage diversions
- Construct 46 kV power line

**Month 5 - 6**

- Begin coal production and stock piling

**Month 10 -14**

- Completion of coal haul road
- Initiate haulage of test quantities of coal

***Phase II - Anticipated***

**January 2006**

- Submit engineering and final design for paving coal haul road
- Initiate review of actions and impacts associated with Phase II

**April 2006**

- BLM approval of final design

**May 2006**

- Begin Phase II paving-coal haul road
- Mobilize equipment

**October 2006**

- Completion of coal haul road upgrade, asphalt surface, signs, painting, guard rails

**November 2006**

- Reclamation of all disturbed area no longer need for operational purposes

**Abandonment and Reclamation** The existing Lila Canyon Road would be maintained as a private mine road that would prohibit public access through the property for the life of the mine. The new coal haul road would be maintained by Emery County through a cooperative agreement with

*Lila Canyon Project*  
*Environmental Assessment - September 2000*

UEI. The expected life of the mine is 20 years, which upon cessation of activities, would be dismantled and reclaimed. Lila Canyon Mine is in the process of obtaining their operation MRP with the UDOGM. Activities described for construction are described in full detail within that document. A summary of proposed reclamation activities is included in APPENDIX D. At the time of closure and subsequent reclamation of the Lila Canyon Mine, Emery County may find it to their advantage to cease full season maintenance of the road. However, elimination of the road is not expected to occur.

If UEI and/or UP&L terminate the use of the power line, it would be done in accordance to the BLM guideline stipulations at the time of removal. An appropriate schedule for activities associated with dismantling of the power line would be established at that time. Upon dismantling of the line, a reclamation plan would be implemented for the established ROW.

## **2.3 Alternatives Considered But Not Analyzed Further**

The following alternatives were discussed and dismissed during agency scoping in 1998 and 1999.

### **2.3.1 Alternative A - Use of Existing Horse Canyon Site for Coal Mine Operation**

This alternative would have utilized CR 125 (Horse Canyon Road) to the existing Horse Canyon graveled road that accesses the abandoned Horse Canyon Mine site. Rather than being located within Lila Canyon, the proposed mine surface facilities would be constructed at the old Horse Canyon Mine site, with access to the coal lease area being gained through improvement of the old underground workings. Generally, it is more dangerous to re-enter an abandoned mine due to the existing conditions within it than to develop a new entry. Preliminary engineering evaluation of this option determined that ventilation, mine dewatering and safety concern problems would be encountered with re-entering the Horse Canyon site.

The Lila Canyon reserves are located approximately 14,000 feet (2.65 miles) from the current Horse Canyon portal. Due to the amount of ventilation required to operate a modern mine and distance to the coal reserves, it would be necessary to develop as many as five new surface entries. These new entries, constructed as either a vertical shaft or outcrop access, would require additional fans and powerlines outside of the surface facility area. Preliminary engineering of this option indicated that as much as 1.8 billion gallons of water have entered the mine since its sealing in 1984. Past mine water samples have indicated that this water has a high total dissolved solid (TDS) and iron concentration. To meet UPDES discharge requirements of one ton per day of dissolved solids, only 85,000 gallons could be pumped out daily at this site.

The mixture of water and air tends to expand the rock and coal strata, creating an extremely unstable and unsafe condition to access the south lease reserves. In order to compensate for this structural problem, the entry material would need to be excavated and a shoring base built strong enough to compensate for the loss in integrity. Since some of the main pillars required for roof support that are in route to the Lila Canyon reserves have been mined, an additional unstable situation would

need to be rectified prior to the safe operation of the facility. Therefore, due to the project infeasibility associated with the construction of a numerous entries and extended ventilation system, the supported entry, and the increase in project disturbance to the surrounding environment in association with dewatering the old mine works, this alternative was dismissed from further consideration.

### **2.3.2 Alternative B - Use of the Horse Canyon Road/Lila Canyon Road for Coal Mine Operation**

This alternative would have utilized the proposed Lila Canyon Mine surface facility, power line and coal mining activity as described within the proposed action. However, CR 125 (Horse Canyon Road) would be upgraded and utilized for coal haulage and mine operations in association with the existing Lila Canyon Road. The existing Lila Canyon dirt road would be required to be upgraded to enable coal haul traffic and daily use for mine operations. Extensive cut and fill would be needed to create a wide enough road, as well as to establish a suitable grade and a safe and usable road to access CR 125. CR 125 would require that the entire road be redesigned and established to create an access suitable for coal haul traffic as well as remain usable for day to day use as a access route to Columbia and East Carbon from U.S. Highway 191/6. Due to the considerable upgrade of these two roads that would be required, this alternative was dismissed from consideration. APPENDIX B contains a letter from the Emery County Road Department as to the proposed requirements.

## **CHAPTER 3.0 AFFECTED ENVIRONMENT**

### **3.1 General Setting**

Elevations in the area of the proposed action ranges from 5,700 feet to 7,000 feet above sea level and is characterized by hot, dry summers and cold, moist winters. Most of the available water results from winter snow accumulation. Summer precipitation comes from short duration thunderstorms which often result in flooding and erosion (Lines et al, 1984). Characteristic vegetation includes Douglas fir in the highest elevations, pinyon-juniper forests over most of the bench areas, and a mixture of shrubs and grasses in the low areas. The general area is predominantly a natural but disturbed setting, with several dirt roads and routes presumably constructed for grazing and mineral exploration activities meandering through the area.

### **3.2 Geology**

Lila Canyon is located within the Colorado Plateau Physiographic Province. The High Plateaus of Utah and the Canyonlands sections meet within the area along the Book Cliffs, an escarpment that extends from Castle Gate east to Grand Junction, Colorado. The project area is characteristic of the mid-elevations of the province, consisting of deep, rugged washes and open plateaus. The geologic structure of the region is controlled predominantly by the uplift of the San Rafael Swell, approximately 25 miles southwest of the project area. Beds are mostly uniform and are inclined from three to eight degrees away from the uplift. The strike of the beds are generally parallel to the face of the cliff. Exposed members of the Price River Formation and Upper Cretaceous Blackhawk Formation are evident in the Lila Canyon Area. The Castlegate Sandstone is approximately 170 feet thick in this area and forms an abrupt cliff over the site. Immediate subsurface geology in Lila Canyon consists of the Upper Mudstone, and Sunnyside Members, with a thin cover of alluvial and colluvial material. FIGURE 3.1 is a typical cross-section of the geology present within the Lila Canyon area.

The majority of coal is located under less than 2,000 feet of cover. The deeper coal is generally located in the northern and eastern portions of the property. A small portion of the reserves are deeper than 2,500 feet. Two coal seams, the Upper Sunnyside and Lower Sunnyside seams, are located in the Blackhawk Formation. Numerous easterly trending normal faults exist within the area. The main faults were mapped by Dunrud and Barnes (1972) and Osterwald and Mayberry (1974). Vertical displacement ranges from 15 feet to more than 275 feet, with displacement diminishing toward the east. Unmapped minor faults may also be present.

**INSERT FIGURE 3.1**

### 3.3 Soils

The area of the mine site and transportation corridors encompass steep rocky cliff lands, pediments and basins. The mine site is at the toeslope of the Book Cliffs and has mostly a southwest aspect. In going toward U.S. Highway 191/6 from the mine site, the landscape extends into the Mancos shale basin. Sandstone predominates in the cliff lands with shale dominating in the basin areas. Below the cliffs are deposits of stony to very bouldery colluvium. The pediments are composed of very cobbly to bouldery materials. Nearly all rock fragments are composed of sandstone. Soils are well-drained and surface drainage is limited to runoff events. It is an erosional environment where maintaining soil protection by rock fragments and vegetation is critical to holding soil in place. Soil conditions combined with high intensity, short duration storms create rapid runoff conditions. Runoff has caused extensive natural erosion damage to the landscape.

The soils in the project area have been mapped and described at the third order soil survey intensity level as part of the Soil Survey of the Emery Area, Utah. This soil survey is presently in progress by the USDA, Natural Resources Conservation Service(NRCS), and will be a published soil survey meeting national quality standards. The soils map for the project area is presented in PLATE III. An Order 1 soil survey was completed at the Lila Canyon mine surface facilities site in 1998. The detailed soil survey report is contained within the MRP (On-file). The soil map units identified are those as described by NRCS as of February 1, 1999. Soil map units identified by the NRCS that are within the area are listed below:

*Transportation corridor from the Horse Canyon Road to the mine facilities site:*

<b>BNE2</b>	Strych very bouldery, fine sandy loam, 3 to 20% slopes.
<b>NGG2</b>	Gerst-Strych-Badland Complex, 30 to 70% slopes.
<b>BY</b>	Badland-Rubbleland-Rock Outcrop Complex
<b>BMD</b>	Strych very stony fine sandy loam, 3 to 30% slope
<b>BME2</b>	Strych very stony loam, dry, 3 to 30 % slopes.

*Mine facilities site:*

<b>BNE2</b>	Strych very bouldery, fine sandy loam, 3 to 20% slopes.
<b>BMD</b>	Strych very stony fine sandy loam, 3 to 30% slope
<b>NGG2</b>	Gerst-Strych-Badland Complex, 30 to 70% slopes.
<b>RZH</b>	Rock outcrop-Atchee-Rubbleland Complex, 50 to 80% slopes.

*Transportation corridor from Highway 191/6 to the mine facilities site:*

<b>CHC2</b>	Chipeta silty clay loam, 8 to 15% slopes.
<b>EED2</b>	Hanksville very gravelly, fine sandy loam, 3 to 15% slopes
<b>RIA2</b>	Ravola-Toddler Complex, 1 to 6% slopes
<b>KAC</b>	Persayo-Greybull Complex
<b>SMD2</b>	Clifsand-Minchey Complex 1 to 8% slopes.
<b>BNE2</b>	Strych very bouldery, fine sandy loam, 3 to 20% slopes.

APPENDIX E contains a summary of some of the features of the soil map units.

It has been determined that no prime farmlands or soils of statewide importance are present in the proposed project area (APPENDIX E). Alluvial valley floors are not present in the area based on soil survey information and field observations. Although some soils are formed in alluvium, they are well-drained and lack a high water table typical of alluvial valley floors.

### **3.4 Hydrology**

Hydrologic resources are assessed through examination of existing reports (USGS Open File Report 83-38, Water Supply Paper 2246, and other widely referenced published documents), the Horse Canyon MRP, existing monitoring wells within the vicinity of Lila Canyon, and a historic seep and spring inventories of the proposed mine site and adjacent areas.

#### **3.4.1 Climate**

Lila Canyon receives 18-20 inches of mean annual precipitation, primarily in the form of winter snow and secondarily as late summer rains. This information is from extrapolated isohyets, not direct precipitation measurements. Due to a high (modeled) evaporation rate (18-21 inches) and local geology, Lila Canyon does not have perennial stream surface flow. Runoff from brief intense precipitation events is generally severe.

