

# TECHNICAL MEMORANDUM

## Utah Coal Regulatory Program

---

July 12, 2006

TO: Internal File

THRU: D.Wayne Hedberg, Permit Supervisor  
Joseph C. Helfrich, Environmental Scientist III/Biology, Team Lead

FROM: Peter Hess, Environmental Scientist III/Engineering

RE: Lease Addition U-46484 & U-61049, Task No. 2526, CO-OP Mining Company, Bear Canyon Mines #3 and #4, C/015/0025

### **SUMMARY:**

The Permittee submitted an application to the Division on July 21, 2005 to add additional acreages to several of the Federal coal leases as well as fee coal. Those acreages and lease identification numbers include the following:

- 1) U-024316.....80 acres
  - 2) U-61049.....2,196.09 acres
  - 3) U-46484.....1,400 acres
  - 4) U-61048.....1,108.27 acres
  - 5) Fee Coal.....2,740.00 acres
- Total Added Acreage.....7,524.36 acres

This additional permit acreage will have a significant effect on the life of the Bear Canyon operation, increasing its permitted acreage from 3,336.18 acres to 10,840.54 acres. The 7,504.36 acres being added is being referred to as the Mohrland Addition.

The first review generated relative to this application was designated as Task ID # 2292. Numerous deficiencies were returned to the Permittee to address.

The Permittee responded on May 21, 2006. The Division has assigned this project an identification of Task ID # 2526 for the review of the Permittee's response for record keeping purposes.

This technical memo will address the adequacy of the Task ID # 2526 response as it relates to the engineering discipline of the R645 Coal Mining Rules.

### **TECHNICAL ANALYSIS:**

## OPERATION PLAN

### MINING OPERATIONS AND FACILITIES

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

#### Analysis:

##### General

The Task ID #2292 submittal adds additional acreages of coal reserves to the Bear Canyon operation. There are no additional surface facilities anticipated at this time of application. All reserves mined from the Tank seam in the Mohrland area are projected to come outside through the #3 Mine located in the Wild Horse Ridge addition of Bear Canyon.

##### Type and Method of Mining Operations

The submittal states on Page 5-10 (Task ID # 2292 application) under section R645-301-523 Mining Method that a new method of mining is to be initiated. In addition to continuous mining methods, the longwall method of secondary extraction is to be implemented.

The application states that the operation will produce between 750,000 and 2,000,000 tons per year with two to four (continuous) miner sections working 360 days (See page 5-14, Recovery Rate of the application). **The response received on May 21, 2006 (Task ID # 2526) does not contain a revision to page 5-14 which would reflect the additional tonnage projected for a longwall recovery method.**

Revised page 5-15, (Task ID # 2526) depicts in Table 5-1 Coal Reserves, Bear Canyon Mine, that the total recoverable tonnage from the Tank seam in Federal lease U-61049 is 3,566,378 tons. Based upon information contained on this same page, there is no recoverable tonnage from the Tank seam in Federal lease U-61048.

Based upon information learned during a meeting with the USDOJ / Bureau of Land Management / SLO on July 11, 2006, the coal reserves associated with Federal lease U-46484 are segregated on the east end of the lease by the Bear Canyon fault and several smaller faults. In order for that lease to be mined in a cost efficient manner, the Permittee must develop the underground workings such that the lease can be accessed from the north side. It is not known if the Permittee has any exploration data for the lease area. This is needed to develop coal recovery data and the associated mine plans.

##### Facilities and Structures

The structures which exist at the Bear Canyon operation include the scale house / administration building, the maintenance shop, fuel storage tanks, coal processing tipple / truck

---

**TECHNICAL MEMO**

---

loading facilities, ventilation fans for the Mines, electrical substation, above ground conveyors, sediment control devices, and topsoil storage piles. All are depicted on Plates 5-2A through 5-2G.

**Findings:**

The minimum regulatory requirements of this section have not been met. In accordance with the requirements of

**R645-301-528** the Permittee must describe the anticipated annual production being recovered via the longwall secondary extraction method.

**EXISTING STRUCTURES**

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

**Analysis:**

The Bear Canyon MRP contains photos and descriptions of the facilities that are in place at the site in Appendix 5-A. The Permittee updated Appendix 5-A and resubmitted the file as part of Task ID # 2526.

