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TECHNICAL MEMORANDUM
Utah Coal Regulatory Program

#3351

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October 20, 2009

TO: Internal File

THRU: Dave Darby, En Sci III / Geology / Hydrology / Team Lead *[Signature]*
James D. Smith, En Sci III / Permit Supervisor / Task Manager *[Signature]* 9/12/09

FROM: Peter Hess, En Sci III / Engineering / Bonding *[Signature]* PHH by SHS

RE: SURFACE DESIGN CHANGES, UtahAmerican Energy, Inc., Lila Canyon Mine, C/007/013 Permit Area "B", Task ID # 3351

SUMMARY:

The Division issued the permit for the Lila Canyon Extension of the Horse Canyon Mine on May 18, 2007.

On May 2, 2008, the Permittee submitted an application to the Division to permit design changes (Detailed Design Changes, Task ID # 2969) to the approved Mine plan. Task ID # 2969 was returned as deficient, and the Permittee was instructed to re-submit the entire application on July 8, 2008.

On July 22, 2008, the Permittee re-submitted "Detailed Design Changes" to the DOGM; this submittal was identified as Task ID # 3017. The Division initiated processing of this application, and technical memos were generated relative to bonding, biology, engineering, soils, and hydrology. These memos contained deficiencies, and the application was returned to the Permittee on January 26, 2009.

The Permittee responded to the deficiencies aired by the Division review of Task ID # 3017 on July 15, 2009.

This memo will address the adequacy of the Task ID # 3351 application as it relates to deficiencies aired relative to R645-301, Coal Mine Permitting, R645-500, Engineering and R645-800, Bonding and Insurance.

TECHNICAL ANALYSIS:

OPERATION PLAN

Coal Mine Permitting Requirements

In the review of Task ID # 3017, the Division identified the following deficiencies;

1) **“R645-301-121-200 –PHH, the discussion for disposal of mine development waste and coal processing waste must be re-written such that it is clear and concise”.**

Analysis:

The Permittee response, submitted July 15, 2009, (Task ID # 3351) states the following; “Sections discussing disposal of mine development waste and coal processing waste have been clarified.”

The submitted Task ID # 3351 continues to lack clarity as to where final disposal of coal processing waste from Lila Canyon will be accomplished. The Permittee references disposal at:

- 1) ECDC (a solid waste landfill) near East Carbon, Utah, and
- 2) The Wildcat Loadout in Consumers Wash / Wildcat Canyon, and
- 3) “or other approved facility”.

(Please refer to Appendix 5-7, and Section 528.321, Chapter 5 of Task ID # 3351).

The deficiency remains. The Permittee must do the following in order to meet the requirements of the R645 Coal Mining Rules;

- a) remove all references to coal processing waste disposal at the ECDC facility;
- b) Identify a facility permitted under the R645 Coal Mining Rules for the permanent disposal of coal mine waste or
- c) Permit a final disposal facility within the Lila Canyon permit area or

2) **“Plate 5-2 shows the powder and cap magazine storage site (as being located/PHH) on the topsoil storage pile.” “Please correct the Plate to show the storage location for the explosives magazine adjacent to, but not on the topsoil storage pile.”**

The Permittee's response of July 15, 2009, (Task ID # 3351) states that *"the Powder and Cap magazine location has been changed to the water tank pad"*.

A review of Plate 5-2 Surface Area / Official Disturbed Area Boundary Map indicates that the explosive and detonator storage magazines (identified as item # 35 in the Mine Facility List) are located on the south end of the water tank pad. Field inspections conducted at the site confirm that the water tank pad location for these storage magazines is correct. Plate 5-2 is P.E. certified by Mr. R. Jay Marshall, P.E., in accordance with the requirement R645-301-512.120 (521.167).

The Permittee has adequately addressed the deficiency relating to the location of explosive and detonator storage magazines, by relocating them to a safer site. They are depicted on a P.E. certified surface facility map which shows their location.

3) "Section 520 (Refuse Piles) and Appendix 5-7 refer to a Temporary Refuse Pile. Please provide the location of the Temporary Refuse Pile on Plate 5-2".

The Permittee's response states *"Plate 5-2 has been revised to show location of the mine development waste material. Appendix 5-7 and Section 520 has been re-written for clarity"*.

