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

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March 3, 2001

TO: Internal File

THRU: Dave W. Darby, Team Lead 

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

RE: Lila Canyon Round 5, Utah American Energy Inc., Horse Canyon Mine, C/007/013-SR98(1)-5

SUMMARY:

The Division reviewed the January 19, 2001 submittal for the Lila Canyon project at the Horse Canyon Mine. The Division found the Environmental Resource information to be correct in the earlier reviews of the project and those reviews were not included in this TA. The Division found several items still need to be addressed.

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.

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

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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 shown 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 does not offer any protection from the southern edge of the pond that is located within 100 feet of the public road.

The permittee needs to install the chain link fence near that part of the southern edge of the pond that is within 100 feet of the county road.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-521.133 and R645-301-526.116, The permittee must show that the public will be protected from mining activities that occur within 100 feet of the public road. The permittee must show 1) that public will be protected from the southern portion of the pond that is within 100 feet of the public road, and 2) the location of the right-of-way for the road on Plate 5-2, the Division needs that information to determine if the fence and pond are in the proper locations.

COAL RECOVERY

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

Analysis:

R645-301-522 requires the permittee to give a description of the measures to be used to maximize the use and conservation of the coal reserves. The extraction ratio and the supporting calculations must be included in the coal recovery plan. Without that information the Division is unable to determine if coal recovery plan is adequate.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-522 and R645-301-525.240, The permittee must give the Division a detailed coal recovery plan. The information in the January 19, 2001 submittal consists of references for pillar design. Without more detailed design calculations the Division is unable to determine if maximum economic coal recovery will occur. Note: A copy of the R2P2 or a letter from the BLM stating that the R2P2 has been approved will help the Division made a determination of maximum economic coal recovery.

R645-301-122, The permittee must supply the Division with a copy of the R2P2 since they reference the document in the coal recovery and subsidence section of the permit. The Division will store the R2P2 in the confidential file upon request.

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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.

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 2nd mining being done within that area. Initially a 200 foot grid along with baseline photograph will be established prior to any 2nd 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.

The wording about when the subsidence monitoring program will cease is confusing. The permittee must clearly state that at a minimum subsidence monitoring will continue for a minimum of 5 years after mining ceases. If at the end of the 5 year period the annual subsidence in any of the 3 prior years measures more than 10% highest annual subsidence amount subsidence monitoring will continue until there are 3 consecutive years where the annual subsidence amount is less than 10% of the highest annual subsidence amount

- (4) The permittee state 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.

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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 lose.

- (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:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-525.440 and R645-301-121.200, The permittee must clearly state how long the subsidence monitoring program will last and under what circumstances the program will be terminated. The subsidence monitoring program must last a minimum of 5 years. Before the subsidence monitoring program is terminated there must be a minimum of 3 consecutive years where the annual subsidence is less than 10% of the highest annual subsidence.

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.

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- (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 registered 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 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 placed 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.

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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.

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.

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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.

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. The Division does not consider Plate 5-2 to be adequate. The deficiencies are show in the findings section.

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:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-521, The disturbed area boundaries shown on Plate 5-2 and other maps must be show the areas where the permittee will or is likely to cause surface disturbance. The permittee needs to include the following areas into the disturbed area 1) there must be access to the sediment pond, the permittee does not have access to the pond on the west side because of the chain link fence and the land on the south, east and north side is all undisturbed, 2) the disturbed area boundary must include culvert UC-1 and all of culvert UC-2, 3) ditches DD-1 and DD-12 must be included in the disturbed area, when Plate 7-5 and Plate 5-2 are over laid those ditches are shown to be outside the disturbed area boundary.

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.

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.

Since Appendix 5-6 was not included in the submittal the Division cannot review that material. The permittee must reword Section 553.120. Since the portals will be located in a Post-SMCRA area all highwalls must be completely eliminated not just minimized. See R645-301-553.120.

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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:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-553.120, The permittee must change the wording in Section 553.120 to show that all highwalls will be eliminated. Since the site is Post-SMCRA no highwall or highwall remnants can be left.

R645-301-553.120, The permittee must include Appendix 5-6 so that the Division can review the highwall elimination plan. Appendix 5-6 must have cross section for each portal so that the Division can determine if that will be properly reclaimed.

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.

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.

TOPSOIL AND SUBSOIL

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

TECHNICAL MEMO

Analysis:

Chapter 2, Soils, Sections 240 through 244, discusses the soils reclamation plan for the proposed Lila Canyon Mine. The Analysis section discusses reclamation information as follows:

- Soil Redistribution
- Soil Nutrients and Amendments
- Soil Stabilization

Soil Redistribution

Section 240, Reclamation Plan, describes the steps taken for reclamation. Reclamation will begin once all surface facilities and structures have been demolished and removed. Disturbed areas will be restored to approximate original contour (AOC) using pad material. *Subsoil from Soil Map Units SBJ, DSH, and VBJ used as construction fill need to be identified and used appropriately during reclamation as root zone subsoils within these areas as follows:*

- *Identify what pad and mine areas containing subsoil will be graded to AOC.*
- *Identify methods for insuring that subsoil "construction fills" are used appropriately as root zone soils.*

Section 241 states that after AOC is achieved, the disturbed surface will be scarified where practical, prior to soil redistribution. The rippers found on the rear of a dozer will be used to "scarify" the disturbed surface. Ripping will be on a minimum of 6 feet spacing.