Two errors were noted with the revised Appendix 5-A;

- 1) Photo #11 (page 5A-16, Appendix 5-A) depicts two coal storage bins which were utilized as part of the Bear Canyon #1 Mine. The bin in the foreground has been reclaimed, and thus no longer exists. The bin in the background which blended coals from the Blind Canyon seam as well as the Hiawatha seam (#1 Mine) is in the process of being reclaimed with those facilities as of the date of this document.
- 2) Photo #8 (page 5A-14, Appendix 5-A) depicts the transformer sub-station which was associated with the Bear Canyon #1 and #2 Mines. The substation has been de-energized for some time and is in the process of being reclaimed, as of the date of this document.

The two errors identified in Appendix 5-A, Table 5A-1 (Task ID # 2526 response) can be corrected with the next deficiency response.

**Findings:**

The application is deficient. Two errors have been identified in the resubmitted Task ID # 2526 response. These need to be corrected prior to receiving a recommendation for approval.

## RELOCATION OR USE OF PUBLIC ROADS

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

### Analysis:

There are no mining activities being conducted or being proposed within 100 feet of a public road right-of-way. Although an Emery County road terminates at the Permittee's gate, same is a great distance from the mining activities being conducted. There is no need to relocate this road.

### Findings:

This requirement is not applicable to this submittal.

## COAL RECOVERY

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

### Analysis:

Coal recovery is addressed on page 5-14, **Recovery Rate** of the Task ID #2292 submittal. Utilizing continuous miner advance and retreat techniques, a seventy percent recovery rate has been determined. Table 5-1, Coal Reserves – Bear Canyon Mine lists the in place tonnage, as well as the recoverable tons for six Federal coal leases (U-61048, U-61049, U-024316, U-024318, U-020668, and U-38727). Tonnages for the fee coal area are also listed.

The leases listed in Table 5-1 (and their associated tonnages) **DO NOT CORRELATE** with the leases listed in the cover letter of the Task ID #2292 submittal. The 1,400 acres associated with Federal lease U-46484 and the 2,740 acres of private property (fee coal) referred to in the cover letter are not listed in Table 5-1, Coal Reserves-Bear Canyon Mine. Thus, recoverable tonnages from these leases, (one Federal and one fee) is not included in the Total tonnage calculations, rendering them incorrect.

The Division learned on July 11, 2006 during a meeting with the USDOJ / Bureau of Land Management / SLO that the reserves associated with Federal lease U-46484 are segregated from the other leases by the Bear Canyon fault and several smaller faults on the east end of the reserve. It is not known if the Permittee has any exploration data in place which could be used to calculate recoverable tons and develop the Mine plan. It is the Permittee's intent to develop the underground mine workings around the north side of the U-46484 lease in an attempt to access it. At that time, the Permittee will determine if the reserve can be recovered in an economic fashion.

The Permittee has not provided any confirmation from the USDOJ / BLM / SLO that a resource recovery and protection plan (R2P2) has been developed, reviewed or approved by the

---

**TECHNICAL MEMO**

---

Federal agency responsible for reviewing the efficient recovery of minerals from the associated Federal leases. The Permittee must provide a document indicating approval of the R2P2 to the Division prior to incorporating these leases into the Bear Canyon permit area.

The Permittee must provide documentation of the lease information for the 2,740 acres of fee coal that is being proposed for incorporation into the MRP.

**Findings:**

In accordance with the requirements of this section, the Permittee must provide the following:

- R645-301-522, Coal Recovery;** **1)** Confirmation from the USDOJ / BLM / SLO that the resource recovery and protection plan(s) is adequate for each of the Federal coal leases which is being proposed for addition to the Bear Canyon Mine permit area. **2)** A copy of the lease agreement between CO-OP Mining Company and the fee coal owner allowing right-of-entry into the 2,740 acres of private mineral ownership for the purpose of conducting coal extraction activities.

**SUBSIDENCE CONTROL PLAN**

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

**Analysis:**

**Renewable Resources Survey**

**R645-301-525.110;** The Permittee has not submitted the requirements relative to a pre-subsidence survey for the proposed lease area. This includes a map of any renewable resource lands in the proposed lease area, a narrative describing potential impact to the value of surface land, or State appropriated water supplies, a survey of all non-commercial buildings and residential dwellings, a survey including quantity and quality of State appropriated water supplies. The application is deficient.

