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

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May 16, 2001

TO: Internal File

THRU: Dave W. Darby, Team Lead *DW*

FROM: Wayne H. Western, Senior Reclamation Specialist *WHW*

RE: Lila Canyon Round 6, Utah American Energy Inc., Horse Canyon Mine, C/007/013-SR98(1)-6

**SUMMARY:**

The Division reviewed the 5th submittal for the Lila Canyon project at the Horse Canyon Mine. The Division found that all the engineering requirements had been met.

**TECHNICAL ANALYSIS:**

**ENVIRONMENTAL RESOURCE INFORMATION**

**GENERAL**

Regulatory Reference: R645-301-411, -301-521, -301-721.

**Analysis:**

The Permittee gave the Division information in Section 521 of the PAP that describes the lands subject to coal mining and reclamation over the estimated life of mine. The general requirements of R645-301-521 have been met with respect to environmental resource information. The specific requirement of R645-301-521 will be addressed in the sections that follow.

**Findings:**

The Permittee has met the minimum requirements of this section.

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## PERMIT AREA

Regulatory Requirements: R645-301-521.

### Analysis:

Plate 5-4 and other maps show the permit boundaries for the Horse Canyon Mine. The permit boundaries are divided into Permit Area A, which is the Horse Canyon project that is now being reclaimed and Permit Area B, which is the proposed Lila Canyon project.

The legal description of the permit area is shown in Table 4-2. The table shows the acres of State, federal and fee land.

### Findings:

The Permittee met the minimum requirements of this section.

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

Regulatory Reference: R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

### Analysis:

#### Affected Area Boundary Maps

Plate 5-4 and other maps show the permit boundaries that are the same as the affected area boundaries for the Horse Canyon Mine. The Horse Canyon Mine includes the Horse Canyon project and the Lila Canyon project. Plate 5-5, Mine Map, shows the affected area boundaries for the Lila Canyon project and the timing and sequence of mining.

#### Existing Structures and Facilities Maps

Plate 5-1A, Pre Mining Contours, shows the existing structures in the proposed Lila Canyon disturbed area. The only existing structure is a 36" culvert scheduled to be replaced when the mine facilities area constructed. A description of the culvert is given in Section 526.110 and 521.120 of the PAP.

#### Existing Surface Configuration Maps

The Permittee shows the existing surface contours on Plate 5-1A. The contours on Plate 5-1A extend more than 100 feet from the disturbed area boundaries. The contour intervals on Plate 5-1A are 25 feet. The Division does not have a regulatory requirement for minimum contour intervals or map

scale. However, the Division has found that to develop adequate reclamation plans that the maps must have contour intervals of at least 5 feet and a scale of 1 inch equal 100 feet. The permittee has met that standard.

### **Mine Workings Maps**

Plate 5-1 shows the old mine workings in and around the permit area, including the Horse Canyon project and the Lila Canyon project. The mine openings at the Horse Canyon surface facility have been sealed and are scheduled to be backfilled. The proposed portals and mine workings for the Lila Canyon Mine will be discussed in the operation and reclamation sections of this TA.

### **Permit Area Boundary Maps**

Several maps including Plate 5-1 show the location of the permit boundaries for the Horse Canyon mine. The permit boundary has been divided into Permit Area A (the Horse Canyon project) and Permit Area B (the Lila Canyon project).

### **Contour Maps**

The Permittee gave the Division premining, operational and reclamation contour maps of the Lila Canyon site. The scale of the maps and the contour intervals are adequate because the maps have a scale of 1 inch equals 100 feet and 5 foot contour intervals.

### **Findings:**

The requirements of this section of the regulations are considered adequate in regard to the proposed permit changes for the addition of the Lila Canyon project.

## **OPERATION PLAN**

### **MINING OPERATIONS AND FACILITIES**

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

### **Analysis:**

#### **General**

The permittee proposes to develop a surface facility and mine portals in Lila Canyon. The permittee wants to develop the Lila Canyon facilities because access to the coal through the Horse Canyon portals is not feasible.

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Access to the coal will be through two 1,200 foot slopes that will be driven from a cliff base. The ventilation portal will be driven from underground workings to the surface. See Plate 5-2 for the locations. Mining will be conducted by room-and-pillar methods in the Sunnyside Seam. Production in the first year is estimated to be 200,000 tons, the second to fifth year 1,000,000 to 1,500,000 tons per year. If demand increases, the permittee will install longwall equipment and production could peak at 4,500,000 tons per year.