Plate 5-2, Surface Area shows Item # 27 on the Mine Facility List as the "temporary mine development waste" storage pile. Discussions with Mr. Marshall prior to the submittal of the Task ID # 3351 response determined that this temporary waste storage facility is for development waste which must be shipped outside of the Lila Canyon underground workings because of insufficient storage availability underground for waste material developed from the construction of ventilation overcasts, belt drive boom holes, sumps, etc. This temporary storage pile IS NOT A PERMANENT DISPOSAL FACILITY FOR COAL MINE WASTE and therefore does not need to meet the requirements relative to lift thickness, compaction, or outslope configuration. The geometric configuration of this pile in its temporary storage status would be a cone. Any failure of this type of structure would be small and the failed material volume would not leave the run-of-mine coal pile pad area. As is stated above, Plate 5-2 is P.E. certified, and meets the requirement for certification relative to R645-301-512.120 and 512.200.

Findings:

Task ID # 3351 is deficient. In accordance with the requirements of

R645-301-536, Coal Mine Waste;

The Permittee must clearly state where the coal mine waste generated by the screening plant at Lila Canyon will see final deposition. The material must be disposed of at a R645 permitted site, either within the C/007/013 permit area, or within an off-site

area approved by the Division for that purpose. The off-site area must be permitted under the R-645 Coal Mining Rules.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

In the review of Task ID # 3017, the Division identified the following deficiencies;

Topsoil Removal and Storage

R645-301-232.100-PHH, Topsoil Removal

R645-301-232.600-PHH, Timing

The Design Change submittal designated as Task ID # 3017 contained text in Appendix 5-7 Rock Slope Material / Refuse, on Page 2, Placement of Rock Slope Material (Refuse) which stated the following;

“Rock slope material (refuse) will be dumped into the hole created from the removal of the subsoil. The refuse will be placed in the hole in 12” lifts and compacted using a front end loader. Once the hole is filled to the planned level the subsoil will be placed over the top of the refuse in 12” lifts and compacted with a front end loader, then another hole will be constructed by removing subsoil adjacent to the previous hole. The topsoil removal and storage, subsoil removal, hole being filled with refuse, and subsoil replacement, procedure will be repeated as additional refuse disposal area is needed”.

Analysis:

The Division identified the Permittee’s proposed procedure for placement of the rock tunnel development waste as being deficient, in that R645-301-232.100 requires that “all topsoil will be removed as a separate layer from the area to be disturbed and segregated.” The Division interprets this process as meaning all topsoil must be removed and segregated by a single process or single operation, before other mining related activities can occur.

The Permittee’s proposed method did not describe removing all topsoil and segregating and storing this material, prior to removal of all subsoil and segregating that volume as single processes, but included other mining activities (i.e., burying rock tunnel material). This proposed method allows for contamination of topsoil and subsoil volumes and is too complicated of a process to monitor the recovery of required topsoil / subsoil volumes.

The Permittee responded to this deficiency by stating the following; *“the subsoil is considered growth media and is treated as topsoil”*.

This response is listed in “Response to Surface Deficiencies / July 15, 2009, on Page 4. However, the Permittee does not state where this commitment has been placed in the MRP.

In reviewing the deficiency aired under **R645-301-232.600-PHH, Timing**, the Division determined that the Permittee stated on Page 5 of the “Response to Surface Deficiencies “ dated July 15, 2009 that “Appendix 7-4 has been re-written using defined terms”, (i.e., terms defined within the R645 Coal Mining Rules). The Division determined that the reference to Appendix 7-4 is a typographical error, and the statement should reference Appendix 5-7.

The Task ID # 3351 submittal contains a revised Appendix 5-7, Rock Slope Material Mine Development Waste which contains the commitment previously made under Ground Preparation (Page 2) as follows; *“Vegetation and topsoil (subsoil is treated as topsoil) will be removed from the proposed rock slope storage area and stored in the topsoil pile as shown on Plate 5-2”*.

The Permittee has committed to removal of all topsoil as one process, and committed to a second removal process for the subsoil in the shop / warehouse pad where the rock tunnel development waste is to be placed.