#### **3.4.2 Surface Water**

Surface channels in the area of study consist of Lila Canyon, which forms the right fork of Grassy Wash. Grassy Wash drains into Marsh Flat Wash, which in turn is tributary to the Price River. The Price River is currently listed as a Clean Water Act 303d (non-compliance) water body for TDS and total suspended solids (TSS), among other parameters. Horse Canyon has a similar surface drainage pattern to the north of Lila Canyon. There are no perennial stream surface flows within the immediate area of the proposed action. However, numerous spring and seep outcrops exist throughout the area. Locations of seeps and springs, based on the existing inventory, are shown on PLATE IV. Within and adjacent to the permit area, 19 springs and seeps were identified in the most recent available inventory. Flows occur from perched local aquifers (North Horn formation) at rock and shale outcrops. The Blackhawk coal formation is classified as a regional aquifer, and is also the source of seeps and springs at lower elevations within the canyons. Flow rates from the springs, as measured for the previous inventory, varied from less than one gallon per minute (gpm) to about 10 gpm.

#### **3.4.3 Ground Water**

In the deeply incised mountainous areas of the Book Cliffs, groundwater is present in consolidated bedrock, in both a regional aquifer (the Blackhawk formation) and in perched local aquifers (the North Horn sandstone). Associated with the bedrock aquifers is groundwater within fractures. Groundwater is also found in shallow alluvial deposits at the bottoms of the larger drainages. Lines and others (1984) indicate that most recharge to the ground water system is due to infiltration of

rainfall and snowmelt at the higher elevations. Another potential factor in groundwater movement is a network of east-west fractures beneath Lila and Horse Canyons. It is presumed that potentially affected formations are presently saturated, therefore no underground water movement through the fractures is currently occurring.

Evaluations by JBR Consultants Group (1986) in the Sunnyside and Horse Canyon areas indicate that the most probable water bearing formations are the Upper Price River and the Flagstaff and North Horn (undifferentiated). Waddell and others (1986) found that the water levels in the North Horn Formation in the Book Cliffs were generally several hundred feet above the regional aquifer potentiometric surface found in the Blackhawk Formation. These North Horn Formation aquifers are considered to be perched.

Groundwater resources in the permit area are limited due to the small surface area and low recharge rates. The local recharge and discharge areas for perched aquifers (North Horn Formation and stratigraphically Blackhawk Formation above) generally lie within the drainage divide of Horse and Lila Canyons. These local systems are complex and highly dependent on topography. The regional aquifer within the Blackhawk Formation consists of interspersed sandstone and shale. Based on Lines and others (1984), the recharge rate is calculated at approximately one inch per year. The recharge of the North Horn perched aquifers are complex and dependent upon topography. The aquifer is laterally continuous as a unit but some of the individual sandstone bodies are discontinuous.

Three water monitoring wells were drilled in the Lila Canyon Permit area by Intermountain Power Agency (IPA). These wells were designated IPA-1, IPA-2, and IPA-3, and have been monitored for water depth from July 1994 to April 1996. These holes show water levels above the coal seam in those areas. The regional aquifer is underlain by relatively impermeable shale.

UEI is currently in possession of water rights for the industrial use of underground water within the Horse Canyon mine works, which is the same source the proposed works would have. A listing of water rights (taken from the Utah Division of Water Rights database) for the area of the proposed action is included in this EA as APPENDIX F.

### **3.5 Land Use**

Land use resources and surface ownership within the area of the proposed action are shown on PLATE I and PLATE IV.

#### **3.5.1 Grazing**

Two grazing allotments occur within the vicinity of the project area. The existing road, proposed road, proposed power line and mine surface facility would occur within the Cove Allotment. The proposed road would pass near the main watering sources and holding corral for livestock on this allotment. The season of use on the Cove Allotment is during the spring from March 1 to May 31

with 250 head of cattle currently using 750 animal unit months (AUM's). The coal lease area would occur within the Little Park Allotment. This allotment has a summer season of use from May 25 to October 31 with 60 head of cattle using 242 AUM's. (See PLATE IV).

### **3.5.2 Vehicular Traffic**

CR 125, connecting U.S. Highway 191/6 to Horse Canyon and East Carbon, had an annual average daily traffic of 280 vehicles in 1995 (UDOT, 1995). Travel to and from the area of the proposed action would use the Emery County maintained CR 125, for approximately five miles from its intersection with UDOT maintained U.S. Highway 191/6. Access to the Book Cliffs from CR 125 is limited, with traffic on the primary access to Horse Canyon from US Highway 191/6 at 280 vehicles per day. An unmaintained dirt road, which the proposed action would follow closely along the entirety of its length, transects the project area. Access on this dirt road is limited due to weather conditions and maintenance. During inclement weather there are sections that are impassible, and since the road is not maintained on a regular basis, it is virtually inaccessible during late fall through early spring when snow and/or mud preclude conventional vehicles. The heaviest use occurs during the fall in association with hunting, with some additional travel involving grazing, recreational driving, site seeing, and wildlife viewing in the spring and summer.

U.S. Highway 191/6 is a major route for commercial transportation (heavy trucks) between Interstate 70 and the Wasatch Front. South bound traffic normally remains on Interstate 70. It is estimated that more than 5,000 heavy trucks travel between Green River and Price per day. In addition, recreational use has increased to 208 vehicles per hour, thereby creating an overall traffic rate of as many as 10,600 vehicles per day.

### **3.5.3 Visual Resources**

The project area is located in an area of broad open landscapes, broken benches, and steep canyons characteristic of the regional landscape of Southeastern Utah. EXHIBIT 3.1 and 3.2 display views of the characteristic landscape of the project area from Key Observation Points (KOP's) near the intersection of the proposed coal haul road and U.S. Highway 191/6 and CR 125 near the intersection with the existing Lila Canyon Road. From the intersection with the Horse Canyon Road, the existing Lila Canyon Road would proceed south-southeast across a pinyon-juniper bench, before descending a Mancos bench to the proposed mine surface facility site (EXHIBIT 3.1). EXHIBIT 3.2 is a midground view of the proposed area of the coal haul road and a long distance view of the proposed mine site area from U.S. Highway 191/6. The proposed road would proceed east across a bare, gently sloping plain to the proposed mine surface facility, located along the broken sloping pinyon-juniper benches below the Book Cliffs. The project area is within an area managed as VRM Class III (objects may be seen, but not dominate the landscape), as established by the Price River MFP.



**EXHIBIT 3.1** View Looking Southeast Along Existing Lila Canyon Road



**EXHIBIT 3.2** View Looking Northeast From U.S. Highway 191/6 (KOP)

### 3.6 Vegetation

The proposed action would traverse several plant communities common to this area of Utah. The intersection of the county road with the existing Lila Canyon Road is located on a gently sloping rocky bench, predominantly covered with pinyon pine, *Pinus edulis* and Utah juniper, *Juniperus osteosperma*. From the intersection with the state road, the county road descends from the rocky bench and transects a steep bare escarpment dominated by shadscale, *Atriplex confertifolia*, mat saltbush, *Atriplex cuneata*, cheatgrass, *Bromus tectorum*, and numerous herbs as groundcover. Within this area of the existing road and proposed surface facility, vegetation was largely burned during a range fire in the early 1950's. The area was reseeded with a nonnative seed mix. However, native species were able to persist, with shrubs and grasses dominated by basin big sage, *Artemisia tridentata*, black sage, *Artemisia nova*, needle-and-thread, *Stipa comata*, and Indian rice grass, *Oryzopsis hymenoides*. From the proposed mine site west to U.S. Highway 191/6, the predominant vegetation gradually changes to a grass shrub community dominated by Indian ricegrass and sagebrush, to a mat saltbush dominated community of the Mancos slopes near the proposed intersection.

As the elevation gradually increases, and water becomes more available, tree species again become prevalent. The remainder of the area consists of a mosaic of habitats beginning with sections of widely spaced Utah juniper. Areas of sagebrush and grass are still scattered throughout but become much smaller as the route enters the area dominated by pinyon pine and Utah juniper. Within Lila Canyon the vegetation changes to a transitional habitat that incorporates the end of the pinyon and juniper range with microsites, moist enough to support Douglas fir, *Pseudotsuga menziesii*, at the top of the ridge.

TABLE 3.2 contains a list of the various plant species identified within the project area. PLATE V shows the location of the various vegetation communities present within the area of the proposed action. APPENDIX G contains a summary of the TES survey conducted for such plants and a negative determination for their occurrence within the area of the proposed action.

**TABLE 3.2**  
**LIST OF PLANT SPECIES IDENTIFIED WITHIN THE PROJECT AREA**

<b>COMMON NAME</b>	<b>SCIENTIFIC NAME</b>
<b>Grasses</b>	
cheatgrass	<i>Bromus tectorum</i>
needle-and-thread	<i>Stipa comata</i>
Indian ricegrass	<i>Oryzopsis hymenoides</i>
wheatgrass	<i>Agropyron</i> spp.
<b>Forbs</b>	
mustard	<i>Brassica</i> spp.
locoweed	<i>Astragalus</i> spp.
cryptantha	<i>Cryptantha jonsia</i>
<b>Shrubs</b>	
greasewood	<i>Sarcobatus vermiculatus</i>
prickly pear	<i>Opuntia</i> spp.
yucca	<i>Yucca</i> spp.
shadscale	<i>Atriplex confertifolia</i>
mat saltbush	<i>Atriplex cuneata</i>
claret cup cactus	<i>Echinocereus triglochidiatus</i>
basin big sagebrush	<i>Artemisia tridentata</i>
black sage	<i>Artemisia nova</i>
<b>Trees</b>	
tamarisk	<i>Tamarix ramosissima</i>
Utah juniper	<i>Juniperus osteosperma</i>
pinyon pine	<i>Pinus edulis</i>

### **3.7 Wilderness Values**

The area of the proposed action is located partially within and adjacent to two wilderness inventory areas, and adjacent to an established BLM Wilderness Study Area (WSA). A portion of the mine surface facility and underground coal lease would be located on the edge of and partially within the Desolation Canyon Inventory Unit 8 of the 1999 BLM Utah Wilderness Inventory. This 48,900 acre unit has been found to have generally retained its natural character. A few road ways associated with coal exploration have been noted, but were determined by the BLM that individually and/or cumulatively did not detract from the overall naturalness of the unit. Opportunities for solitude and unconfined recreation are outstanding, especially when considered in conjunction with the contiguous established 291,000 acre Desolation Canyon WSA. Supplemental values, such as high

value wildlife and sensitive species habitat have also been found throughout this unit.

The 7,300 acre Turtle Canyon Inventory Unit 4 and small portion of the Turtle Canyon WSA covers the majority of the pre-FLPMA coal lease area. This unit, contiguous to the existing Turtle Canyon WSA, has been determined to have retained its natural character. Outstanding opportunities for solitude and primitive and unconfined recreation exist, due primarily to the extension of the values from the existing WSA. Supplemental values, such as for archeological, scenic, wildlife habitat, and special status plant habitat found within the WSA extend into this inventory unit.