**Type and Method of Mining Operations**

Mining will begin in Section 15, T16S, R14E, in the Sunnyside seam. Development of the Sunnyside seam will be in a down dip direction toward the east. The seam will be accessed by two 1,200 foot slopes driven up at 12% from the base of the cliffs. The ventilation fan portal will be driven from underground workings to the surface.

Mining will be conducted by room-and-pillar methods in the Sunnyside Seam. Production in the first year is estimated to be 200,000 tons, the second to fifth year 1,000,000 to 1,500,000 tons per year. In Appendix 4-3, Air Quality, the permittee stated in a letter dated August 27, 1999 to the Division of Air Quality that a maximum of 1,500,000 tons will be produced every year.

If demand increases, the permittee will install longwall equipment and production could peak at 4,500,000 tons per year. The estimated life-of-mine is 20 years.

Mine development will start with tunnel construction. Once the coal is encountered development will continue using continuous miners and various types of haulage equipment.

Ventilation of the mine will be by an exhaust type system. The permittee estimates that 900,000 cfm will be required at full production. Intake air will be supplied by slopes and entries from the surface.

Dust suppression will be accomplished by the use of sprays on all underground equipment as required. Sprays will also be used along sections of the conveyors and some transfer points.

No major de-watering concerns are anticipated at this property. The workings are expected to produce some water with more water being produced as the depth of mining increases. Part of this water will be used for dust suppression. The remainder will be collected in sumps and pumped to mined out sections of the mine or to the surface and treated when necessary.

In Section 523 of the PAP, the permittee listed the major mining equipment that will be used. The equipment is consistent with a major operation.

**Facilities and Structures**

The new support facilities are described in Section 520 of the PAP, shown on plate 5-2 and in the appendixes in Chapter 5 of the PAP. Appendix 5-4, New Facility Design, shows the design for the roads

and sewage system. Appendix 5-7 has the designs for the refuse pile. The new structures and facilities listed in Section 520 are as follows:

- Mine Facilities Road
- Security Shack
- Mine Substation
- Office/Bathhouse/Warehouse Parking Area
- Office/Bathhouse
- Mine Parking
- Shop Warehouse
- Non-Coal Waste Area
- Equipment & Supplies Storage Area
- Sewer Tank & Drain Field
- Water Treatment Plant
- Potable Water Tank
- Process Water Tank
- Topsoil Pile
- Refuse Pile
- Sediment Pond
- Slope Access Pond
- Rock Slopes
- Ventilation Fan
- ROM Underground Belt
- ROM Storage Pile
- Crusher
- Coal Storage Bin
- Truck Scale and Loadout

The permittee proposes to construct one impoundment, a sediment pond show on Plate 5-2. Since Lila Canyon is an underground mine, no overburden or spoil will be removed. The permittee does not plan on cleaning or processing the coal beyond crushing. Any coal mine waste produced from crushing will be placed in the refuse pile shown on Plate 5-2.

In Section 528.100 the permittee describes how the coal will be handled and stored. The permittee outlined the coal storage area on Plate 5-2. The maximum amount of coal that can be stored on the site will be determined by the air quality permit or by the size of the coal storage area on Plate 5-2.

In Section 528.300 the permittee described how spoil, coal processing waste, mine development waste, and noncoal waste removal, handling, storage, transportation, and disposal areas and structures. Since the Lila Canyon is an underground mine, the permittee does not expect any excess spoil. Coal mine waste will be disposed in the areas shown on Plate 5-2.

The water pollution facilities include the drain fields and sediment pond.

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**Findings:**

The permittee has met the minimum requirements of this section.

**EXISTING STRUCTURES**

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

**Analysis:**

One existing culvert is shown on Plate 5-1A to be in the proposed disturbed area. The permittee states in Section 526.110 and Section 521.120 of the PAP that a 36" culvert exists in the proposed disturbed area. The culvert is in poor condition and will be replaced during construction.

**Findings:**

The permittee met the minimum requirements of this section.

**RELOCATION OR USE OF PUBLIC ROADS**

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

**Analysis:**

Appendix 1-4 contains a copy of a letter from the Emery County Road Department dated January 10, 2001. The letter states that the following:

Said approval authorizes mining activities to be conducted within 100 feet of the public road with the provision that, to provide for public safety, a 6 foot chain link fence shall be constructed adjacent to the road right-of-way in the vicinity of the surface facilities area.

Additionally, the location of the fence must not restrict continued public use of the road.