**Subsidence Control Plan**

The Permittee's response to Task ID # 2292 deficiency list as received on May 21, 2006 contains a revised page 5-16 which addresses R645-301-525 Subsidence Control Plan. "Subsidence monitoring points are shown on Plate 5-3. **Appendix 5-F** contains the subsidence monitoring and control plan."

The subsidence control and monitoring plan, as contained within the approved mining and reclamation plan (incorporated November 3, 2005 @ DOGM) contains the approved Subsidence Control and Monitoring plan as **Appendix 5-C**. Therefore, the revised page 5-16 (as received in Task ID # 2526) is incorrect.

Appendix 5-C discusses subsidence controls which have been implemented relative to secondary pillar extraction utilizing continuous miners/mining methods. A revision added to page 5-16, section **R645-301-525 Subsidence Control Plan** contains the following statement; “A escarpment stability and subsidence evaluation was performed by Malecki Technologies. This report calculated the maximum subsidence effects of longwall mining and then reduced them by 50% for room and pillar. In the areas where longwall mining will take place the maximum effects will be used. This report is included as Appendix 5Q.”

Appendix 5Q contains a single document titled “Modeling of Castlegate Escarpment Stability” by Malecki Technologies, Inc., Consulting Mining and Geotechnical Engineers. The document makes an attempt to evaluate surface subsidence in the Wild Horse Ridge addition of the Bear Canyon permit area. The affects of secondary coal extraction on the stability of the escarpments located in that area is also part of the evaluation. The Permittee appears to be attempting to extrapolate information from this report and utilize it as a subsidence control plan for this new lease application.

There are several problems generated by this approach;

- 1) as mentioned above, the Malecki report calculated the maximum subsidence effects of longwall mining, and then reduced them by 50% for room and pillar (secondary extraction/PHH). The Division must have documented justification that the application of that hypothesis is rational.
- 2) To date, the use of longwall secondary extraction methods have not been utilized in the Wild Horse Ridge area of the Bear Canyon operation. There is no justification provided as to why the physical conditions affecting the secondary extraction methods in the Wild Horse Ridge area can be extrapolated to the physical conditions which will be affecting longwall secondary extraction in the new lease area.

The currently approved mining and reclamation plan contains Appendix 5-C, Subsidence Control and Monitoring for areas in which secondary extraction has been implemented utilizing continuous mining methods. If the Permittee intends to implement longwall secondary extraction methods in the Federal lease addition, then a new subsidence control plan as well as a subsidence monitoring regime must be submitted for review.

The Permittee notified the Division on July 11, 2006 that the aforementioned use of the Malecki report to describe subsidence control methods is not their intent, but that a report by Malecki Technologies is being prepared to address the Division’s concerns.

Therefore, in accordance with the requirements of R645-301-525, the Permittee must include;

- 1) a map of the proposed permit expansion and the adjacent areas at a scale of 1:12,000 showing the location and the type of structures and renewable resource lands that may be damaged by subsidence or by which subsidence may affect the value or foreseeable use of the land. The map must also show the location and

---

TECHNICAL MEMO

---

type of State appropriated water which could be affected by subsidence. **The Division has determined that renewable resource lands include those involving harvesting of timber, aquifers, and / or wild life and grazing.**

- 2) The Permittee must describe any surface areas which may require protection within the proposed lease addition. This might include reaches of perennial streams, water impoundments, dams, etc.

The Permittee is implementing retreating longwall recovery methods, which is a method which provides for planned subsidence in a predictable and controlled manner.

In order to minimize or prevent damage, the Permittee must describe what considerations the designing mining engineer utilizes relative to the layout of the underground mine workings in order to minimize or prevent damage to surface areas where planned subsidence is not projected to be used. These considerations may include

- 1) orientation of longwall and /or pillar panels to strike/dip of the seam;
- 2) width of longwall panels;
- 3) the design of nonyielding pillars for bleeder and /or sub-main protection;
- 4) the design of yielding pillars for gate roads between adjacent longwall panels and their affect on the subsidence trough profile throughout;
- 5) the design of barriers to protect surface features requiring protection.