PLATE IV shows the location of the WSA unit and re-inventory units in relation to the general area of the proposed action.

### **3.8 Wildlife**

Wildlife indigenous to the general area of the project include amphibians, reptiles, birds and mammals. General wildlife use of the area is shown on PLATE VI through PLATE IX. APPENDIX G contains correspondence with the U.S. Fish and Wildlife Service (USFWS) regarding the potential of wildlife species concerns within the project area.

#### **3.8.1 Amphibians**

There are six species of amphibians known to occur within the general area of the Wasatch Plateau and Book Cliffs. These species are classified as common, but are limited to mesic areas. These species could be present within the Lila Canyon area, but their occurrence is doubtful due to arid conditions that prevail over the majority of the area. The pinyon/juniper and sagebrush/grass areas that make up most of the affected habitat are not considered important or limiting to their survival (Dalton et al, 1990).

#### **3.8.2 Reptiles**

There are ten species of reptiles known to inhabit the region. The habitat requirements for these species range in value from critical to substantial. The limited acreage of disturbance within the area of the proposed action, however, is not considered a threat to these species. This is due to the abundance of the preferred pinyon and juniper habitat, as well as sagebrush and grass habitat throughout the area.

#### **3.8.3 Birds**

There are approximately 185 bird species that could possibly be either year long residents or frequent the site during portions of the year. Of these, wildlife species of management concern include, loggerhead shrike (BLM Sensitive species) and raptors which will be discussed in-depth.

**Loggerhead shrike** An intensive survey of the proposed action indicated no nesting loggerhead

shrikes, *Lanius ludovicianus*, near the proposed roads or power line ROW's. This species is dependent upon the broad, open sagebrush and grass plain, as well as the presence of widely spaced pinyons and junipers. A summary of the inventory conducted for this species and a negative determination of its presence is attached as APPENDIX G.

**Raptors** Raptor surveys, completed in May of 1998 and 1999 by the UDWR, revealed a number of active and inactive raptor nest sites on the open lower benches and cliff faces in and surrounding Lila Canyon (PLATE VIII). In 1998, one tended and two inactive golden eagles, *Aquila chrysaetos*, nests were located along the cliffs surrounding the Lila Canyon area. Two old, dilapidated historic golden eagle nests were monitored, as well as an inactive prairie falcon, *Falco mexicanus*. The 1999 spring inventory, identified one active and one tended Golden Eagle nest within a 1/4 mile of the proposed mine site. APPENDIX G includes a more detailed description of the survey findings.

An inventory in May and June 1998 for burrowing owls, *Athene cunicularia*, and ferruginous hawks, *Buteo regalis*, did not reveal the presence of these species within the project area.

### 3.8.4 Mammals

Ninety-two (92) species of mammals are known to exist in, or have the potential to inhabit the region. Of these, the following species of management concern; mule deer, *Odocoileus hemionus*, elk, *Cervus elaphus*, Rocky Mountain Sheep, *Ovis canadensis*, and pronghorn antelope, *Antilocapra americana*, have been identified within the affected area (PLATE VI - PLATE IX).

**Mule deer** Mule deer habitats within the affected area include critical and high priority winter ranges located on the higher elevation benches, as well as year-long range located on the lower elevation foothills below the Book Cliffs. Mule deer population densities within this herd unit are well below management objectives.

**Rocky Mountain elk** Elk high priority winter ranges are found on the higher elevation benches above the mine surface area and lease area. No winter range is located within the area of the mine surface facility or roads. Population levels for elk are at or near management objectives for this herd unit.

**Rocky Mountain bighorn sheep** Rocky Mountain bighorn sheep occupy the cliff talus habitat above the surface facility area. Radio telemetry data collected by the UDWR show that Lila Canyon is particularly important to bighorn sheep and supports as many as 15 to 25 head of bighorn sheep year round. This is attributed to the presence of springs and seeps within the Lila Canyon area of the Book Cliffs, as compared with the noticeable lack of water for most of the cliff talus habitat.

**Pronghorn antelope** Pronghorn antelope occupy the salt desert shrub habitat of the lower elevation ranges along the proposed coal haul road route. This habitat is classified as high priority year-long range for pronghorn. Population levels of pronghorn are at or near management objectives for this herd unit.

### **3.9 Cultural Resources**

There is a long and diverse cultural history associated with the Price and Green River Basins and the Book Cliffs region of east-central Utah. Archaeological inventories in the area of the proposed action (Rouch, 1981; Miller, 1991; Montgomery, 1998; Montgomery, 1999), have identified eight archaeological sites and several isolated artifacts. The type and time period of these sites fit well into the cultural overview described above. Seven of the sites are located in Little Park, above the mine's surface facilities. Site 42EM2517, a Fremont component rock shelter is adjacent to and visible from the Lila Canyon Road and the proposed mining facilities.

The site is a south-facing shelter located under a large bolder and measures about eight meters east-west, 5.2 meters high and 1.4 meters deep. It has diagnostic chipped stone tools and Emery Gray ceramic shards associating it with the Fremont Cultural. The still intact cultural remains, in particular, the presence of charcoal and oxidized rocks suggest the presents of features or occupational horizons. It is eligible for the National Register of Historic Places under Criterion (d) of 36CFR60.4, based on its potential for contributing significant data relative to the research domains of the area. Investigations of the site could provide data relative to chronology, site function, technology, subsistence, seasonality of occupation, social organization, and extra regional relationships.

## CHAPTER 4.0 ENVIRONMENTAL CONSEQUENCES

### 4.1 Impacts Associated with Alternative A - No Action

Associated impacts identified with the No Action alternative are derived from the inability to supply the necessary utilities, access and development requirements for the proposed coal mine in Lila Canyon. The proposed facility would need to be abandoned and/or relocated and required to establish some other means of access or transport and an alternative power and utility source. Planned development for the facilities described would not occur.

### 4.2 Impacts Associated with Alternative B - Proposed Action

TABLE 4.1 shows how activities associated with Phase I and Phase II of the proposed action (construction and operation of the proposed roads, power line, development and operation of the mine surface facility, and underground extraction of coal) on federal, state and private lands affect the resources described in CHAPTER 3.0 and as identified during the scoping process.

**TABLE 4.1  
AREAS OF IMPACT ASSOCIATED WITH THE PROPOSED ACTION**

<u>Category</u>	<u>Area (acres)</u>	<u>Remarks</u>
Soils	115.11	Construction Disturbance
	93.11	Operational Disturbance
Hydrology	<1.0	Channel Culverts
Grazing	115.11	Construction Disturbance
	93.11	Operational Disturbance
Visual	Minor	Varies From KOP
Vegetation/Habitat	115.11	Construction Disturbance
	93.11	Operational Disturbance
Wilderness Values	7.50	Surface Disturbance within Desolation Canyon Unit 8
	25.12	Indirect Disturbance within Desolation Canyon Unit 8

**TABLE 4.1**

## AREAS OF IMPACT ASSOCIATED WITH THE PROPOSED ACTION (Continued)

<u>Category</u>	<u>Area (acres)</u>	<u>Remarks</u>
Wildlife	115.11	Direct Construction Disturbance
	93.11	Direct Operational Disturbance
	0	800 Meter Displacement On Each Side of ROW Corridor (ELK)
	0	200 Meter Displacement On Each Side of ROW Corridor (DEER)
	40.0	Direct Antelope High Priority/Fawning Range Disturbance
	37.0	Direct Bighorn Sheep Habitat Disturbance
	93.11	Direct Operational Raptor Foraging Habitat Disturbance

### 4.3 Geology Impacts

The proposed upgrade and use of the Lila Canyon road, the new coal haul road, development of the mine surface facility and construction and operation of the power line would not impact geological resources. However, proposed mining activities could potentially result in subsidence impacts within the lease area. The degree and extent of subsidence would depend on mining methods used, height of coal extracted and the amount of overburden present. The average coal height to be mined using room and pillar conventional mining and/or long wall would be approximately 12 feet.

Mines in the Book Cliffs area that have utilized long wall mining have experienced subsidence in the magnitude of one third to half the coal thickness mined over a gradual period of several years. Operators of the inactive Sunnyside Mine near the proposed action theorized that major sandstone units in the overlying material act to buffer subsidence effects. They also postulated that the presence of a generally thick overburden serves to dampen subsidence. The proposed action would be mining the same seam and is located in the same geologic formations as the Sunnyside Mine. It is anticipated that the same type and amount of subsidence could occur.

Based on this, as much as six feet of subsidence in overlying formations could be expected to occur. However, since the majority of the proposed mining would take place under 1,500 to 2,300 feet of cover, subsidence should be low to nonexistent at the surface. It is expected that due to the remoteness of the location, no surface facilities or structures would be damaged if subsidence was to occur. The gradual subsidence associated with long wall mining would be more uniform and extend over a larger area than that associated with the irregular drop anticipated with conventional mining.

No renewable resources would be affected.

### **4.3.1 Geology Mitigation**

No mitigation is anticipated. Ongoing monitoring of subsidence and a commitment to repair of an subsequent damage is committed by UEI in the Lila Canyon MRP as part of their proposed operation plans.

## **4.4 Soils Impacts**

The combined construction impact to soil resources from the proposed action would be 115.11 acres. This figure includes all of the proposed mine surface facility disturbance associated with the required cut and fill slopes. The grading required for construction would displace topsoil and associated horizons throughout the total area of the facility. In association with the pad construction, road upgrading, and the construction of a new haul road, the removal of vegetative cover would result in an increased susceptibility to soil erosion throughout the disturbed sites.

A temporal unquantifiable loss in soil productivity and hydrologic formation could occur on the sites occupied by mine facilities and transportation systems during the life of the mining project. Upon reclamation, the area would be returned to approximate neutral conditions, with soil functioning being a major consideration.

Since no grading would be required, the acreage of potential construction impact to soil resources by the establishment of the power line has been calculated to be 10 percent of the ROW. With the construction ROW acreage, shared staging area, pull sites and switching station, disturbance to soils would be less than a half acre. Within the proposed power line ROW, surface disturbance to soil resources at specific pole sites would be minimal (less than 0.01 acres). A temporary impact to soil could occur within the ROW where construction vehicles would compact topsoil layers by gaining access within the ROW for pull sites and the switching station.

An approximate 0.05 acre area of compaction to soils around the livestock water tank proposed would occur due to increased use of the area by livestock. This could result in an unquantified loss of soils due to wind and water erosion. However, since the tank would be located on a portion of an existing disturbed, but retired route that has been heavily compacted by past vehicular use, this potential loss would be minimal. An unquantifiable increase in dissolved solids and salts in the soils could result from runoff from the road surface and from coal fines blowing off haul trucks. No impact to soils present within the area of the mineral lease area are expected.

