

# TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

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October 23, 2008

TO: Internal File

THRU: James D. Smith, Permit Supervisor *JDS 12/31/08*

FROM: Wayne H. Western, Environmental Scientist III *WHW*

SUBJECT: Detailed Design Changes, UtahAmerican Energy, Inc., Horse Canyon Mine, C/007/0013 and Task 3017

**SUMMARY:**

On July 22, 2008, the Permittee submitted an amendment to change the designs for the Lila Canyon surface facilities. The Permittee proposed the changes to increase the efficiency of the surface operations. This memo deals with engineering and bonding issues.

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**TECHNICAL ANALYSIS:**

**OPERATION PLAN**

**MINING OPERATIONS AND FACILITIES**

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

**Analysis:**

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

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

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

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

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

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

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

**Findings:**

Information provided in the submittal meets the Mining Operations and Facilities requirements of the regulations.

**ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

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

**Analysis:**

**Road Classification System**

The Permittee meets the requirements of R645-301-527 by classifying all roads as a primary road (Section 527.100). The two primary roads within the permit area are the New Mine Facility Road and the New Slope Access/Portal Access Road.

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

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

**Plans and Drawings**

The Permittee met the requirements of this section. The Permittee provided the following information:

- The Permittee provided the Division with maps and cross sections that show the road widths, gradients, surfacing materials.
- The Permittee does not propose to locate a road in a intermittent or perennial stream.
- The Permittee does not propose to construct a ford.
- The Permittee does not propose to alter to relocate a natural stream channel in connection with road construction.

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- The Permittee does not propose to construct any low-water crossings.
- The Permittee described in section 542.600 of the amendment.

### **Performance Standards**

The Permittee provided the following information:

- The Division considers that the road designs will control or prevent erosion, siltation, and the air pollution if the general hydrology and air pollution requirements have meet met.
- The Division considers that road designs will control or prevent damage to fish, wildlife and other habitat if the biology requirements have been met.
- The Division considers that the road designs will control or prevent additional contributions of suspended solids to streamflow or runoff outside the permit area if they general hydrology requirements have been met.
- The Division considers that the road designs will neither cause or contribute to violation of State or federal water quality standards is the hydrology requirements have been addressed.
- The Division will inspect the site on a monthly basis during operations to monitor of violations of State and federal laws.
- The Division considers that the roads will not alter the normal flow of water if the general hydrology requirements have been met.
- The Permittee will not locate any roads in intermittent or perennial streams.
- The Permittee committed to use nonacid and nontoxic-forming substances for road surfacing in Section 534.120 of the MRP.
- The Division will conduct monthly inspections and if necessary take action to ensure that the Permittee maintains all roads according to performance standards. In addition, the Permittee committed in Section 527.240 of the MRP to repair all roads if they are damaged by a catastrophic event.

In addition to the above mentioned requirements, all primary roads must meet the following:

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- The Permittee must provide the Division with as-built drawings. The Division will take action to make sure that the as-built drawings are provided.
- The Permittee did not provide the Division with information on the roads' safety factor.
- The Division considers that the road designs will minimize erosion if the general hydrology requirements have been met.
- The Permittee does not propose to construct fords.
- The Division considers that drainage controls will be adequate if the hydrology requirements have been met.
- The Permittee stated in Section 534.320 what they would use trock, crushed gravel and asphalt to surface the roads. Those materials are similar to what other operators use.

### Primary Road Certification

The Permittee did not meet the requirements of this section. A professional engineer did not individually stamp the maps and cross sections in Appendix 5-4.

### Other Transportation Facilities

The Permittee met the requirements of this section. The only other transportation facilities that the Permittee will have are conveyors. The Permittee listed the conveyors in Section 520. Additional information on Plate 5-2 and Appendix 5-4.

### Findings:

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Before approval, the Permittee must provide the following in accordance with:

**R645-301-534-140**, The Permittee must show that all road embankments have a minimum safety factor of 1.3.

**R645-301-512.250**, The Permittee must have each map and cross section in Appendix 5-4 certified by a registered professional engineer.

## 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.

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**Analysis:**

**Disposal Of Noncoal Mine Wastes**

The Permittee met the requirements of R645-301-528.330 and R654-301-754 by including plans to dispose of noncoal mine wastes in Sections 528.330, and 754.

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

**Coal Mine Waste**

The Permittee did not meet the requirements of R645-301-528.320. The Permittee describes a temporary refuse storage area and a rock slope disposal area in the submittal.

The Division allows temporary storage site for refuse material that will be shipped off site. To avoid confusion, the Division requires that the Permittee state the maximum amount of material that will be stored at the temporary storage site and the maximum amount of time that material can remain on site.

The Permittee stated that they want to ship the refuse material to the Wildcat Loadout, which is a sister facility. In addition, the Permittee also stated that in Appendix 5-7 that the Permittee could also ship the material to another approved site.