Soil replacement volumes are shown in the following table. Soil replacement includes topsoil placement and 4 feet of soil cover over the refuse area.

Soil Replacement Reclamation Needs	Soil Depth (inches)	Acres	Soil Volume (cubic yards)
Rock Slope & Waste Rock Storage	30^	3.4	13,307
Topsoil* SBG	18	11.10	26,873
Topsoil* VBJ	18	3.87	9,364
Topsoil* XBS	12	3.87	6,250
Topsoil* DSH	18	1.36	3,291
Topsoil* RBL	8	2.35	2,524
Topsoil* RBT	6	0.88	709
Total			62,318

* Since the A horizons are less than 6 inches, the plan identifies topsoil as the top 18 inches.
 ^ Does not include the 18 inch topsoil placement.

After topsoil redistribution, pocking will be the primary method for roughening the surface. Pocking is described in Figure 1, Appendix 5-8 as imprinting the soil surface with a pattern of depressions measuring approximately 36 inches across by 8 inches deep. The purpose for pocking is to capture and retain moisture, and provide a cradle for seedlings and vegetation. Best available technology will be used for enhancing the ability of the soil to absorb moisture.

Section 242.100 states: "previously stockpiled topsoil will be redistributed on the same areas in a thickness which approximates the reclaimed thickness on the scarified, post-mining graded surface." The plan states that every reasonable effort will be made to replace the same thickness of salvaged soil to each respective area.

On flat areas, soil will be reapplied using road grader and/or crawler tractor. On steep slope areas, soil will be reapplied using a front-end loader, crawler tractor, and/or trackhoe. Boulders will be replaced to achieve a near natural surface condition. Alleviating or minimizing soil compaction is not discussed. *Describe methods for minimizing and alleviating compaction of fill and replaced subsoil and topsoil.*

Soil Nutrients and Amendments

Section 241 states that an inoculum will be applied to the soil to help assist in reactivating and regenerating soil activity for soil organisms, bacteria, mycorrhizae and mycelium. The seed mixture will be either hand broadcast over the area and raked into the soil surface, or sprayed on the surface using hydro-mulch. A wood fiber mulch will be hydro sprayed over the seed bed, then the surface will be sprayed with a tackifier. The tackifier will be applied at a rate of 50 pounds per acre.

Section 231.300 and Section 243 state that topsoil will be sampled and tested prior to replacement to determine what nutrients are necessary at reclamation time. Major nutrients include nitrogen, phosphorus and potassium content. Grab samples will be collected from the stockpile at various locations and depths. Fertilizer, if needed, will be applied to the topsoil prior to seeding and mulching activities. Sampling will either be performed by a Certified Soil Scientist, or by a person qualified by the operator and the Division of Oil, Gas and Mining.

Soil Stabilization

Section 244.100 states that vegetation will be the primary method for controlling erosion and fugitive dust. Other measures that will help in erosion control and soil stabilization is pocking and rock placement.

Section 244.200 states that pocking will be the primary method used to roughen the soil surface as per Figure 1 in Appendix 5-8. In addition, wood fiber mulch will be applied at a rate of 2,000 pounds per acre to the reclaimed areas that have been graded and covered by topsoil or substitute topsoil. The wood fiber mulch will be tacked to the surface with a tackifier. The tackifier will be applied at a rate of 50 pounds per acre.

TECHNICAL MEMO

Findings:

Information provided in the application is not considered adequate to meet the requirements of this section of the regulations. The permittee must provide the following in accordance with:

R645-301-241 and R645-301-234.300 through R645-301-234.320, Identify areas where subsoil from Soil Map Units SBJ, DSH, and VBJ was used as construction fills. Replace subsoil "construction fill" during reclamation as root zone subsoils. (1) Identify pad and mine areas containing subsoil "construction fills" that will be graded to AOC. (2) Identify methods to ensure that subsoil "construction fills" are used appropriately as root zone soils.

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.

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.

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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.

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.

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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. Plate 5-6 needs to show the center lines of the cross section.

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 Monitoring and Sampling Location Maps

There are no specific reclamation ground-water or surface-water monitoring plans. Ground-water and surface-water monitoring will continue through mining and reclamation until bond release (Sections 731.214 and 731.224).

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:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-542, The permittee must give the Division detailed cross section of the reclaimed surfaces. The cross section must also show highwall elimination.

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 reclamation plan has been approved.

Determination of Bond Amount

The permittee states that a detailed cost break down is included in Chapter 8, Appendix 8-1. The January 19, 2001 submittal did not include Chapter 8 or Appendix 8-1.

Terms and Conditions for Liability Insurance

The Division will not review this section until the reclamation plan has been approved.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-830.140, The permittee must give the Division detailed reclamation cost estimates based on the OSM reclamation bond calculation handbook. The permittee states that the reclamation cost estimates are in Chapter 8, Appendix 8-1. However, the January 19, 2001 submittal did not include Chapter 8 or Appendix 8-1.

RECOMMENDATION:

The Division should deny the Lila Canyon amendment until all outstanding issues are resolved.