Plate 5-2 shows the location of the public road, known as County Road 164, but does not show the extent of the road right-of-way. The Division needs to know the location of the right-of-way in order to determine where the fence should be placed. A right-of-way can be much wider than the road. The main concern that the Division has is the location of the pond may be in the right-of-way. If the pond is in the right-of-way then the permittee will have to modify the pond's location.

Plate 5-2 shows that the chain link fence will border the road. The chain link fence offers protection from mining activities within the pad area and the sediment pond. The fence does not surround the pad area and the public could access the property without going through the gate. The Division believes that the fence offer the public adequate protection but not complete protection from

mining activities and the sediment pond.

**Findings:**

The permittee met the minimum requirements of this section.

**COAL RECOVERY**

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

**Analysis:**

As part of the federal mine plan approval and to meet the requirements of the federal leases, the permittee is required to submit a resource recovery protection plan (R2P2) to the BLM. The BLM staff analysis the R2P2 for maximum economic recovery and found that the permittee meet that requirement. The Division reviewed the R2P2 and found no reason to dispute the BLM's findings.

**Findings:**

The permittee met the minimum requirements of this section.

**SUBSIDENCE CONTROL PLAN**

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

**Analysis:**

**Renewable Resources Survey**

The permittee acknowledges that renewable resources exist in the proposed subsidence area. Grazing is identified as a land use in the Lila Canyon tract, and there is at least some recharge to aquifers. Since renewable resources exist in the permit area, the permittee conducted a subsidence survey.

According to the application, the main potential effects of subsidence would be escarpment failure and disruption of surface and ground water. One eagle nest is in the subsidence area. Protection of this nest or mitigation for its loss is discussed in detail in the section of this analysis dealing with the fish and wildlife protection plan.

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

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A standard stipulation on federal leases is that the lessee monitor the effects of underground mining on vegetation. The application includes a plan to monitor vegetation with color infrared photography every five years. This commitment is consistent with commitments other mines have made and is acceptable.

**Subsidence Control Plan**

- (1) Coal will be removed by room-and-pillar methods. If the demand for coal increases, then longwall methods may be used. Details of the mining plan are given in Section 522 and 523. Plate 5-5 shows the mine layout and the sequence and timing of mining.
- (2) On Plate 5-5 the permittee shows the proposed underground workings and the areas of potential subsidence. Plate 5-5 shows those areas where subsidence control methods (first mining only) will be used to protect escarpments. The permittee shows the location of the seeps, springs, and eagle nests on Plate 5-3.
- (3) R645-301-525.440 requires that the permittee describe the subsidence monitoring plan. The permittee commits to the following:

Aerial subsidence monitoring will be done annually while the significant subsidence is taking place. The subsidence monitoring will be initiated in area prior to any 2<sup>nd</sup> mining being done within that area. Initially a 200 foot grid along with baseline photograph will be established prior to any 2<sup>nd</sup> mining. Approximately 12-16 control points will be needed to cover the total mining area. Six of these points will be located outside of the subsidence zone. The accuracy of this survey will be plus or minus 6" horizontally and vertically. From this data a map will be created that will show subsided areas. Once a year a follow up aerial will be performed to determine the extent and degree of active subsidence. Subsidence monitoring will continue for five years after mining stops or until subsidence is complete. If for three years in a row the subsidence is measured to be less than 10% of the highest subsidence year, subsidence will be determined to be complete, and no additional monitoring for that area will be required.

A ground survey will be performed in conjunction with the quarterly water monitoring program. During the normal water monitoring program any cracks observed will be noted and reported to DOGM.

The Division agrees with the general concepts in the subsidence monitoring plan. The aerial monitoring program is similar to other programs used by mines in the area. The Division has found that aerial surveys provide good subsidence information. Ground surveys are useful because the ground crews can spot cracks.

Subsidence monitoring will continue for a minimum of 5 years. If for three years in a row the subsidence is measured to be less than 10% of the highest subsidence year, subsidence will be determined to be complete, and no additional monitoring for that area will be required.

- (4) The permittee states that the escarpments will be protected from subsidence by allowing first mining only within 200 ft. of the outcrops. The anticipated effects of planned subsidence may include tension cracks, fissures, sinkholes and lowering of the ground surface.

The permittee does not plan to take steps to prevent subsidence except escarpment protection. The permittee states in the amendment that if subsidence causes damage then he will restore the land to a condition capable of maintaining the value and reasonable foreseeable uses that the land was capable of supporting before subsidence.

- (5) The permittee states that the anticipated effects of subsidence are:

May include tension cracks, fissures, or sinkholes and ground lowering.