### **4.4.1 Soil Mitigation**

No mitigation is anticipated. Since UDOGM, in coordination with OSM, would have primacy over the mine site, soil management standards as defined and addressed within the MRP would be followed. BLM standards and requirements for soil handling, protection, and management would be followed to avoid impacts to the soil resources along the coal haul road and outside of the mine site permit area. The actions taken as required by the responsible agencies (UDOGM, OSM, and BLM) would minimize the extent of erosional impacts and eliminate the need for mitigation of

impacts. As part of the operation plan for the mine facility, topsoil would be salvaged from construction areas and stockpiled for use during final reclamation. Erosion control and revegetation measures would be applied to protect stockpiled soil materials as discussed within the stabilization and maintenance plan. As discussed within the MRP, prior to any revegetation, soils would be tested and fertilizer or other soil amendments would be added as appropriate. As discussed in the reclamation plan, soil would be loosened by ripping where soil compaction could limit plant growth. As discussed within the SPCC Plan, any soils contaminated by oil, gas, or other substances, would be disposed of or treated to correct the problem.

## **4.5 Hydrology Impacts**

Any reduction of surface vegetation during the first three years of the project (24 month construction time frame and 36 month revegetation establishment) would decrease infiltration and increase surface runoff. This could contribute to the previously mention soil erosion and downstream sediment loading. Sheet erosion would increase and water quality could be affected by greater sediment loading. However, due to the sparsity of natural vegetation, changes resulting from vegetation reduction are expected to be relatively minor. Of greater concern are changes to flow patterns resulting from the construction of roadway and surface facilities.

Springs could be altered from land subsidence resulting from underground mining and mine dewatering. This could effectively change the current hydrological regime, thus altering vegetation community structure and area wildlife use. As discussed within Chapter 2.0, mine water usage would increase as the tonnage of production increases from one million tons per year to four million tons per year. As production increases from one million (21.31 acre feet) to two million tons per year, the acre feet of water used would increase to 35.12 acre feet. Water usage would increase to 48.93 acre feet at three million tons annually before peaking at 62.74 acre feet at four million tons of coal at full production. In the event important water sources are lost or reduced, the proponent is obligated by regulation to replace it. Mine dewatering could augment surface flows to the existing channels. These channels could undergo channel dimension alterations, causing increased bank erosion. Artificial riparian areas could develop as a result of more consistently available water. Any flows allowed to reach the Price River may constitute an unquantifiable source of TDS/TSS loading, due to the saline soils and increased erosion to channel banks.

### **4.5.1 Hydrology Mitigation**

The impacts described for the proposed action are minimized through UDOGM, OSM and BLM regulatory requirement currently in effect. A complete Sedimentation and Drainage Control Plan to control and contain off-site discharge of water from the mine site as required by UDOGM and OSM, is included in the MRP. The proposed sediment storage facilities (PLATE II-A), as described in the MRP and as required by UNPDES regulatory requirements would control and minimize off-site transport on sediments to downstream resources. Maintenance of these facilities would be for the life the mining operation and until final reclamation has been completed. BLM Class III road standards and guidelines for hydrologic modifications for access roads are specifically designed to

minimize effects from such changes. These would be included as stipulations to approval of this action. Site specific conditions associated with drainage crossings and sediment controls are further addressed by Class III Road Standards and Price Field Office Hydrologic Modification Standards for Roads. Since UEI has proposed a substitute or replacement water sources (i.e., rainfall catchment guzzlers), the impact to nearby springs for wildlife use would be minimized.

For new depletions less than 100 acre feet, an intra USFWS service agreement based on basin wide cumulative depletions precludes the need for a depletion charge. Based upon the anticipated depletion associated with the proposed action, the fee would be waived for this project. In order to maintain this waiver, monitoring of water depletion as required by the UDOGM for the MRP, would be conducted and provided to the USFWS.

## **4.6 Land Use Impacts**

### **4.6.1 Grazing**

Livestock would be allowed on the allotments described, but excluded from 115.11 acres associated with the active work areas during the two year construction time frame. Upon operation activities, livestock would be precluded during the life of the project on 93.11 acres associated with the proposed surface facility area and operational ROW of the coal haul road. The Cove Allotment would be effectively split by the operation of the road and bordering fences, thus potentially altering the future utilization of the allotment. No reduction of current AUM numbers are anticipated. No range resources, improvements and/or management facilities would be directly impacted by the proposed action on the Little Park Allotment .

### **4.6.2 Grazing Mitigation**

Actions taken by UEI as part of the Stabilization, Maintenance and Operation Plan, discussed in CHAPTER 2.0 would minimize impacts to grazing resources, thus eliminating the need for mitigation. The construction of the fence along the coal haul road would eliminate the potential of vehicular collisions with livestock during the life of the operation. To maintain the current utilization of the Cove Allotment, a 12,000 gallon water tank would be installed and maintained by UEI for the life of the project. The establishment of a water tank on the northern side of the road and a retired portion of the existing route would allow for livestock use within this area of the allotment while minimizing the overall impact to current grazing management. Forage produced by the reclamation of retired routes and roads would increase the use made by cattle in those areas. As discussed previously, UEI would also maintain and/or replace all range improvements which would be affected during construction and operation (ponds, fencing, cattle guards, corrals, etc.).

### **4.6.3 Vehicular Traffic Impacts**

Construction crews associated with the development of the proposed action would travel to and from the work site via U.S. Highway 191/6 and CR 125. During construction of the proposed road approximately 30 people would be employed. Construction of the power line in the second year of

construction could employ as many as 20 people. UEI would employ as many as 30 people during the construction of the mine surface facility. This added traffic would have minimal impacts based on the relatively short construction schedule of approximately 180 days over the two year time frame.

Operational impacts are associated with transport and production of an estimated four million tons of coal a year. This number is based on UEI's proposal in the R2P2 submitted to the BLM in December 1998. Vehicular use would include the personnel associated with the mine, delivery of material to the mine, and the transport of the coal via the proposed road to U.S. Highway 191/6 and the loadout site on the Ridge Road near Wellington. UEI has indicated that at full capacity, as many as 273 coal haul trucks per day would travel from the proposed mine, through Wellington, and onto the loadout site on Ridge Road off U.S. Highway 191/6 and back to the mine on a 24 hour, seven day a week schedule. This would result in a round-trip figure of 547 coal haul trucks per day. This additional volume of traffic, as well as the increase traffic resulting from as many as 88 mine employees and support traffic (175 round-trip), would result in a 6.81 percent daily increase along this 32 mile section of the highway (64 miles round-trip). The potential for an unquantifiable increase in vehicle-vehicle accidents, as well, could increase as a result of this potential traffic volume.

#### **4.6.4 Vehicular Traffic Mitigation**

No mitigation has been identified. To minimize congestion impacts of the proposed merging haul road, the proposed action includes the construct of an acceleration and turning deceleration lane from U.S. Highway 191/6. Caution signs, and warning signs would be established along the highway and prior to the intersection of the proposed haul road.

#### **4.6.5 Visual Resources Impacts**

Effects to visual resources were assessed for the construction, operation, and closure of the proposed action. Two issues were addressed in determining impacts: 1) the type and extent of actual physical contrast resulting from the proposed action and related activities to existing conditions; and 2) the level of visibility. The majority of the existing Lila Canyon Road is situated along the base of foothills below the southern edge of Horse Canyon Bench. Visual contrast of the road is reduced due to topography and vegetation screening.

U.S. Highway 191/6 would be the KOP for the lower portion of the proposed road and mine surface facility. Road cuts created by the realignment of the new road would be evident from a short distance, but should not have a long range physical contrast. Since the mine surface facility would be located within the narrow Lila Canyon, visibility of the facility from any KOP would be minimal. However, the surface facilities when lighted at night would be visible from numerous points along U.S. Highway 191/6 and to a lesser degree a "glow" may be in evidence from U.S. Highway 10 between Price and Huntington.

The visual impacts of the power line would be an increase in contrast to the surrounding landscape. However, since minimal vegetation removal would be required, physical contrast over the area of

the power line would be minimal and not visible from a KOP.

#### 4.6.6 Visual Resource Mitigation

No visual resource mitigation has been identified. Actions taken as part of the Stabilization, Maintenance and Operation Plan in CHAPTER 2.0 would meet the established VRM standards.

### 4.7 Vegetation Impact

The vegetation disturbed by the proposed action is shown in TABLE 4.2. As previously discussed, the area of the proposed action construction could compromise as much as 115.11 acres. Vegetation and habitats impacted are not limiting nor specific to the project area. Therefore, the acreage of impact would not affect the health of the local community structure. Vegetation bordering the existing road would be eliminated in most cases to minimize the potential for vehicle-wildlife incidents. Vegetation within Lila Canyon would be eliminated or temporarily impacted (three years) by construction and operation of the proposed road, power line and mine. Vegetation within 35 acres of the 39 acre mine surface facility would be removed for the life of the operation.

Impact to vegetation populations away from the road and mine site would be minimal, and limited to activities associated with construction of the power line. Vehicular travel along the power line ROW may flatten and crush ground cover. No impact to the sagebrush-grass habitat is expected. Disturbance to reclaimed areas would be temporal, from 24 to 36 months, and/or until vegetation becomes fully established. Upon reclamation of the road cuts and unused portions of the mine surface facility, operational impacts to vegetation would be minimized to 93.11 acres. This life of project acreage would encompass the 50 foot ROW of the road, mine surface area, and power line facilities. No impact to vegetation resources is expected from the proposed underground mining activities.

#### 4.7.1 Vegetation Mitigation

No mitigation is anticipated. Activities proposed as part of the proposed action should effectively minimize all impacts to vegetation resources. All disturbed areas not needed for operations would be revegetated during the first available growing season. A commitment to reclaim all areas at the conclusion of mining is made in the Lila Canyon MRP and a reclamation bond would be held in force until all disturbance has been satisfactorily reclaimed.

**TABLE 4.2**  
**HABITAT DISTURBANCE ASSOCIATED WITH THE PROPOSED ACTION**

	<u>Habitat Type</u>	<u>Construction(Acres)</u>	<u>Operation (Acres)</u>
<b>Lila Canyon Road:</b>	Sagebrush-Grass	17.23	13.23

	Pinyon-Juniper	3.74	3.74
<b>Road:</b>	Sagebrush-Grass	41.30	31.11
	Pinyon-Juniper	11.11	8.77
<b>Power Line *:</b>	Sagebrush-Grass	1.22	0.98
	Pinyon-Juniper	0.35	0.28
<b>Mine Surface Facility:</b>	Pinyon-Juniper	19.00	16.40
	Grass/Brush	21.16	18.60
	<b>TOTAL ACREAGE</b>	<b>115.11</b>	<b>93.11</b>

**\* Disturbance Determined as 10 Percent of Power Line ROW**

#### **4.8 Wilderness Values**

Surface facilities associated with the proposed mine site and guzzlers would directly disturb eight acres of the natural wilderness value and future designation of the immediate areas as Wilderness within the Desolation Canyon Inventory Unit 8. Since the proposed mine site would be adjacent to the inventory unit, opportunities for solitude and primitive/unconfined recreation would be indirectly degraded by sight and sound during the 20 year life of the mine. However, due to topography, the indirect area of impact would be restricted 25.12 acres below the canyon face.