The Permittee can ship coal mine waste from the Horse Canyon Mine to another permitted site. In order to comply with R645-301-536.510, the Permittee must also modify the Wildcat Loadout MRP to state that coal mine waste from the Horse Canyon Mine will be shipped to the Wildcat Loadout. In addition, the Permittee must remove the phase or other approved location. If another site is needed the Permittee can modify the Horse Canyon MRP when the other sites are identified.

In Section 528.300 through 528.321 and Section 536 through 536.900 and Section 553.200 through 553.300 and Sections 553.240 through 553.300, the Permittee proposed to modify the approved MRP by referring to underground development waste as rock slope material and by describing the refuse pile as a rock slope disposal site. The Coal Rules specifically define underground development waste as coal mine waste, which must be disposed of in a refuse pile. The Permittee should use the wording in the approved MRP where practical to describe the underground development waste from the access tunnels.

In addition, the Permittee must either continue with the approved testing schedule for the underground development waste or justify reducing the sampling schedule from five time to three.

The Permittee must also include revised slope stability calculations for the refuse pile.

### **Refuse Piles**

The Permittee did not meet the requirements of R645-301-528.322 for designing the refuse pile in accordance with all applicable regulations (Section 528.322, Map 5-2, and Appendix 5-7). The Division outlined the deficiencies in the coal mine waste section of the TA.

The Division received some public comments that placement of coal mine waste with dump trucks would violate R645-301-528.320 because of the prohibition of placement of coal mine waste by end or side dumping. In *A Dictionary of Mining, Mineral, and Related Terms* compiled and edited by Paul W. Thrush and Staff of the Bureau of Mines published 1968, the term end dumping is defined as: "Process in which earth is pushed over the edge of a deep fill and allowed to roll down the slope". The placement of coalmine waste in the refuse pile will be done in a controlled manner and the material will not roll down the slope. The use of dump trucks is common in Utah for the transportation and placement of coalmine waste in refuse piles. Neither the OSM nor the Division has ever had any concerns about the use of dump trucks for moving and placing coalmine waste.

### **Findings:**

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Before approval, the Permittee must provide the following in accordance with:

**R645-301-536 and R645-301-121.200, and R645-100**, The Permittee must use defined terms when referring to underground development waste. The term rock slope material is not defined and therefore can be confusing to the reader. In addition, the final disposal site for the underground development waste must be referred to as a refuse pile and not rock slope material.

**R645-301-536.510 and R645-301-121.200**, The Permittee must clearly state in Section 520 of the MRP under the subheading of Refuse Pile and in all other sections of the MRP that there will be a temporary storage area for refuse and refer to that

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area as something other than a refuse pile. The Permittee must state specifically that maximum amount of material that will be stored at the site and the maximum duration that the material will be allowed to remain on site. The Permittee must also specifically state where the material will be shipped. In order for the Division to allow coal mine waste to be shipped off site the MRP for the receiving site must specifically state that material from the Horse Canyon Mine will be permanently disposed of on site. In addition, the Permittee must either continue with the approved testing schedule for the underground development waste or justify the revised sampling schedule.

**R645-301-536 and R645-301-536.110 and R645-301-121.200**, The Permittee must update Appendix 5-7 of the MPR. At a minimum, the Permittee must provide new slope stability calculations to demonstrate that the refuse pile will have a minimum safety factor of 1.3. In addition, the Permittee must also update all other section of Appendix 5-7 that have changed because of the new location.

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

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

### Analysis:

#### Affected Area Maps

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

#### Mining Facilities Maps

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

#### Mine Workings Maps

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

### **Certification Requirements**

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

### **Findings:**

The information provided in the amendment met the requirements of the Maps, Plans, and Cross Sections in the Mining Operations Section of the regulations.

## **RECLAMATION PLAN**

### **GENERAL REQUIREMENTS**

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

### **Analysis:**

The Permittee met the requirements of this plan. The Permittee shows the estimated reclamation timetable on Table 3-3.

### **Findings:**

The information provided in the amendment met the requirements of the General Reclamation Requirements of the regulations.

## **APPROXIMATE ORIGINAL CONTOUR RESTORATION**

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

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**Analysis:**

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

- Restoring slopes at a similar length and grade as the surrounding topography (Section 553.110 and Plate 5-7A-1 through Plate 5-7B-3).
- Eliminate all highwalls by proper backfilling and grading (Plate 5-9 and 553.120).
- Eliminate all spoil piles. Note: no spoil will be generated at the site.(553.122)
- Return the area to a condition that will support the premining land use.

**Findings:**

The information provided in the amendment met the requirements for restoring the site to the approximate original contours.