The Division has received comment from the public that subsidence might damage seeps and springs in the area. Landowners near the Lila Canyon project have concerns about water loss.

- (6) The permittee describes the measures to be taken to mitigate or remedy any subsidence-related material damage to, or diminution in value or reasonably foreseeable use of the land, or structures or facilities to the extent required under State law as follows:

The land will be restored to a condition capable of maintaining the value and reasonable foreseeable uses that it was capable of supporting before the subsidence.

The permittee commits to remediate any damage to water rights.

#### **Performance Standards for Subsidence Control**

The permittee is required to meet all the subsidence performance standards.

#### **Findings:**

The permittee met the minimum requirements of this section.

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## SLIDES AND OTHER DAMAGE

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

### Analysis:

The permittee committed to phone the Division if a slide occurred. The Division would then be informed of the remedial plan. If the Division believed the remedial plan to be inadequate, they would tell the permittee what additional steps were needed. The permittee committed to report any potential hazards of impoundments that are found during an inspection.

### Findings:

The permittee met the minimum requirements of this section.

## ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

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

### Analysis:

#### Road Systems

##### *Road Classification System*

The permittee states in Section 527.200 that all roads for the Lila Canyon project are shown on Plate 5-2. All of the mine roads shown on Plate 5-2 are classified as primary roads. No ancillary roads are associated with the Lila Canyon project. The information about road classification systems meets the minimum requirements of this subsection.

##### *Plans and Drawings*

- (1) In Section 527.200 of the amendment the permittee states that detailed designs and descriptions for each road within the permit area are included in Appendix 5-4 and all roads are shown on Plate 5-2. Appendix 5-4 does not contain information about the road embankment safety factor. The road embankment stability analysis is in Appendix 5-5.

Appendix 5-5 has information about slope stability for the roads. The permittee states that a slope stability analysis was done for the road embankment and road cut slope.

The permittee STABLE to do the stability analysis and the Division's Price Field Office. The road embankment and cut-slope meet the minimum safety factor requirement of 1.3.

- (2) The permittee does not propose to locate a road in the channel of an intermittent or perennial stream.
- (3) The permittee does not propose to locate a temporary ford in the channel of an intermittent or perennial stream.
- (4) The permittee does not propose to alter or relocate a natural stream channel.
- (5) The permittee does not propose a low-water crossing of a perennial or intermittent stream channel.
- (6) The permittee states in Section 542.600 that there will be no roads left after final reclamation within the mine facilities permitted area. All roads will be reclaimed upon cessation of mining.

### **Performance Standards**

The permittee will be responsible to insure that the roads meet the performance standards.

### **Primary Road Certification**

The road plans and cross sections in Appendix 5-5 and Plate 5-2 were certified by a register professional engineer.

### **Other Transportation Facilities**

The general plans for the conveyor system are given in the text and shown on the surface facilities maps.

### **Findings:**

The permittee met the minimum requirements of this section.

## **SPOIL AND WASTE MATERIALS**

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

### **Analysis:**

#### **Disposal of Noncoal Waste**

The permittee showed the location where noncoal waste would be stored on Plate 5-2. In Section 528.332 the permittee states that final disposal of noncoal mine wastes except for concrete debris will be

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at the ECDC facility near East Carbon City. Plate 5-6 show that the concrete will be disposed of in the coal storage area.

The Division usually allows an operator to dispose of concrete on site. The on site disposal of concrete is usually done by placing the concrete in areas that will be backfilled and graded. The Division usually requires that at least 4 feet of material is place over the concrete to allow for proper vegetation growth. The permittee shows where the concrete will be disposed on Plate 5-6.

### **Coal Mine Waste**

The permittee states in Section 528.320 that coal mine waste will be placed in new disposal areas within the permit area. The permittee will divide the refuse pile into two sections. The first section will contain rock removed from the access tunnels. The rock will be used as structural fill for the shop/warehouse. The second section will be used for coal mine processing waste and underground development waste that contains coal. The location of the refuse pile is shown on Plate 5-2 and in Appendix 5-7.

R645-301-536.100 requires that refuse piles be designed using current prudent engineering practices. In Appendix 5-7 the permittee describes the placement of refuse as follows:

Refuse will be dumped into the hole created from the removal of the subsoil. The refuse will be placed in the hole as per Figure 1. Once the hole is filled to the level shown in Figure 1 the subsoil will then be placed over the top of the refuse and another hole will be constructed by removing subsoil adjacent to the previous hole. The topsoil removal and storage, subsoil removal, the hole being filled with refuse, and subsoil replacement, procedure will be repeated as additional refuse disposal area is needed.