Noise from the operation of the surface facility and increased vehicular travel from the proposed road would indirectly diminish the quality of the opportunities for solitude and primitive recreation along a portion of the Book Cliffs face area at the western boundary of the inventory unit, but would have little impact within the rest of the inventory unit with wilderness characteristics. No impact to wilderness quality and values would occur above the canyon from the location and operation of the mine facility.

Approximately 901 acres of the Desolation Canyon Inventory Unit 8 would be undermined by underground coal extraction. Naturalness, opportunities for solitude and primitive/unconfined recreation and cumulative values would not be diminished nor degraded by the proposed underground mining due to the substantial cover anticipated (at least 1,500 feet). Subsidiary surface disturbing actions resulting from surface subsidence may occur, but would not appear different from the surrounding geology.

The Turtle Canyon Inventory Unit 4 and the Turtle Canyon WSA would not be directly impacted by surface disturbing activities associated with the proposed action. Naturalness, opportunities for solitude and primitive/unconfined recreation and supplemental values would not be degraded. Subsidiary surface disturbing actions resulting from surface subsidence may occur within these areas as well, but would not appear different from the surrounding geology.

#### **4.8.1 Wilderness Values Mitigation**

The proposed action meets the Wilderness Interim Management Plan (IMP) objectives. No action is proposed that would impair the wilderness character of the established WSA. Therefore, no mitigation is proposed for the development of the mine surface facility area, or indirect impacts associated with its operation and use of the proposed road for the re-inventory units. However, the incorporation of the original IMP stipulations for actions resulting from mining of the pre-FLPMA coal leases under the Turtle Canyon WSA would be incorporated for all areas deemed to be affected by subsurface actions.

#### **4.9 Wildlife Value Impacts**

The primary concerns relative to wildlife within the area of the proposed action are:

1. Direct impacts which include surface disturbance resulting in loss of habitat, key habitat components and/or direct mortality to wildlife;
2. Indirect impacts which result in loss of habitat suitability resulting from intrusion of human presence and activity within sensitive wildlife habitats.

Direct impacts of the proposed action include surface disturbance required for facility construction, potential disruption of springs and seeps from underground mining activity, and direct mortality associated with subsequent coal haul traffic. Indirect impacts of the proposed action include human related intrusions/disturbances into wildlife habitats which can cause loss of habitat suitability. Human related intrusions/disturbances include human presence, equipment operation, and construction activity. These intrusions can in turn result in reductions in use of habitat by wildlife and changes in distribution and movement patterns by wildlife. Loss of habitat suitability becomes particularly important when it affects habitats of species known to be sensitive to such intrusions or occurs during critical periods of the year when wildlife are more vulnerable to these adverse impacts (i.e., fawning, lambing, critical winter range, nesting).

**Mule deer** Direct surface disturbance associated with operation of the proposed action would affect approximately 93.11 acres of mule deer year-long range. Since mule deer year-long range supports relatively low population densities, this loss of habitat is not expected to have any noticeable effect on numbers or distribution patterns for this species. Potential de-watering of springs and seeps could adversely affect high priority and critical winter range for mule deer. Distribution of mule deer on these winter ranges could be affected, particularly in years with light snow conditions and during the early and late winter periods when snow is absent. Coal haul and related traffic to the mine facility would potentially affect mule deer year-long range. Mule deer

densities on year-long range are extremely low. For this reason, mortality related to vehicle collisions would be rare and should not affect mule deer populations. Mule deer are vulnerable to disturbances of human activity when concentrated on winter ranges and animal physical conditions are depleted. Indirect impacts of the proposed action would only affect mule deer year-long ranges and therefore should have little effect on mule deer.

**Elk** No direct surface disturbing activity would occur on elk habitats within the affected area. Potential de-watering of springs and seeps could occur on elk high priority winter range. As discussed for mule deer, distribution of elk on these winter ranges could be affected, particularly in years with light snow conditions and during the early and late winter periods when snow is absent. Mortality associated with coal haul and related vehicle traffic would have no adverse effect on elk, since the access routes do not go through elk habitat.

Elk, as with mule deer are vulnerable to disturbances of human activity when concentrated on winter ranges and animal physical conditions are depleted. No indirect impacts would affect elk winter ranges and therefore should have no adverse effect on elk.

**Pronghorn** Direct surface disturbance would affect approximately 40 acres of pronghorn high priority year-long range. As discussed for mule deer year-long range, pronghorn high priority year-long ranges support relatively low population densities. This loss of habitat is not expected to have any noticeable effect on numbers or distribution patterns for pronghorn. Potential de-watering of springs and seeps that could occur as a result of mining activity would not occur on pronghorn range and therefore would not affect pronghorn. Though difficult to quantify, direct mortality of pronghorn, as a result of coal haul and related traffic, could occur. However, since the proposed coal haul traffic would not go through habitats in which pronghorn are concentrated, vehicle collisions would be rare and have little effect on population levels.

Pronghorn are sensitive to human intrusion during the fawning season, May 15 to June 20. The proposed action includes a seasonal constraint on construction activity during the fawning period. Therefore, no adverse effect would occur during this phase of the project. However, coal haul traffic would occur during this period of time for the operational life of the facility and could affect pronghorn to some degree. Pronghorn fawning is not concentrated in any one area but rather widely dispersed throughout their high priority range. For this reason, indirect disturbances to pronghorn during the fawning season are not expected to adversely effect the population.

**Rocky Mountain bighorn sheep** Direct surface disturbance would affect approximately 37 acres of bighorn sheep habitat. The Lila Canyon area is considered to be a relatively high concentration area for bighorn sheep. This is attributed to the presence of springs and seeps along the cliff-talus habitat within Lila Canyon, as well as, the relative absence of water in most cliff-talus habitat areas.

The surface disturbance alone or loss of forage on this disturbed area should have little effect on bighorn sheep. However, the potential de-watering of springs and seeps, a key habitat component for bighorn sheep, as a result of the proposed action could directly affect bighorn sheep continued use of the Lila Canyon area. This impact could displace up to 25 bighorn sheep. The proposed

guzzlers would avoid this impact. Mortality associated with coal haul and related traffic represent very little risk to bighorn sheep, since very little of the road system goes through bighorn habitat.

Bighorn are sensitive to human intrusion, particularly during the lambing season, May 1 to June 15. A seasonal restriction on construction activity in bighorn sheep habitat during the lambing season would avoid this adverse impact. Since this restriction has been incorporated into the Stabilization, Operation and Maintenance Plan, no adverse effect would occur during the construction phase of the project. However, operations at the facility would occur during this period of time for the operational life of the facility and could affect bighorn to some degree. These disturbances would be expected to displace bighorn sheep from the immediate area surrounding the facilities.

**Raptors** Direct operational surface disturbance would affect approximately 93.11 acres of raptor foraging habitat. This loss in itself is not expected to adversely effect raptors. Likewise, potential de-watering of springs and seeps could have some affect on availability of prey species, but is not expected to affect raptors to any great degree.

Raptors are known to be sensitive to human intrusion during the nesting cycle. Disturbances during this period of time can cause birds to abandon their nesting territories or disrupt adults tending the young in the nest resulting in mortality of young in the nest. Indirect impacts to raptors and in particular, the nesting territories within 0.5 miles of the facility location, would likely be adversely affected by the proposed action.

The 1999 spring inventory, identified one active and one tended Golden Eagle nest within a quarter mile of the proposed mine site, informal consultation between USFWS; UDWR, and BLM was initiated to devise a course of action and potential mitigation. Due to the nests close proximity to the proposed mine (approximately 800 feet), it was felt that the nest sites would be abandoned for the life of the operation. Planning guidelines outlined in the MFP give specific direction to protect the continued productivity to raptor nest sites.

#### **4.9.1 Wildlife Values Mitigation**

No additional mitigation is proposed for impacts associated with the proposed action. Potential impacts to all wildlife use (especially bighorn lambing) associated with construction, would be minimized with a seasonal closure. The proposed fence along the coal haul road would be constructed to allow for wildlife (antelope) movement, and therefore, would not prohibit range use. Potential loss of springs and seeps which could adversely affect most wildlife species present (particularly bighorn sheep) has been addressed by the proposed guzzlers. The proposed guzzlers would eliminate long term impacts to area wildlife, especially bighorn sheep, from human intrusion over the life of the mine.

Adverse impacts to raptors would be avoided with a seasonal restriction and prohibiting construction activity within 0.5 miles of occupied nest sites from February 1 to July 15. Impacts associated with mining operation for the life of the mine that could adversely effect continued productivity of the nest sites would be minimized by the proposed 93 acre vegetation treatment. On similar projects,

construction of artificial nests have been attempted to mitigate a similar type impact with varying degrees of success. Since a vast amount of suitable cliff nesting substrate would be available for nesting pairs to construct new nests, UDWR and USFWS suggested to increase prey populations rather than an artificial nest replacement. Based on these informal consultations, the vegetation treatment project designed to increase small mammal populations was identified as suitable to offset impacts to affected raptor nests.

#### **4.10 Cultural Resources Impacts**

Rauch (1981) has identified potential impacts of coal mining in this area as: 1) impacts from construction activities. 2) subsidence damage resulting from underground mining. 3) vandalism to site near mine roads and others facilities. Most of the areas of proposed constructions have been inventoried for cultural resources (Montgomery,1998: Montgomery,1999) and no cultural resource should be directly affected by construction.

On the effects of subsidence to cultural resources Rauch(1981) says:

"Given the amount of acreage sampled and the type and density of sites recorded and expected as an extrapolation of this sample to the entire area, it seems reasonable that if slumping or crackage does occur, the probability of these occurrences falling within site boundaries should be considered as low. Subsequently, even if limited disturbance does occur, the sites are of a nature (e.g., no structures or cultural depth) that their integrity should not be irreparably damaged."

Vandalism is an indirect impact of the coal mine development. Sites in close proximity to access routes and mine facilities would be affected by the loss of integrity to information and artifacts of the sites. Since 42EM2517 is adjacent to and visible from both a access route and the mines facilities it would be effected. Because cultural resources are not always visible, it is possible that unknown resources may be uncovered during construction.

##### **4.10.1 Cultural Value Mitigation**

UEI shall submit to the BLM, a data recovery plan for 42EM2517. In order to approve this plan the BLM will have to enter into a Programmatic Agreement with the Utah State Historic Preservation Office and possible other consulting parties. The Programmatic Agreement must be signed and the plan approved before the right-of-way is authorized. UEI shall implement the approved plan.