The Division is aware that the Permittee does not intend to utilize barrier abutments between adjacent longwall panels for the purpose of ground control. These are generally only used where deep cover is being undermined.

The Division is aware that it is the Permittee's intent to implement longwall extraction methods within the new Bear Canyon lease addition / Tank seam. R645-301-525.410 requires that the Permittee include, as part of the method of underground extraction, a description of the method of underground mining including the size, sequence and timing of the development of the underground workings. This map must show when and where specific portions of the Mines workings will be developed and extracted. This map is also needed to ensure that surface property owners are properly notified at least six months in advance of mining in accordance with the requirements of R645-301-525.700.

In accordance with the requirements of R645-301-525.430, a description of the physical conditions which will be encountered in the Federal lease addition area, such as

- i. depth of strata being mined
- ii. seam thickness
- iii. multiple coal seams
- iv. dip of coal seam(s)
- v. lithology of overlying strata
- vi. the angle of draw which the Permittee feels is applicable in predicting where potential surface impacts could occur adjacent to the mine workings;

**TECHNICAL MEMO**

---

- vii. nature of the overburden;
- viii. strength characteristics of overlying strata and mine floor (tensile, compressive)
- ix. near surface geology
- x. geologic discontinuities (major fault areas)
- xi. fractures and lineaments
- xii. degree of extraction
- xiii. surface topography
- xiv. groundwater
- xv. water level elevation and fluctuation
- xvi. rate of face advance
- xvii. production scheduling when mining through critical areas

Some of this information can be obtained from the Malecki report. However, the correlation of the information obtained from the Malecki report about secondary extraction in the Wild Horse Ridge area using pillar extraction with continuous miners and longwall extraction in the new Federal lease addition is not possible.

The Permittee has added monitoring points 51 through 57, as depicted on Plate 5-3, Subsidence Map. These points are all located in Federal lease U-61049, as follows:

- a) Point 51 is located in Section 13, T16S, R7E.
- b) Points 52, 53, 56, and 57 are located in Section 18, T16S, R8E
- c) Point 55 is located in Section 19, T16S, R8E
- d) Point 54 is located out side of the Federal lease boundary for U-61049 and U-38727.

Plate 5-3 has been updated to show the potential subsidence zone for the lease additions. The outline of the potential subsidence zone depicted on Plate 5-3 has not consistently implemented a specific angle of draw to show the area of potential impact about the outline of the Mine workings. In some locations, the outline of potential impact is almost directly above the outline of the Mine workings, indicating a zero angle of draw.

The Permittee must specifically state what angle of draw has been used to project potential subsidence impacts in the new Federal lease addition, or use the standard 30 degree angle established within R645-301-525.541. If the Permittee elects to use a site specific angle of draw, the Permittee must justify the different angle through geo-technical analysis of the potential surface impacts of the mining operation (See R645-301-525.542).

The Permittee must revise Plate 5-3 to accurately reflect the area of potential subsidence about the perimeter of the projected mine workings using the selected angle of draw determined above and the average depth of overburden within the mining area.

---

TECHNICAL MEMO

---

The application does not contain a description of the method to be used to extract coal, which accurately depicts the size, sequence and timing of the development of the underground workings.

R645-301-525.430; Description of Physical Conditions Affecting Subsidence

The application does not contain a description of the physical conditions that would affect subsidence within the proposed lease addition.

R645-301-525.200, Protected Areas

The application does not mention any information relative to protected areas that may exist within the proposed lease addition.

**Performance Standards For Subsidence Control**

Page 5-18, **Protection of Natural Surface Structures & Streams** of the Task ID#2292 submittal discusses the methods to be utilized by the Permittee to protect escarpments, raptors, and down stream water quality. The Permittee has modified the commitment **“to maintain a min (minimum) of 200 ft (foot) barrier pillars (adjacent) to outcrops”** in order to minimize escarpment failure is being proposed for modification to include the verbiage “where required by lease stipulations”. This seems to be reasonable, but the Division has the following concern; much of the coal outcrop in the Wild Horse Ridge addition is burnt. **Coal burn has no supporting strength;** therefore a 200-foot barrier pillar adjacent to an outcrop is meaningless as far as its capability to “minimize the possibility of escarpment failure and resulting detrimental impacts to downstream water quality or nesting raptors”. Furthermore, the location of this 200-foot barrier (**which the Division has determined does not exist at the outcrop, but between the active mine workings and the inside edge of the coal burn**) could have little if any effect on actually supporting any escarpment. This was determined by overlaying Plates 5-1A and 5-1C on Plate 5-3, Subsidence Map. The area of coal burn is depicted on Plates 5-1A and 5-1C. Of concern here is the accuracy of the coal burn delineation on these maps, and how the lines of burn were determined.