Limited compaction will take place during the filling operation. Upon final reclamation the topsoil will be redistributed over the refuse storage area and reclaimed as per Chapter 3. The total cover over the refuse area when considering the subsoil and topsoil will be a minimum of 4'.

The permittee does not propose to place coal mine waste material from other facilities in the coal mine waste disposal facility. If needed, the permittee can request that the permit be amended.

The coal mine waste disposal facility has a static safety factor of 16.19. The calculations were made at cross section 8+00.

The Division will have an inspector monitoring the construction of the coal mine waste disposal facility. If any problems are encountered, the inspector will take action.

### **Refuse Piles**

The plan for the refuse pile is in Appendix 5-7, construction, operation, and Appendix 5-5, slope stability. No springs, water courses or wet weather seeps exist in the refuse piles area. The applicant committed to remove all vegetation and topsoil during construction. The permittee does not propose to

use terraces for constructing the refuse pile. The pile will be reclaimed by placing 4 feet of material over the refuse. The permittee committed to having the refuse pile inspected as stated in the R645 rules.

### **Impounding Structures**

The permittee does not propose to construct any impoundments from coal mine waste.

### **Burning and Burned Waste Utilization**

The plan to extinguish coal mines fire is in Appendix 5-3. The plan is adequate.

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

The permittee does not propose to dispose of coal mine waste underground.

### **Excess Spoil**

The permittee does not anticipate that any excess spoil will be generated.

### **Findings:**

The permittee met the minimum requirements of this section.

## **HYDROLOGIC INFORMATION**

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

### **Analysis:**

#### **Sedimentation Ponds**

The general plan for this site is to drain runoff from the disturbed area into a single sedimentation pond for treatment prior to discharge. Site drainage and design details are described in Appendix 7-4. Drainage areas which flow to the pond are shown on Plate 7-2 and described in Tables 2 and 3.

The sediment control plan and proposed sediment pond designs have been prepared and certified by a Registered Professional Engineer, State of Utah, Plate 7-6.

The proposed pond is not located where failure would expect to cause loss of life or serious property damage. As shown in Appendix 7-4, the proposed pond embankment will have a minimum of 3H : 1V on the inside slope and 2H : 1V on the outside. These slopes, along with the 95% compaction requirement, will ensure a static safety factor in excess of 1.3.

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### Other Treatment Facilities

Appropriate sediment control measures will be designed, constructed and maintained using the best technology currently available to prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area and meet the effluent limitations under R645-301-751.

### Impoundments

- (1) The permittee proposes to construct only one sediment pond that will be in the southeast corner of the disturbed area (See Plate 5-2). The sediment pond will have a maximum storage capacity of 12 acre feet and a height of 11 feet. Therefore, the pond does not meet the criteria for an MSHA pond.
- (2) The permittee had the sediment pond design certified by Dan Guy, who is a registered professional engineer.
- (3) In Appendix 5-5 the permittee shows the results of the safety factor analysis. The lowest safety factor is 2.35 for the cut slopes under saturated conditions. The safety factor exceeds the 1.3 requirement.
- (4) The permittee did include the analysis of the physical and engineering properties of the foundation materials.
- (5) The permittee states in Appendix 5-5 that the pond is protected against sudden drawdown. The permittee did the safety factor calculation at the Division's Price Field Office.
- (6) The permittee states that the pond design was approved by the State Engineers Office. The permittee gave the Division a copy of the State Engineers' approval letter.
- (7) The permittee committed to have the external slopes of the impoundment planted with an approved seed mix to help prevent erosion and promote stability.
- (8) There are no highwalls associated with the impoundment.
- (9) The permittee committed to conduct inspections as stated in the Utah Coal Rules.

### Casing and Sealing of Wells

There are no wells planned for the Lila Canyon Mine; however, if any wells are installed in the future, they will be permanently sealed in accordance with Section 765 of the Coal Mining Rules (Section 765).

**Findings:**

The permittee has met the minimum requirements of this regulation.

**SUPPORT FACILITIES AND UTILITY INSTALLATIONS**

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

**Analysis:**

The permittee committed to install and operate all utility installations and support facilities as required by R645-301-526.200

**Findings:**

The permittee has met the minimum requirements of this regulation.

**SIGNS AND MARKERS**

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

**Analysis:**

The permittee committed to place signs and markers as required by the Utah Coal Rules.

**Findings:**

The permittee has met the requirements of this section.