Findings:

The commitments made in the revised Appendix 5-7 meet the regulatory requirements in R645301-232.100 and 232.600.

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:

Coal Mine Waste

Refuse Piles

The Division identified the following deficiencies during the review of the previous Detailed Design Changes submittal, Task ID # 3017;

1) **R645-301-513.400, R645-301-528.320, PHH, Refuse Piles;** *“the Division believes the Task ID # 3017 application lacks clarity as far as the disposal of (coal/PHH) mine wastes within the Mine’s permit area. If the Permittee intends to place coal processing waste in any of the fill areas at the Lila Canyon Mine, those areas must meet the R645 and 30 CFR requirements for refuse piles. The Permittee must realize that areas designated for permanent disposal of coal processing waste cannot be used for other mining related activities / facility construction”.*

2) **R645-301-536, R645-301-121.200, and R645-100,WHW, Refuse Piles;**

“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”.

3) **R645-301-536, and R645-301-536.110, and R645-301-121.200-WHW, Refuse Piles;**

“The Permittee must update Appendix 5-7 and the MRP. 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 sections of Appendix 5-7 that have changed because of the new location.”

4) **R645-301-553.250, Refuse Piles – WHW;** *“The Permittee must show on the cross sections and profiles the final configuration of the site on cross sections 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.”*

Analysis:

The material generated from the development of the Lila rock tunnels is being permanently stored in the pad construction for the shop / warehouse. This has already been approved within the original mine plan application, prior to issuance of the DOGM permit for the Lila Canyon Mine / permit area “B”. The rock tunnel material is mainly sandstone, and is of the same chemical characteristics as the sandstone talus resting on the undisturbed slopes in the area. The material will generally not be backstowed into the rock tunnels or otherwise removed. However, as is required under the R645 Coal Mining Rules for permanent closure of underground mine openings, a minimum of 25 feet of backfill must be placed out by permanent concrete block seals. Appendix 5-6, Closures for Mine Openings, Figure 4.6.2-1 “Typical Final Reclamation Portal Seal” indicates that

all of the fill material which will be used for backing the Lila Canyon Mine entries is to be non-toxic and non-combustible". Not all of the rock slope material to be stored in the Shop / warehouse pad area, will be acceptable to meet this "non-toxic" criteria.

The Division's analysis of the reported soil sample chemistry of the mudstone sample taken (date of sample July 30, 2009 / 450 tunnel depth) is that the SAR values are extreme and the selenium values are unsuitable within the surface four feet. Upon completion of the Lila Canyon rock slopes, approximately 28,000 LCY of material will be buried within the Shop / Warehouse pad, and the coal storage pad. It is important to note that the rock tunnel development material will more than likely be re-shaped by re-grading the shop / warehouse pad and the coal storage pad to the final surface configurations.

Section 553.300, Chapter 5, Page 66 of the approved Lila Canyon MRP states that four feet of cover will be placed over any acid or toxic waste produced during mining at the Lila Canyon site. The meeting of this requirement will ensure that any toxic materials will be buried to the point that they should have no effect on plants or grazing animals in the area.

The Permittee's response adequately addresses the previous deficiency aired under **R645-301-553.250** for refuse piles.

5) **R645-301-553.350, and R645-301-121.200 – WHW**; *"the Permittee must provide information about how materials at the coal seam and the fan portal will be tested and handled for acid and toxic forming materials"*.

Analysis:

Chapter 6, GEOLOGY, Page 34 of the APPROVED mining and reclamation plan contains the following statement; "Analysis of the strata immediately above and below the seam being mined at the Lila Canyon fan portal (only the lower Sunnyside seam was developed by the Geneva Mine), collected by BXG, and an analysis of the Horse Canyon refuse pile (Geneva Mine roadside waste rock site/PHH) have been included in Appendix 6-2. None of the analysis have an acid-base potential that would indicate an acid-toxic problem."

The revised Appendix 5-7, Rock Slope Material Mine Development Waste, as submitted within Task ID # 3351, commits the Permittee to sampling the rock slope material five times. The last sample, which is to be taken "near the completion of the rock slopes" will be representative of the strata adjacent to the Sunnyside "main seam". Chapter 6, page 20 of the approved Lila Canyon MRP states that the true relationship of the lower seam and the Sunnyside main seam is not clear.