**BACKFILLING AND GRADING**

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

**Analysis:**

**General**

The Permittee did not meet the requirements of this section. The Permittee must demonstrate that they will:

- Eliminate all highwalls, spoil piles, and depressions.
- Achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long term safety factor of 1.3.
- Minimize erosion and water pollution both on and off the site.
- Support the approved post mining land use.

Because the Lila Canyon site was not disturbed pre-SMCRA there are no spoil piles or underground development waste were present on site before post-SMCRA disturbance.

In Section 529.220, the Permittee states that there is no current need to return any waste to the underground workings.

In Appendix 5-7, the Permittee states that underground development waste will be temporarily stored in the location shown on Plate 5-2. Once enough material has been collected in the temporary refuse pile, the material will be transported by truck to UEI;s Wild Cat Loadout. The Permittee must specifically state the maximum amount of material that will be stored at the temporary site and the maximum amount of time that the material will be stored.

The Permittee did not address how exposed coal seams, acid- and toxic forming materials exposed will be handled. Exposed coal seams cannot be transported to the Wildcat refuse pile for treatment. In addition, the Wildcat Load Out must be permitted to accept coal mine waste from Horse Canyon.

The information in the text is not consistent with the information on the cross sections. The refuse pile (rock slope material) is shown on cross sections 13+00 and 14+00. Those cross sections show that the underground development waste will be removed at reclamation. That information is not consistent with the text.

### **Previously Mined Areas**

The Lila Canyon extension does not contain any previously disturbed area.

### **Findings:**

The information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Before approval, the Permittee must provide the following in accordance with:

**R645-301-553.300**, The Permittee must include information about how the coal seams such as by the fan portal and any acid- and toxic forming materials will be dealt with.

**R645-301-553.350 and R645-301-121.200**, The Permittee must specifically state in Appendix 5-7 that the material in the temporary refuse pile will be stored on site no longer than a specific amount of time and in addition, once the a specific amount of material has been placed in the refuse pile the Permittee will ship the material off site.

**R645-301-553.250**, The Permittee must show on the cross sections and profiles the final configuration of the site on cross section 13+00 and 14+00. The current cross sections show that underground development waste will be stored on the site during the operational phase but the cross sections show that the underground development waste will be removed at reclamation.

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## **MINE OPENINGS**

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

### **Analysis:**

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

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

### **Findings:**

Information provided in the Permittee met the Mine Openings requirements of the regulations.

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

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

### **Analysis:**

#### **Reclamation**

The Permittee met the requirements for this section of the regulations by including plans (Section 542.600) to reclaim all roads within the disturbed area boundary as soon as they are no longer needed for mining and reclamation operations. This reclamation will include:

- Closing roads to traffic.
- Removing all bridges and culverts unless approved as part of the postmining land use.
- Removing or otherwise disposing of road-surfacing materials that are incompatible with the postmining land use and revegetation requirements.

- Reshaping cut and fill slopes as necessary to be compatible with the postmining land use and to complement the natural drainage pattern of the surrounding terrain.
- Protecting the natural drainage patterns by installing dikes or cross drains as necessary to control surface runoff and erosion.
- Scarifying or ripping the roadbed, replacing topsoil or substituting material and revegetating disturbed surfaces.

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

### **Retention**

The Permittee states in Section 542.600 that there will be no roads left in the disturbed area after reclamation.

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

### **Findings:**

Information provided in the Permittee met the Reclamation - Road Systems and Other Transportation Facilities requirements of the regulations.

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

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

### **Analysis:**

#### **Affected Area Boundary Maps**

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

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### **Bonded Area Map**

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

### **Final Surface Configuration Maps**

The Permittee met the requirements for final surface configuration maps. Plate 5-6 shows the contours within and for at least 100 feet outside the disturbed area boundaries. The contour intervals are 5-foot. The Division considers the Plate 5-6 adequate to show the final surface configuration.

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

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

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

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

### **Certification Requirements.**

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

### **Findings:**

Information provided in the amendment met the Maps, Plans, and Cross Sections of Reclamation Operations requirements of the regulations.

## **BONDING AND INSURANCE REQUIREMENTS**

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

### **Analysis:**

#### **Determination of Bond Amount**

The Division determined that the reclamation cost for the Lila Canyon Extension project must be a minimum of \$2,306,000 in 2013 dollars, based on the information provided in Appendix 8-1. The current bond for the Lila Canyon Extension is \$1,686,000. Therefore, the Permittee must increase the bond amount by \$620,000.

### **Findings:**

The information provided in the amendment is not considered adequate to meet the requirements of this section. Before approval, the Permittee must provide the following in accordance with:

**R645-301-830.200**, The Permittee must increase the bond for the Lila Canyon Extension project by a minimum of \$2,306,000. In addition, the Permittee must include updated reclamation cost estimates into the MRP. The Division will provide the Permittee with a copy in either electronic or paper copy.

### **RECOMMENDATIONS:**

The Division should deny the amendment until all of the above mentioned deficiencies have been addressed.