**USE OF EXPLOSIVES**

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

**Analysis:**

The Division reviewed the general blasting information and found it adequate. R645-301-524.220 allows the permittee to submit a specific blasting plan separate from the MRP. The permittee has opted to submit a detailed blasting plan later.

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**Findings:**

The permittee met the minimum requirements of this section. Under the requirements of R645-301-524.200 the permittee opted to submit the specific blasting plan as a separate submittal. The Division approved the permittee's request to submit the blasting plan as a separate submittal.

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

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

**Analysis:**

**Affected Area Maps**

Plate 5-5 shows the areas where mining is expected to occur. Plate 5-2 shows the area scheduled to be disturbed. Those maps show the affected area.

The general area hydrology is identified in Plate 7-1. Plates 5-1 and 7-4 identify the effected area for the Lila Canyon area.

**Mining Facilities Maps**

Plate 5-2 shows the location of the mine facilities.

**Mine Workings Maps**

The Mine working map is located on Plate 5-5. The map contains a legend that details site information. The map also identifies the mining sequence.

**Certification Requirements**

All cross sections, maps and plans have been prepared and certified according to R645-301-512.

**Findings:**

The permittee met the minimum requirements of this section.

**RECLAMATION PLAN**

**GENERAL REQUIREMENTS**

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333,

-301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

## POSTMINING LAND USES

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

### Analysis:

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

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

### Findings:

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

## APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-270, -301-271, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

### Analysis:

The definitions of Approximate Original Contour (AOC) contained in SMCRA and the Utah coal rules are primarily statements of the objectives of post-mining backfilling and grading so that the area "closely resembles the general surface configuration of the land prior to mining" and "blends into and complements the drainage pattern of the surrounding terrain". At the same time, reclamation performance standards must be met, including controlling erosion, establishing mass stability and establishing permanent, diverse and effective vegetative cover. In some circumstances, replicating the original contour may only be possible at the expense of one or more reclamation performance standards. In others, it may be possible to achieve nearly exact original contour and simultaneously satisfy all the other regulatory requirements. Although the principles of regulatory construction suggest that specific regulatory requirements take precedence over general provisions, this directive is intended to reconcile the specific performance standard requirements of the regulatory program with the general definitions of AOC in a way that accomplishes the objectives of SMCRA.

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The underlying objectives of the AOC requirements relate to the assumption that post-mining features which mimic pre-mining features are most likely to quickly achieve mass and erosional stability, revegetation, hydrologic balance and productive post-mining land use, all of which are the objectives of the reclamation performance standards. AOC also addresses aesthetic considerations. In order to evaluate methods for achieving AOC, the underlying objectives and challenges of reclamation at the site in question must first be identified. In some circumstances, one objective of challenge of reclamation may be more significant than another. The methods for achieving AOC should reflect the relative significance of each objective and the interplay between each objective and the objectives of AOC in that circumstance.

The AOC land surface features are as follows:

**Final Surface Configuration:** The main question that is used to determine if the site meets this requirement is "Does the postmining topography, excluding elevation, closely resemble its premining configuration?" The Division does not have standards for evaluating this standard. The Division does rely on the judgement of the technical staff that reviews the reclamation plan. The staff reviewed the premining and post mining topographic maps and cross section and determined that this condition is met.

**All Spoil Piles to be Eliminated:** No spoil piles are associated with this site.

**All Highwalls to be Eliminated:** The permittee states in Section 553.120 the following:

Minor highwalls may be created with the development fo the rock slope portals. Upon completion of mining these entries will be seal as per Closure for Mine Openings Appendix 5-6 and highwalls will be eliminated during reclamation phase of the operation. During reclamation, suitable materials will be placed against the portals. This material will be shaped to eliminate or minimize the highwall and to bring the slope back to the approximate original contour.

Appendix 5-6 contains a typical (generalized) cross section for the portals. The cross sections show that the portals will be sealed and then backfilled a minimum of 25 feet.

Plate 5-9 shows the premining, operational and postmining cross sections for all portals. The portals areas will be backfilled during final reclamation to the approximate premining topography.

**Hydrology:** The main concerns with hydrology are that the drainages are restored and that sediment is controlled. The Division considers those conditions to be met when the hydrologic reclamation requirements are met.

Post-Mining Land Use: The Division considers the post-mining land use requirement for AOC to be met when the general post-mining land use requirements are met.

Variance from AOC: The permittee did not request a variance from AOC.

General Backfilling and Grading: The Division will discuss the general backfilling and grading requirements in the Backfilling and Grading section of this TA.