The analyses of the BXG samples, the Geneva Mine road side waste rock disposal area, and the fifth sample taken during the development of the Lila Canyon rock tunnels should provide comparable chemical analyses for the strata adjacent to the coal seam

being developed at the Lila Canyon Mine. All samples are from strata adjacent to the lower Sunnyside coal seam.

Findings:

The information contained in Chapter 6, Page 34 of the approved MRP for the Lila Canyon Mine, permit area "B" along with the commitment to sample and analyze the rock slope development material adjacent to the intercept of the Sunnyside coal seam is adequate to address the deficiency aired under **R645-301-553.350 and 121.200.**

6) **R645-301-553.350 and R645-301-121.200-WHW**; *"The Permittee must specifically state in Appendix 5-7 that the material in the temporary refuse pile will be stored on site not longer than a specific amount of time and in addition, once the specific amount of material has been placed in the refuse pile the Permittee will ship the material off site".*

The response received from the Permittee, submitted as part of the Task ID # 3351 application is as follows;

"Appendix 5-7 has been revised. Lila Canyon does not have a temporary refuse pile. The material in the pile on the coal pad is underground development waste or coal processing waste generated by the Lila Canyon Mine screening plant. The temporary pile has been addressed in the revised Appendix 5-7."

The revised Appendix 5-7, Rock Slope Material / Mine Development Waste submitted with the Task ID # 3351 application states that Plate 5-2 shows the location of both a "temporary" mine development waste (rock pile) and the location of where the rock slope material will be buried.

"Although washing of coal is not proposed, it is likely that some coal processing waste will be generated by the operation of the screening plant and from the Mine itself. It is difficult to predict an exact amount but the anticipated volume is expected to be very insignificant".

As of the date of the Task ID #3351 submittal, the Permittee anticipates that the amounts of coal processing waste being generated at the Lila screening plant will come from

- 1) the interception of geologic anomalies within the coal seam by the coal extraction process,
- 2) small caves of roof rock immediately above the Sunnyside coal seam,
- 3) excess material volume from the construction of ventilation overcasts, conveyor belt transfers, or other areas where additional clearance is required above or below the coal seam,
- 4) non-saleable rock encountered during the development of Mine entries through faulted areas.

The Division anticipates that the Permittee may want to dispose of underground development waste within the Mine. However, the Task ID # 3351 application does not address this activity, (See R645-301-536.520, 513.300, 528.321, 536.700, and 746.400).

It is impossible for the Permittee to predict how much coal processing waste will be generated by the crushing and screening of the mined seam. It is also impossible to predict how much mine development waste will require shipment out of the Mine for permanent storage. At the present time, the Permittee has stated that:

- a) the temporary waste storage pile which will be located on the ROM coal pad will contain a "few hundred tons" of material at maximum capacity.
- b) This material will then be shipped off of the Lila Canyon Mine site on an as needed basis by truck to either Wildcat Loadout or other approved site.

To date, the Permittee has not received a Division approval to ship the material off of the Lila Canyon site.

The Permittee's response as contained in "Response to Surface Deficiencies-July 15, 2009" states the following; "Appendix 5-4 has been re-written using defined terms. No coal processing waste generated at Lila will be stored in pad areas."

The deficiency identified above which states that the refuse pile must have a minimum safety factor of 1.5 is not required, as the new Mine will not have a refuse pile whose intended purpose is permanent disposal of coal mine waste (as of August 18, 2009).

The Permittee anticipates that the coal volumes which will be produced from the Lila Canyon Mine will only contain a small percentage of coal mine waste. The waste will be generated from the dry screening and crushing of the ROM product. Transfer gates installed inby the coal stacking tube will allow shipment of coal waste generated at the screening plant to a location on the main stockpile pad. This is only a temporary storage facility and the stored volume will only consist of a few hundred tons of material (Refer to Chapter 5, section 520, Operation Plan, Page 16, Mine Development Waste Pile). The few hundred tons will develop into a conical shape; this material will not be spread or compacted into lifts, as is required under R645-301-536.200, 210, 220, 230.