## **5.0 ANALYSIS OF CUMULATIVE IMPACTS**

### **5.1 Past, Present and Reasonably Foreseeable Actions Within the Area**

#### **5.1.1 Exploration Drilling Associated with the Lila Canyon Project**

To allow for future modifications to the underground mining of the coal leases described, it may be necessary to conduct exploratory core drilling and sampling to determine mineable resources. Though the regional coal geology for the lease area is known, as many as five 0.75 acre sites (3.75 acres total) could be developed over the course of operations. Since the surface area overlying the underground coal resources is currently cherry-stemmed with an existing network of roads and routes, potential drilling actions could be accessed and conducted within these transportation corridors over the entire lease area. Initiated within a three month summer field season, temporary exploratory drilling would most likely entail a rotary drill rig drilling on a 24 hour basis for up to 10 days. Water for use during drilling would be trucked to the site via the existing transportation system. Upon completion of drilling and sampling actions, the site would be reclaimed and revegetated to UDOGM and BLM requirements.

No new surface access would be anticipated within the re-inventory units or existing Turtle Canyon WSA. No permanent surface disturbance outside of the current cherry-stemmed transportation system would be anticipated.

#### **5.1.2 Development of the Blue Castle Mine**

Reasonably foreseeable minerals development in the area consists of the establishment an extraction mine and facility by Gold Terra Incorporated. The proposed development of the Blue Castle Mine would extract gold from the Mancos Shale benches adjacent to the Lila Canyon project area in the east half of Section 29 in T. 16 S. R. 14 E. Surface disturbance anticipated for this project is 132.57 acres. The primary access to this site would utilize the proposed Lila Canyon project coal haul road, with upgrading of existing access roads and routes and creation of new roads within the gold mine area. These existing and new roads would be within the 132.57 acre disturbance proposed for this cumulative development scenario. As many as 85 vehicles would access the site each day during the 20 year life of the mine.

#### **5.1.3 Regional Traffic**

The existing road system to be utilized through the operation of the Lila Canyon project is also utilized by two operating coal mines and a substantial volume of commercial and commuter traffic. U.S. Highway 191/6, currently at an estimated 10,600 non-coal related vehicles per day, is a heavily traveled route between the Wasatch Front and Interstate 70. Traffic from the proposed Lila Canyon project has been estimated at 722 vehicles (staff and coal haulage) per day at full production of four million tons of coal during Phase II. Traffic from similar nearby actions includes the West Ridge, Dugout Mines at 400 and 343 vehicles per day respectively. The proposed Blue Castle Mine would

have approximately 85 vehicles per day that would merge on to the proposed coal haul road before entering U.S. Highway 191/6.

## **5.2 Cumulative Affects on Identified Resources**

A cumulative impact, as defined within 40 CFR 1508.7, is the impact on the environment which results from the incremental impact of the action (proposed action) when added to other past, present and feasibly foreseeable future actions. To assess the cumulative impacts of the proposed action, it is necessary to identify those components of environment that could be affected that were not minimized by actions taken as part of the proposed action scenario or mitigated upon review of direct and indirect impacts of the proposed action. Specific issues raised during scoping formed the basis of review of cumulative impacts.

### **5.2.1 Exploratory Drilling**

Since the potential of exploratory drilling required to delineate mining of the pre-FLPMA leases would most like occur within the cherry-stemmed road that transects the area (PLATE IV), direct and indirect impact to resources would be minimal. Impact to soils, vegetation, cultural resources, land uses, and wildlife would be minimized due to timing of activities (summer), the location within disturbed road corridors, and stipulations as part of UDOGM and BLM permits for erosion control, protection of resource values, reclamation and revegetation.

Though potential drilling actions as described would not directly impact wilderness character of the surface area, indirect impacts associated with the operation of the Lila Canyon Mine and potential exploratory drilling and sampling of the pre-FLPMA coal leases could affect the wilderness values of the re-inventory units present. Though the potential drilling could occur within the cherry-stemmed road system that transects the coal leases, naturalness and opportunities for solitude would be diminished on those areas adjacent to the drill site locations during the 10 day drilling schedule for each road site. In combination with the indirect impacts occurring as discussed for the surface operations associated with the Lila Canyon Mine, a cumulative impact to wilderness character (naturalness and solitude) and manageability of these portions of the overlying Desolation Canyon Unit 8 and Turtle Canyon Unit 4 could occur. The overall wilderness value of the area from the mine site to the cherry-stemmed transportation corridor could be diminished during the temporary three month exploration program.

### **5.2.2 Vehicular Traffic**

Cumulatively, the traffic from the present ongoing actions (West Ridge and Dugout Mines) in association with the proposed full Phase II development traffic of the proposed action would result in a 12 percent increase in commuter and heavy truck traffic over the next 20 years on U.S. Highway 191/6. In the event that the Gold Terra project is developed, the traffic volume would increase slightly to 14.6 percent over the next 20 years. These figures are based upon the estimated current highway use of 10,600 vehicles per day. However, use of this highway by commuter and

### **5.2.5 Soils and Reclamation Potential**

Development of the coal lease area through Phase II would not result in any other additional disturbance to described resources. Actions taken as part of the permit stipulations, Stabilization, Operation and Maintenance Plan for the proposed action and reclamation plan associated with the mine and mine surface facility have eliminated the need for mitigation of direct and indirect impacts, as well as area wide cumulative impacts.

### **5.2.6 Ground Water and Surface Water Hydrology**

Mitigation required for possible impacts to hydrology and regional water quality of the Colorado River Basin and proposed operational stipulations would minimize the cumulative impacts to this resource throughout the Phase I and Phase II development.

### **5.2.7 Livestock Grazing**

Actions taken as part of the proposed action have minimized all direct and indirect impacts to this resource. No cumulative impacts are expected throughout the Phase I and Phase II development.

### **5.2.8 Visual Resources**

Actions taken as part of the proposed action to minimize direct and indirect impacts would also minimize cumulative impacts during the Phase I and Phase II development.

### **5.2.9 Loss of Vegetation Diversity, Cover and Productivity**

Interim and final reclamation of the proposed action as described would not change for the area of disturbance analyzed for Phase I to Phase II. The actions taken to minimize or eliminate such direct and indirect impacts would minimize the cumulative impacts during the phased development and after full reclamation.

commercial traffic is believed to be increasing at an un-quantified rate. Therefore, current impacts on traffic volumes may not be valid during the course of operation of these ongoing and foreseeable actions.

Regardless of the increase in commuter and commercial traffic volume on the highway, the potential cumulative increase of these projects would directly impact the safety and manageability of this transportation route. The rate of incidence of vehicular accidents could potentially increase, especially with the additional heavy truck traffic associated with the present facilities and future actions proposed. Additional highway costs for repairs required by the added heavy truck traffic would also be incurred during the anticipated cumulative life of these projects. Present and future highway management decisions for the proposed use of this state and federal highway should take into consideration the increase of commuter and commercial traffic in relation to these actions.

Cumulative impacts to wildlife within the immediate and transport area would also occur as a result of vehicular traffic. These impacts are discussed in the next section.

### **5.2.3 Displacement and Direct Disturbance of Wildlife**

The operation of the proposed action in association with the reasonable and foreseeable development of the 133 acre Blue Castle Mine would cumulatively and directly impact wildlife within the immediate vicinity of the project. As discussed within CHAPTER 4.0, direct and indirect impacts to big game use resulting from the operation of the coal haul road were minimal due to the low densities of mule deer and antelope and lack of critical habitat. However, with the future development of the Blue Castle Mine and subsequent surface disturbance, direct disruption of mule deer and antelope year long habitat would occur. This unquantified disruption could result in the cumulative indirect impact of displacement of wildlife due to the combined operation of these two projects in close proximity. Future wildlife resource management decisions would need to take the potential full operational impacts into account in order to an adequate herd management plan.

Vehicular traffic impacts on these big game species and raptors could occur as well. An increase in traffic volume on the proposed coal haul road by the potential Gold Terra action could result in an increase in vehicular-wildlife incidents over time. Indirectly, the potential movement of wildlife and habitat use by raptors could be further restricted and displaced. The use of U.S. Highway 191/6 and subsequent site access roads for the described cumulative scenarios would be impacted in a similar manner. Future land use decisions should take into account this cumulative scenario impact to develop a mitigation for the related direct disturbance and indirect displacement impacts on wildlife that result from increased vehicular use.

### **5.2.4 Surface Impacts Resulting From Mine Induced Subsidence**

Mining activities described as part of Phase I and Phase II, though possible over a larger area of the described lease area, would not result in any more subsidence than what was indicated for the direct and indirect impacts of the proposed action. Mining actions initiated as part of the development of the proposed action would not result in any cumulative impacts to any resource.

# CHAPTER 6.0 CONSULTATION AND COORDINATION

## 6.1 Agencies, Organizations and Individuals Contacted

Numerous contacts with associated federal, state and local agencies, interested parties and individuals have been made during the course of this environmental assessment.

### 6.1.1 Federal Government/Agencies

- U.S. Department of Agriculture
  - a. Natural Resource Conservation Service - Soil Resources
- U.S. Department of the Interior
  - a. U.S. Fish and Wildlife Service - Threatened and Endangered Species and Raptors

### 6.1.2 State of Utah

- Department of Community and Economic Development
  - a. State Historical Preservation Office - Cultural Resources
- Department of Natural Resources
  - a. Division of Oil, Gas and Mining - Mine Plan and Resource Analysis
  - b. Division of Water Rights - Water Rights
  - c. Division of Wildlife Resources - Wildlife Resources
- Department of Transportation - Road Crossings and Traffic
- Office of Rehabilitation
  - a. School and Institutional Trust Lands Administration - State Land Easements

### 6.1.3 Local Governments and Organizations

- Emery County Recorder - Land Use and Resource Analysis
- Emery County Planning and Zoning - Land Use and Zoning
- Emery County Road Department - Road Design and Proposed Action
- Emery County Engineer - Road Design
- Emery County Commissioners - Land Use and Easements

### 6.1.4 Industry and Business

- Bear West Company; Salt Lake City, UT - Legal Review and NEPA Compliance
- Montgomery Archeological Consultants; Moab, UT - Cultural Resources

## 6.2 List of Preparers and Interdisciplinary Team

### 6.2.1 EIS Environmental & Engineering Consulting (EIS); Helper, Utah

- **Melvin Coonrod**                      **Project Manager and Coordinator, Wildlife, Vegetation, Construction and Operations, Reclamation**  
B.S. Chemistry and Invertebrate Zoology  
M.S. Silviculture
- **Carl East**                              **Wildlife and Vegetation**  
B.S. Wildlife Management
- **Dan Larsen**                            **Soils**  
B.S. Conservation of Natural Resources  
M.S. Soil Science
- **Tom Paluso**                           **Mine Engineering, Geology and Hydrology**  
B.S. Engineering  
M.S. Civil/Environmental Engineering
- **David Steed**                          **Co-Project Manager, NEPA Development, Land Use and Wilderness**  
B.S. Ecology

### 6.2.2 BLM Interdisciplinary Team

- **Mark Mackiewicz, Realty Specialist**                      **Project Manager, NEPA Development**
- **Kerry Flood, Hydrology Specialist**                      **Hydrology and Soils**
- **Chad Hunter, Range Specialist**                          **Grazing and Vegetation**
- **Tom Gnochek, Wilderness Specialist**                      **Wilderness Values**
- **Floyd Johnson, NEPA Coordinator**                      **NEPA Development**
- **Blaine Miller, Cultural Specialist**                          **Cultural Resources**
- **David Mills, Wildlife Specialist**                           **Wildlife**
- **George Tetrault, Geologist**                               **Mineral Resources**
- **Greg Thayn, NEPA Coordinator**                          **EA Review**
- **Dennis Willis, Recreation Planner**                      **Traffic, Visual Resources and Wilderness**

## 6.3 References

Atwood, Duane et al. 1991. Utah Endangered, Threatened and Sensitive Plant Field Guide, USFS Intermountain Region, Ogden, Ut.