**Findings:**

The permittee met the minimum requirements of this section.

**BACKFILLING AND GRADING**

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

**Analysis:**

The general backfilling and grading requirements are as follows:

Achieve AOC: The AOC issues are discussed in the AOC section of this TA.

Elimination of Highwalls, Spoil piles and Depressions: Highwall elimination is discussed in the AOC section of this TA. No spoil piles will be associated with the site. No depressions are shown on Plate 5-6, Post Mining Topography.

Slope stability: The reclaimed slopes are shown to have slopes less than 1.5H to 1V, which is the approximate angle of draw and the slope stability analysis in Appendix 5-5 show that the reclaimed slopes will meet or exceed a 1.3 safety factor.

Minimize Erosion and Water Pollution: The Division considers these requirements to be met when the hydraulic reclamation requirements are met. Those requirements are discussed in other section of the TA.

Post-Mining Land Use: The Division considers the post-mining land use requirement to be met when the general reclamation post-mining land use requirements are met.

Disposal of Coal Mine Waste: All coal mine waste will be disposed in approved refuse piles, which are discussed in the Refuse Pile section of the TA.

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Exposed Coal Seams and Acid- and Toxic-Forming Materials and Combustible Materials: The permittee has committed to cover all such materials with 4 feet of fill materials.

**Findings:**

The permittee met the minimum requirements of this section.

**MINE OPENINGS**

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

**Analysis:**

The permittee committed in Section 529 of the PAP to seal all underground openings according to Division requirements when no longer needed. Appendix 5-6 has plans for portal sealings. The portals will be sealed according to Division and MSHA requirements.

Mine entries that are temporarily inactive, but has a further projected useful service under the approved permit application will be protected by barricades or other covering devices, fenced, and posted with signs to prevent access into the entry and to identify the hazardous nature of the opening. These devices will be periodically inspected and maintained in good operating condition by the person who conducts the activity.

**Findings:**

The permittee met the minimum requirements of this section.

**ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

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

**Analysis:**

The permittee committed to reclaim all roads including removal of bridges and culverts in the disturbed area. The road surfaces will be removed and buried on site and covered with a minimum of two feet of material. The roads will be ripped and top soiled before seeding.

**Findings:**

The permittee met the minimum requirements of this section.

## HYDROLOGIC INFORMATION

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

### Analysis:

#### **Ground-water Monitoring**

There is no specific reclamation ground-water monitoring plan. Ground-water monitoring, if implemented, will continue through mining and reclamation until bond release (Section 731.214).

#### **Surface-water Monitoring**

Surface-water monitoring will continue through mining and reclamation until bond release. Locations, parameters and/or sampling frequency (other than UPDES discharge points) may be modified by the Division

#### **Acid and Toxic-forming Materials**

The slope-rock material will be examined and tested as necessary to determine acid- and toxic-forming potential (Section 536). It has not been established that the underground development waste that will come from construction of the tunnels can be properly disposed of at a refuse pile and that reclamation of a refuse pile can be accomplished. The permittee states that with over 100-years of mining experience at the adjacent Sunnyside Mines there have been no proven problems with acid- or toxic-forming materials (Section 6.5.5.1). The reclamation plan specifies 4 feet of undifferentiated subsoil and topsoil will be placed over the refuse pile. The slope-rock underground development waste used to build the pads will be left in place for final reclamation and buried with 4 feet of undifferentiated subsoil and topsoil (Chapters 2, 5, and 7, and Appendix 5-7).

#### **Transfer of Wells**

There are no wells planned for the Lila Canyon Significant Revision; however, if any wells are installed in the future, they will be permanently sealed in accordance with Section 765 of the Coal Mining Rules (Section 765).

#### **Discharges Into an Underground Mine**

No discharges planned to underground mines.

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### **Gravity Discharges**

Based on water monitoring results and historical information, it is unlikely water levels will ever reach the intersection of the tunnel and coal seam, and therefore gravity discharge from the surface entries of the mine is also unlikely.

Section 731.520 explains why gravity discharges from the mine are not expected after mine closure.

The coal seam to be mined dips away from the portal site at approximately 10%. If water is encountered in the mining, it will likely be at a static level far below the exposed outcrop or rock slopes. This may result in some possible mine discharge from pumping, but not from gravity.

### **Water Quality Standards and Effluent Limitations**

A reclamation surface and groundwater was not submitted.

### **Diversions**

All disturbed and undisturbed area diversions will be removed during the backfilling and recontouring reclamation period. The permittee has not provided plans to show how Culvert UD-2 will be removed and a headwall established to direct flows under the roadbed.