This same section states that when the temporary pile reaches capacity (a few hundred tons) the material will be hauled to an approved disposal site. Page 1 of Appendix 5-7 states that "permanent disposal of coal mine waste will be at the ECDC site". **These statements not only conflict, but disposal of this material cannot occur at ECDC.** ECDC is not a site permitted under the R645 Coal Mining Rules.

The Permittee must dispose of Lila Canyon Mine coal processing waste within a permit area which is approved by the Division for permanent waste disposal purposes (R645-301-528.320). This can either be a currently existing / DOGM approved site, or a new permanent disposal site can be permitted. However, both of these sites would

require permitting through the Division prior to receiving coal mine waste for permanent disposal.

The landfill known as East Carbon Development Corporation is not a DOGM permitted facility under R645 jurisdiction and UAE can not ship coal processing waste to that facility for disposal.

The Division recommends that UtahAmerican consider permitting a permanent waste rock disposal site close to the Mine, or consider disposing of this material by some other method at a facility which is also under the State of Utah R645 Coal Mining Rules regulation (i.e., COVOL, Sunnyside Co-generation Associates, etc.).

A deficiency aired during the review of Task ID # 3017 stated that the Permittee must clarify the wording relative to “rock slope material” by using terms which are identified in the R645 Coal Mining Rules definitions.

In the definitions, “coal mine waste” is defined as either consisting of either coal processing waste or mine development waste. As is stated in Appendix 5-7, Page #1, “the rock slope material does not contain any coal and consists of siltstone, mudstone, and sandstone. Coal and carbonaceous shale are not found in the rock slope material” (See appendix 5-7, Task ID # 3351). The rock slope material is “mine development waste”, but it does not have the same characteristics as most mine development waste which comes from removal of the strata immediately adjacent to a coal seam. The rock tunnel development material is in reality, underburden.

The APPROVED Mine plan for the Lila Canyon Mine (Task ID # 2741) clearly states in Appendix 5-7, Page 1 that “the shop / warehouse will be constructed on the material removed from the rock slopes...” The volume of material is expected to vary from 25,000 to 28,000 cubic yards.

The material coming from the development of the rock slopes is not carbonaceous material, which is the type of material associated with coal mine roof conditions, coal seam “splits”, bony coal and other types of non-saleable rock. Personal observations of the rock tunnel material coming from the Lila Canyon portals indicates that the material is more than 90% sandstone. Carbonaceous waste and sandstone have different strength characteristics as well as different chemical characteristics.

As of the date of this document, two samples of rock slope material have been taken and analyzed for the parameters identified on TABLE 1, page #4 (See Task ID # 3351 application). Five samples have been required by the Division; the first two show that SAR values are extreme and that selenium values under unsuitable for use within four feet of the surface. The high SAR values could affect revegetation potential. The high selenium values have the potential to build up in plants and be toxic to grazing animals. The current post-mining land use for the Lila Canyon Mine site disturbed area is wildlife, grazing and recreational use. Thus the covering of the rock slope material to adequate depths is important in the Mine’s rock slope material area of deposition.

In accordance with the requirements of

R645-301-528.320, Coal Mine Waste, the Permittee must

- 1) revise Appendix 5-7 and /or Chapter 5, Page 16, Mine Development Waste Pile such that both areas of text say the same thing relative to where permanent disposal of coal processing waste from the Lila Canyon Mine will occur.
- 2) The Permittee must clearly state in the application that **it is the intent of UAE** to permanently dispose of coal processing waste which will be generated at Lila Canyon at the Wildcat Loadout, or some other coal mine waste disposal facility (pending Division approval) which is permitted under the R645 Coal Mining Rules.
- 3) The Permittee must remove all references in the application which mention disposal of coal processing waste at the East Carbon Development Corporation facility near East Carbon, Utah. ECDC is not a permitted facility under the R645 Coal Mining Rules.

Impounding Structures

Plate 5-2, revised June 2009 shows two constructed sediment ponds within the Lila Canyon Mine surface facilities. The smaller pond is identified on this Plate as the "Secondary Storm Drain Pond". The main Mine pond (#1), is identified within the "Mine Facility List". **Pond #2 must be identified** in the Mine Facility List.

Burning And Burned Waste Utilization

The requirements of this section are addressed in Chapter 5, section 528.323.1, .2, page 52. The commitments made in this permit application are adequate to meet the requirements of the R645 Coal Mining Rules.