BLM. 1989. Price River Management Framework Plan. Moab District Office. Moab, Utah.

- Dalton, L.B., J.S. Price and L. A. Romin. 1990. Fauna of Southeastern Utah and Life Requisites Regarding Their Ecosystems. Publication No. 90-11 Division of Wildlife Resources in cooperation with Utah Department of Natural Resources. Salt Lake City, Ut. 326 pp.
- Jensen, E.H. and J.W. Borchert. 1988. Soil Survey of Carbon Area, Utah. Soil Conservation Service, in Cooperation with the Bureau of Land Management and Utah Agricultural Experiment Station. 249 pages.
- Lines, Gregory C. and Others. 1984. Hydrology of Area 56, Northern Great Plains and Rocky Mountain Coal Provinces, Utah. U.S. Geological Survey Water Resources Investigations. Open File Report 83-38. 69 pages.
- Miller, Blaine. 1991. Summary Report of Cultural Resources Inspection- Little Park Burn. Bureau of Land Management, Price River Resource Area.
- Montgomery, Keith. 1998. Cultural Resource Inventory of the Soil Testing Area for the Lila Canyon Coal Project, Emery County, Utah. Montgomery Archaeological Consultants, Moab, Utah. On file at the Price Field Office, Bureau of Land Management. Report No. U-98-MQ-0399b.
- Montgomery, Keith. 1999. Cultural Resource Inventory of Transportation Corridors and Power Line Route for the Lila Canyon Mine Project, Emery County, Utah. Montgomery Archaeological Consultants, Moab, Utah. On file at the Price Field Office, Bureau of Land Management. Report No. U-98-MQ-0739b.
- Olendorff, Richard R. et al. 1996. Suggested Practices for Raptor Protection on Powerlines. Raptor Research Report No. 4. Raptor Research Foundation, Inc. 111 pages.
- Rauch, Rebecca. 1981. A Cultural Resource Inventory of the Kaiser Steel Corporation South Lease Mine Property and a Test Excavation (42EM1343) in Emery County, East Central Utah. University of Utah Archeological Center, Report of Investigation No. 81-UT. On file at the Price Field Office, Bureau of Land Management.

## **CHAPTER 7.0 APPENDICES**

- APPENDIX A**     A Summary of Public Scoping Comments
- APPENDIX B**     Engineering Associated with the Existing Lila Canyon Road  
Emery County Road Department Correspondence
- APPENDIX C**     Utah Department of Transportation Right-of-Way Encroachment Permit
- APPENDIX D**     Mine Surface Facility Reclamation Plan
- APPENDIX E**     Natural Resource Conservation Service Correspondence - Prime Farmlands  
Soil Characteristics
- APPENDIX F**     Water Rights
- APPENDIX G**     TES Survey Reports  
1998 and 1999 Raptor Surveys  
U.S. Fish and Wildlife Services Correspondence - TES Species  
Lila Canyon Biological Assessment

# **APPENDIX A**

## **A SUMMARY OF PUBLIC SCOPING COMMENTS**

# **APPENDIX B**

**ENGINEERING ASSOCIATED WITH THE LILA  
CANYON ROAD**

**EMERY COUNTY ROAD DEPARTMENT  
CORRESPONDENCE**

# **APPENDIX C**

**UTAH DEPARTMENT OF TRANSPORTATION  
RIGHT-OF-WAY ENCROACHMENT PERMIT**

# **APPENDIX D**

## **MINE SURFACE FACILITY RECLAMATION PLAN**

# **APPENDIX E**

## **NATIONAL RESOURCE CONSERVATION SERVICE CORRESPONDENCE - PRIME FARMLANDS**

### **SOIL CHARACTERISTICS**

# **APPENDIX F**

## **WATER RIGHTS**

# **APPENDIX G**

## **TES SURVEY REPORT**

### **1998 AND 1999 RAPTOR SURVEYS**

#### **U.S. FISH AND WILDLIFE SERVICES CORRESPONDENCE - TES SPECIES**

#### **LILA CANYON BIOLOGICAL ASSESSMENT**

# **Lila Canyon Biological Assessment**

**Prepared by**

**EIS Environmental & Engineering Consulting**

**August 2000**

## **I. Introduction**

The purpose of this biological assessment is to evaluate the potential impacts of construction, maintenance, and operation of a coal mine in Lila Canyon to those plant and animal species and their habitats. Federally listed or proposed as threatened and endangered.

The Endangered Species Act of 1973 (PL 93-205), as amended, require federal agencies to insure that any activities the authorize, fund, or carry out, do not jeopardize the continued existence of any wildlife species federally listed as threatened or endangered (Section 7). The biological assessment is an analysis of which threatened and endangered species may occur in the project area and whether any impacts to those species are anticipated. This biological assessment has been prepared using direction from the BLM manual 6840, Special Status Species Management.

## **II. Proposed Action**

The proposed action to be taken by Utah American Energy would be the construction, operation, and maintenance of Lila Canyon Mine as well as the construction and operation of all associated surface facilities, utilities, and transportation routes. To facilitate the development and operation of the proposed mine, the existing Lila Canyon Road that ties into Emery County Road (CR) 125 at the existing Horse Canyon Mine Site would be upgraded to accommodate personnel and construction equipment travel. Concurrent with upgrading the existing access road, a separate operational coal haul road would also be constructed. A 46 kV power line that ties to the existing Moab/Price/Green River line approximately one mile south of the proposed mine facilities would be constructed to provide the necessary power requirements.

A more detailed account of Lila Canyon Mine and it's associated facilities can be found in the BLM Environmental Assessment for the Development of the Lila Canyon Project, Emery County Utah, Document (EA No. UT-070-99-22).

## **III. Species Potentially Impacted by the Project**

Currently the following threatened, endangered, proposed endangered, and candidate species and habitat are found in Emery County. Candidate species have no legal protection under the Endangered Species Act (ESA).

<u>Species</u>	<u>Scientific Name</u>	<u>Status</u>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened
Barneby Reed Mustard	<i>Schoenocrambe barnebyi</i>	Endangered
Black- footed Ferret	<i>Mustela nigripes</i>	Endangered
Bonytail Chub	<i>Gila elegans</i>	Endangered
Colorado Squawfish	<i>Ptychocheilus lucius</i>	Endangered
Humpback Chub	<i>Gila cypha</i>	Endangered
Jones Cycladenia	<i>Cycladenia humilis</i> var. <i>jonesii</i>	Threatened
Last Chance Townsendia	<i>Townsendia aprica</i>	Threatened
Maguire Daisy	<i>Erigeron maguirei</i>	Endangered
Razorback Sucker	<i>Xyrauchen texanus</i>	Endangered
San Rafael Cactus	<i>Pediocactus despainii</i>	Endangered
Winkler Cactus	<i>Pediocactus winkleri</i>	Proposed Endangered
Wright Fishhook Cactus	<i>Sclerocactus wrightiae</i>	Endangered

#### IV. Species Occurrences and Habitat Needs

**Bald Eagle (*Haliaeetus leucocephalus*)** During the breeding season bald eagles are closely associated with water, along coasts, lake shores, or river banks. During the winter bald eagles tend to concentrate wherever food is available. This usually means open water where fish and waterfowl can be caught. They also winter on more upland areas feeding on small mammals and deer carrion. At winter areas, bald eagles commonly roost in large groups. These communal roosts are located in forested stands that provide protection from harsh weather (Stalmaster, 1987).

Bald eagles can often be found near lakes and reservoirs, as well as within upland areas on the Manti National Forest during the late fall and early winter. When lakes and reservoirs freeze over in early winter, most eagles will leave these upland feeding sites. No bald eagles are known to nest in the area.

**Barneby Reed Mustard (*Schoenocrambe barnebyi*)** Barneby Reed Mustard grows on steep, northfacing slopes of the Moenkopi Formation. Elevation ranges between 1646- 1753 m (5400- 5750 ft). This species grows in the salt desert shrub zone and is commonly found with Ephedra and Erigonum. The TES inventory done May 21, 22, and 26 1999 did not locate this species within the project area though not specifically noted in the inventory report.

**Black-footed Ferret (*Mustela nigripes*)** The relationship between black-footed ferrets and prairie dogs has long been known. Black-footed ferrets live in the burrows made by prairie dogs and probably exploit these rodents as their major food source. The high biomass of potential prey species and the abundance of burrows are equally important factors in attracting black-footed ferrets to this habitat. The Black-footed ferret is unlikely to occur in the proposed project area because of the lack of its major prey species, prairie dogs.

**Bonytail Chub (*Gila elegans*)** Historically bonytail chubs exist throughout the Colorado River drainage. Recently, isolated captures of bonytail chubs have been made in the Colorado River basin but recruitment to the population is extremely low or nonexistent. The decline of the bonytail chub is attributed to dam construction and associated water temperature changes. Other factors contributing to the reduced numbers include flow depletion, hybridization, stream alterations associated with dam construction, and the introduction of non-native fish species. The bonytail chub is an omnivore, feeding mostly on terrestrial insects, plant debris and algae and begins to spawn at five to seven years of age (Behnke and Benson 1980). No bonytail chubs have been located in the project area primarily due to the lack of perennial stream flows.

**Colorado Squawfish (*Ptychocheilus lucius*)** The Colorado squawfish had a historic range from Green River, Wyoming, to the Gulf of California, but the species is now confined to the upper Colorado River Basin mainstream and larger tributaries. The lower Green River between the Price and San Rafael rivers contain abundant Colorado squawfish. The species decline can be attributed to direct loss of habitat, changes in water flow and temperature, blockage of migrations, and interactions with introduced fish species. Colorado squawfish adults are thought to prefer deepwater eddies and pools or other areas adjacent to the main water current, whereas the young inhabit shallow, quiet backwaters adjacent to high flow areas. Colorado squawfish feed on invertebrates while young but gradually become piscivorous after one year. No Colorado squawfish have been located within the proposed project area because of the lack of perennial stream flows.

**Humpback Chub (*Gila cypha*)** The humpback chub is believed to have inhabited all of the large rivers of the upper Colorado River basin and canyons of the lower Colorado River basin. Presently the humpback chub can be located in and above the Grand Canyon, Arizona, and the major tributaries to the Colorado River. The states stream alteration, including dewatering, dams and channelization, as factors causing the decline of the species. The humpback chub normally lives adjacent to high velocity flows, where they consume plankton and small invertebrates. The humpback chub has not been located in the proposed project area due to the lack of perennial stream flows.