### **Stream Buffer Zones**

There will be no development within 100 feet of a perennial stream.

### **Sediment Control Measures**

Upon completion of operations, the disturbed area will be reclaimed. All drainage and sediment controls are considered temporary and will be removed when no longer required. The sediment pond will remain in place until Phase II Bond Release requirements have been met. At that time, the pond will be removed and the area will be reclaimed in accordance with the approved plan.

Upon removal of the sediment pond, the area will be regraded and revegetated in accordance with the approved reclamation plan.

### **Siltation Structures**

See Appendix 7-4 for details on removal of siltation structures.

As indicated in Section 761, the sediment pond will remain in place until the stability and vegetation requirements for Phase II Bond Release are met. This will be a minimum of 2 years after the last augmented seeding. At this time, the pond will be removed and the area reclaimed.

### **Sedimentation Ponds**

The proposed sediment pond is considered temporary, and will be removed during final reclamation. The pond is designed in compliance with the requirements of the following sections, as required:

The pond will be maintained until the disturbed area has been stabilized and revegetated. Removal shall not be any sooner than 2 years after the last augmented seeding;

Upon removal, the pond area will be reclaimed and reseeded according to the reclamation plan.

### **Discharge Structures**

The sedimentation will be used until Phase II bond release is received. Then the pond will be removed, the area recontoured and revegetated.

### **Impoundments**

No impoundments will be left on site after reclamation.

### **Casing and Sealing of Wells**

There are no new wells planned for the Lila Canyon Significant Revision; however, if any wells are installed in the future, they will be permanently sealed in accordance with Section 765 of the Coal Mining Rules (Section 765).

### **Findings:**

The permittee has met the minimum requirements of this section.

## **CESSATION OF OPERATIONS**

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

### **Analysis:**

The permittee committed to comply with R645-301-515 and R645-301-541 for temporary and permanent cessation. If there is temporary cession that will last more than 30 days the permittee will notify the Division. After permanent cessation the permittee committed to remove all equipment and surface structures.

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**Findings:**

The permittee met the minimum requirements of this section.

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

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

**Analysis:**

**Affected Area Boundary Maps**

Plate 5-4 shows the boundaries of all lands that are expected to be affected by the Lila Canyon project. Plate 5-6, and Plate 5-7A and Plate 5-7B show the reclamation topography and cross section. Since the reclamation work will be completed in 6 months, the permittee does not need to show the timing and sequence of reclamation.

**Bonded Area Map**

Plate 5-6 shows the area for which a reclamation bond will be posted.

**Reclamation Backfilling and Grading Maps**

Plate 5-6, and Plate 5-7A and Plate 5-7B show the reclamation contours and cross sections.

**Reclamation Facilities Maps**

The permittee will not leave any facilities after final reclamation. Therefore, such a map is not needed.

**Final Surface Configuration Maps**

Plate 5-6 shows the proposed final surface topography.

**Reclamation Surface and Subsurface Manmade Features Maps**

The permittee does not propose to leave any surface or subsurface manmade features in the reclaimed area.

**Certification Requirements**

All cross sections, maps and plans required by R645-301-722 as appropriate, and R645-301-731.700 have been prepared and certified according to R645-301-512 (Section 712).

**Findings:**

The permittee met the minimum requirements of this section.

**BONDING AND INSURANCE REQUIREMENTS**

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

**Analysis:**

**Form of Bond (Reclamation Agreement)**

The Division will not review this section until the bond has been posted.

**Determination of Bond Amount**

The permittee gave the Division an outline for calculating reclamation costs estimates in Appendix 8-1. The Division used the information the information in Appendix 8-1, Chapter 3 and Chapter 5 to calculate the reclamation cost estimate. The Division determine that the permittee must post an additional \$1,556,000 (2006 dollars) in bond for the Lila Canyon project. The bond was last adjusted on May 21, 2001.

**Terms and Conditions for Liability Insurance**

The permittee have adequate insurance.

**Findings:**

The technical requirements of this section of the regulations are considered adequate in regard to the proposed permit changes for the addition of the Lila Canyon project. However, the permittee must post the additional bond prior to the amendment being formally approved. The Division calculated the reclamation costs for the Lila Canyon project to be \$1,556,000 (2006 dollars).

**RECOMMENDATION:**

The Division should approve the technical information in the engineering and bonding sections of the Lila Canyon amendment. However, formal approval of the amendment should not occur until the permittee post additional bond in the amount of \$1,556,000.