Return of Coal Processing Waste to Abandoned Underground Workings

Section 528.321, Page 51 states that coal processing waste produced from the crusher / screening plant will not be returned to abandoned underground workings. The requirements of this regulation are not applicable to this permit amendment.

Excess Spoil

The Lila Canyon Extension of the Horse Canyon Mine is an underground coal extraction project which will utilize room and pillar secondary extraction as well as longwall secondary extraction measures. Spoil will not be generated at this operation.

Findings:

The application is deficient. Information relative to the disposal of coal processing waste generated by the crushing and screening of Lila Canyon ROM product must be clarified and amended. In accordance with the requirements of;

R645-301-528.320, Coal Mine Waste, the Permittee must

- 1) revise Appendix 5-7 and /or Chapter 5, Page 16, Mine Development Waste Pile such that both areas of text say the same thing relative to where permanent disposal of coal processing waste from the Lila Canyon Mine will occur.
- 2) The Permittee must clearly state in the application that **it is the intent of UAE** to permanently dispose of coal processing waste which will be generated at Lila Canyon at the Wildcat Loadout, or another permitted site approved by the Division for that purpose.
- 3) The Permittee must remove all references in the application which mention disposal of coal processing waste at the East Carbon Development Corporation land fill facility near East Carbon, Utah. ECDC is not a permitted facility under the R645 Coal Mining Rules.

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

Mining Facilities Maps

The Task ID # 3017 submittal identified the following deficiency;

R645-301-512.250-WHW; *“The Permittee must have each map and cross-section in Appendix 5-4 certified by a (Utah) registered professional engineer”.*

The response submitted by the Permittee, Task ID # 3351 on July 15, 2009, contains a new Appendix 5-4, New Facility Design, with the following verbiage; *“maps and cross sections in Appendix 5-4 have been certified.”*

Division review of the new Appendix 5-4 confirms that all Plates containing plan views of the surface facilities, plan view and cross-sections of certain facilities, plates

with cross-sections only (mine portal road, truck loading loop road, pond #1), rock slope material disposal plan, pond #1 undisturbed bypass culvert, and detailed design drawings for the main mine conveyor installation, the truck loadout, the coal pad reclaim facility, the crusher building and the electrical conduit trench plans.

Plates which contain multiple cross-sections do not have each individual cross-section certified The Division feels that the certification of the aforementioned plates is adequate to meet the requirements of R645-301-512.

The Permittee has met the requirement of **R645-301-512.250**.

Mine Workings Maps

The Task ID # 3017 submittal identified the following deficiency;

R645-301-511.100-PHH, Proposed Coal Mining Operations ; *“The Permittee must provide a current 5 year Mine projection (the proposed coal mining operation), as part of the Subsidence Monitoring Plan”*.

The Permittee responded in Task ID # 3351 submittal in the following manner;
“Plate 5-5 with new 5 year projections has been updated and submitted”.

A review of Plate 5-5 has determined the following;

a) the Permittee anticipates initiation of coal production by beginning development mining where, what the Division will refer to as First East Mains, will begin in the second quarter 2010.

b) The First East Mains will be developed a distance of approximately six hundred feet, and then stopped.

c) Continuous mining will be turned toward the SSE for the remainder of third quarter 2010 such that the Permittee can determine the geologic characteristics of the “Entry Fault” which must be crossed to access two-thirds of the longwall reserves at Lila Canyon.

d) Fourth quarter 2010 is projected for the Mains to cross the Entry Fault and be developed an additional 1250 feet to the SSE.

e) While the Entry Fault crossing is being developed and driven 1250 feet to the SSE, continuous mining will resume in First East submains and will continue through 2011 with **the first** room and pillar continuous miner **secondary extraction area** projected to be driven and retreated (1st South off 1st East).

f) During 2012, Second East Mains and 1st, 2nd and 3rd South off 2nd East longwall panels will be developed, with 1st and 2nd South being extracted. 1st and 2nd south will have to cross two smaller faults in Section 23.

g) Room and pillar development and retreat is projected to occur in four panels through 2012. These mining areas are

- i. Second South off 1st East
- ii. 1st North off 1st East