**Jones Cycladenia (*Cycladenia humilis* var. *jonesii*)** Jones Cycladenia is found on the Cutler, Summerville, and Chinle Formations in the salt desert shrub, mixed desert shrub and juniper zones. Elevation ranges from 4400- 5970 ft. The plant occurs on the eroded slopes of the Summerville Formation, just east of the San Rafael Reef. This habitat species is not known to occur within the proposed project area, and was not located during the TES inventory conducted on May 21, 22, and 26, 1999.

**Last Chance Townsendia (*Townsendia aprica*)** Last Chance Townsendia occurs on the Ferron Sandstone and Carmel Formations. The plant apparently grows on several formations, but prefers fine-textured substrates and shallow soils close to sandstone bedrock. Elevation ranges from 6000-7400 ft. It is commonly found growing in the pinyon-juniper zone associated with grasses and mixed desert shrubs. Aspect is variable and slope does not exceed 10 degrees. There were no populations of this species found in the proposed project area during the May 21, 22, and 26, 1999 TES inventory.

**Maguire Daisy (*Erigeron maquirei*)** Maguire daisy occurs in the canyon bottoms of the Wingate and Chinle Formations at approximately 5600 ft. It has been found growing atop mesas and shaded canyon bottoms of the Navaho Sandstone Formation at approximately 6,800 ft. The daisy prefers cool, shaded, moist, mesic, wash bottoms and dry, partially shaded, slopes of eroded sandstone cliffs. Aspects is usually north, east, or northeast and slopes do not exceed 25 degrees. The daisy grows within the lower limits of the pinyon-juniper zone but seems to attain optimal growth conditions in the mountain shrub zone. This species was not found during the TES inventory conducted on May 21, 22, and 26, 1999.

**Razorback Sucker (*Xyrauchen texanus*)** Historic distribution of the razorback sucker was mainly along the mainstream of the Colorado, Green and San Juan Rivers. They presently only occur in a portion of their former range in these rivers and are normally found in water four to ten feet deep with area of strong currents and backwaters. The razorback sucker feeds on small invertebrates, and animals and organic debris on the river bottom. Behnke and Benson (1980) link the decline of the razorback sucker to the land and water uses, particularly dam construction and the associated change in flow regimes and river channel characteristics. Razorback Sucker are not present in the proposed project area due to the lack of perennial stream flows

**San Rafael Cactus (*Pediocactus despainii*)** San Rafael cactus is found on gray to white limestone of the Carmel Formation. Elevations range between 6,000- 6,300 ft. The cactus grows in a pinyon-juniper-grassland community. It grows flat on rolling terrain in full sunlight and the aspect is variable. No species were located during the inventory on May 21, 22, and 26, 1999.

**Winkler Cactus (*Pediocactus winkleri*)** Winkler cactus grows on clay subsoil normally associated with the salt desert shrub communities. The elevation ranges between 4,790 to 5,210 feet and can normally be located and identified between March and mid May. No Winkler cactus are known to be in the proposed project area. The TES inventory conducted on May 21, 22, 26, 1999 did not locate any species.

**Wright Fishhook Cactus (*Sclerocactus wrightiae*)** Wright Fishhook cactus is known to be found from Wayne County, southwestern Emery County, and southeastern Sevier County. The cactus has been found occupying a variety of geologic substrata. Throughout its distribution, the cactus does not favor one particular geologic substrate but it does seem to favor specific edaphic and geochemical conditions. The cactus occurs in salt desert shrub and mixed desert shrub zones between elevations of 4,550- 6,200 ft. Associated plant cover rarely exceeds 15 percent. Slope is usually between 0 to 10 degrees and aspect is variable. This habitat species is not known to occur

within the proposed project area. The TES inventory conducted on May 21, 22, 26, 1999 did not locate any species.

## V. Determination of Effects

**Suitable Habitat** The area affected by the proposed action does not contain suitable habitat (i.e. elevation, vegetation, and/or geology) and known home ranges for many of the species in the above lists. Therefore, it is determined that there will be no effect upon them. These species (as listed below) are therefore eliminated from further analysis.

- **Bald Eagle (*Haliaeetus leucocephalus*)** - the proposed action is outside the range of this species.
- **Barneby Reed Mustard (*Schoenocrambe barnebyi*)**- The area affected by the proposed action does not contain suitable habitat for this endangered plant. The proposed action would not affect this plant.
- **Black-footed Ferret (*Mustela nigripes*)**- The area affected by the proposed action does not contain any prairie dog towns which provide black-footed ferret habitat. The proposed action would not affect this species.
- **Bonytail Chub (*Gila elegans*)**-The area affected does not contain any of the endangered fish. All disturbed waters will be contained by sediments ponds thereby not affecting the amount or quality of the waters draining into the Colorado River Drainage.
- **Colorado Squawfish (*Ptychocheilus lucius*)**-The area affected does not contain any of the endangered fish. All disturbed waters will be contained by sediments ponds thereby not affecting the amount or quality of the waters draining into the Colorado River Drainage.
- **Humpback Chub (*Gila cypha*)**-The area affected does not contain any of the endangered fish. All disturbed waters will be contained by sediments ponds thereby not affecting the amount or quality of the waters draining into the Colorado River Drainage.
- **Jones Cycladenia (*Cycladenia humilis* var. *jonesii*)**- The area affected by the proposed action does not contain suitable habitat for this endangered plant. The proposed action would not affect this plant.
- **Last Chance Townsendia (*Townsendia aprica*)**- The area affected by the proposed action does not contain suitable habitat for this endangered plant. The proposed action would not affect this plant.

- **Maguire Daisy (*Erigeron maquirei*)**- The area affected by the proposed action does not contain suitable habitat for this endangered plant. The proposed action would not affect this plant.
- **Razorback Sucker (*Xyrauchen texanus*)**-The area affected does not contain any of the endangered fish. All disturbed waters will be contained by sediments ponds thereby not affecting the amount or quality of the waters draining into the Colorado River Drainage.
- **San Rafael Cactus (*Pediocactus despainii*)**- The area affected by the proposed action does contain suitable habitat for this endangered plant. However, none have been identified within the area, and therefore, would not be affected by the proposed action.
- **Winkler Cactus (*Pediocactus winkleri*)**- The area affected by the proposed action does contain suitable habitat for this endangered plant. However, none have been identified within the area, and therefore, would not be affected by the proposed action.
- **Wright Fishhook Cactus (*Sclerocactus wrightiae*)**- The area affected by the proposed action does contain suitable habitat for this endangered plant. However, none have been identified within the area, and therefore, would not be affected by the proposed action.

**VI. Listed Species Biological Assessment Summary of Conclusions of Effects**

Project Name: BA for Lila Canyon Coal Mine and Associated Facilities

Proposed Action

Species	No Effect	May Effect- Not Likely to Adversely Affect	Likely to Adversely Affect	Beneficial Effect
Bald Eagle	X			
Barneby Reed Mustard	X			
Black- footed Ferret	X			
Bonytail Chub	X			
Colorado Squawfish	X			
Humpback Chub	X			
Jones Cycladenia	X			
Last Chance Townsendia	X			
Maguire Daisy	X			
Peregrine Falcon	X			
Razorback Sucker	X			
San Rafael Cactus	X			
Winkler Cactus	X			
Wright Fishhook Cactus	X			

## **VI. Mitigation**

As there were no direct impacts on any of the species no mitigation is recommended at this time.

## **VII. Cumulative Impacts**

The proposed action as delineated in this BA is exclusive to the potential impacts associated with the construction, operation, and maintenance of the Lila Canyon Coal Mine.

## **VIII. Documentation**

Reference used to determine the presence (or absence) of Threatened, Endangered, Proposed and Sensitive as well as species characteristics and habitat information include.

Behnke, R.J. and D.E. Benson. 1980. Endangered and Threatened Fishes of the Upper Colorado River Basin Coop. Ext. Serv., Colorado State Univ., Fort Collins, Bull. 503A. 34pp.

Boschen, Nelson. 1995. Bald Eagle in Southeastern Utah:1994 Nesting Season

Cade, T.J., J.H. Enderson, C.G. Thelander, and C. M. White. 1988. Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise. 949 pp.

Kass, Ron 1990. Final Report of Habitat Inventory of Threatened, Endangered and Candidate Plant Species in the San Rafael Swell, Utah. 87 pp.

Ratcliffe, D.A. 1980. The Peregrine Falcon. Buteo Books, Vermillion, SD. 416 pp.

Sigler, W.F. and R.R. Miller. 1963. Fishes in Utah. Utah State Dept. of Fish and Game, Salt Lake City. 203 pp.

Stalmaster, M.V. 1987. The Bald Eagle, Universe Books, New York. 227 pp.

### **Bureau of Land Management References**

Resource area wildlife and plant observation and location area records.

USDI BLM manual 6840, Special Status Species Management.

### FEATURES OF SOIL MAP UNITS

Map Unit Symbol	Soil Components	% Slope	Land Capability Class (nonirrigated)	Range and Woodland Sites	Erosion Rooting Depth (Inches)	Erosion Hazard (By water)
BMD	Strych, very stony, fine sandy loam	3-30	VIIIs	Semi-desert Stony Loam (Utah Juniper-Pinyon)	60 or more	Moderate
BME2	Strych, very stony loam, dry	3-30	VIIIs	Semi-desert Stony Loam (Utah Juniper-Pinyon)	60 or more	Moderate
BNE2	Strych, very bouldery fine sandy loam	3-20	VIIIs	Semi-desert Bouldery Loam	60 or more	Moderate
BY	Badland, Rubbleland, Rock outcrop	30-80	VIIIe VIIIIs	N/A	N/A	Severe or Badland
CHC2	Shipeta, silty, clay loam	8-15	VIIIe	Desert Shallow Clay	10-20	Severe
EED2	Hanksville, very gravelly fine sandy loam	3-15	VIIIe	Desert Clay (shadscale)	10-20	Moderate
KAC	Persayo Greybull	3-15	VIIIe VIIIe	Desert Loamy Clay (shadscale) Desert Loam	10-20 20-40	Severe Moderate
NGG2	Gerst Strych Badland	30-70	VIIIe VIIIe VIIIe	Semidesert Very Steep Shallow Clay Semidesert Very Steep Loam N/A	8-20 60/more	Moderate Severe Severe
RIA2	Ravolta Toddler	1-6	VIIIs VIIIs	Desert Loam (shadscale) Alkali Flat (greasewood)	60/more 60/more	Moderate Moderate
SMD2	Rock Outcrop Atchee Rubbleland Cliffsand Minchey	50-80  1-8	 VIIIs VIIIs VIIIe	 N/A Semidesert, Very Steep, Shallow Loam, (Utah Juniper-Pinyon) N/A Desert Sandy Loam Desert Loam	 N/A 5-20 N/A 60/more 60/more	 N/A High N/A Slight Slight