The Permittee has described on page 5-18 how the coal burn area is identified; “in areas where coal burn exists, no impacts to the surface are expected. Coal burn represents the extent of the coal seam and there is typically unstable roof conditions in areas adjacent to the coal burn. Thus, when roof conditions deteriorate, C.W. Mining stops within fifty feet of the burn and then turns and develops a two entry bleeder parallel with the burn. These bleeder entries, and the fifty foot barrier creates the minimum 200 foot barrier between the area to be pillared, and the burned area. Thus, no impacts to surface structures are expected above the coal burn area.

The Permittee, in coordination with the USFS, and the BLM Utah State office must identify on a map where escarpments exist which require protection, and where the leaving of coal barriers of sufficient strength and size would be required to support same.

Bear Creek flows through a mineable portion of Federal lease U-024316. This submittal is proposing to add 80 acres of reserves to this lease. Page 1-7 provides the legal descriptions for the lease areas to be added / approved by this submittal. The eighty acres being added to Federal lease U-024316 is the E1/2 NW1/4, which is more than a thousand feet from the Bear Creek channel. Therefore the precautions used by the Permittee are not applicable to the area where the eighty acres are being added to the Bear Canyon permit area.

### **Notification**

The Permittee needs to provide a projection map of the #4 Mine workings depicting the anticipated dates when development mining will cross into the proposed lease additions. This map must also show the surface landowner delineations and section lines (i.e., the mapped legal description) such that the required notification letters can be sent in the time frame mandated under **R645-301-525.700**. The Permittee must commit to updating this underground projection map at least annually.

### **Findings:**

The application does not meet the minimum regulatory requirements of this section. In accordance with the requirements of this section, the Permittee must provide the following:

#### **R645-301-525.100, Pre-subsidence Survey**

**525.110, Map of Permit and Adjacent Areas / Survey of Renewable Resource Lands**  
(This map must show any State appropriated water supplies within the proposed permit area).

**525.120, Narrative Relative to Potential Subsidence of Renewable Resource Lands**

**525.130, Survey of Noncommercial / Residential dwellings and Structures**  
(if no structures are present, that must be stated).

#### **R645-301-525.200 et al., Protected Areas**

(list of items within proposed permit addition which may require protection)

#### **R645-301-525.300, Subsidence Control**

- a) discussion relative to the design of chain pillars between adjacent longwall panels and their affect on the subsidence trough
- b) discussion relative to the design of bleeder protection pillars, and their affect on the subsidence trough
- c) In areas where planned subsidence is not implemented, a discussion of the measures taken to prevent or minimize damage throughout the permit area;

---

TECHNICAL MEMO

---

**R645-301-525.400 et al., Subsidence Control Plan Contents.** This MUST include a description of the measures to be taken in accordance with R645-301-731.530 and 525.500 to replace adversely affected State-appropriated water supplies or to mitigate or remedy any subsidence related damage to the land and protected structures (See R645-301-525.510).

**R645-301-525.500, et al.; Repair of Damage,**

The Permittee must address these requirements as they relate to the proposed lease addition.

**R645-301-525.450, 525.452, 525.453,** the Permittee must develop a better method to describe how natural surface structures will be protected, where they exist in areas where coal burn exists, or show that the natural surface features cannot be protected using accepted geotechnical engineering methods. This would be determined by relating the location of the surface feature with respect to the amount of coal burn in that area.

**R645-301-525.700, Public Notice of Proposed Mining,** the Permittee must provide the Division with a map which correlates the features of Plate 1-1, Permit Area, showing the various lease boundaries, Plate 1-2, Surface Ownership, and Plate 5-1C, Tank Seam Mine workings. Although Plate 5-1C depicts anticipated mining dates for secondary extraction of the long wall panels, there are no anticipated dates shown for development mining. 525.700 requires that surface landowners be notified “at least six months prior to mining”, i.e., development mining. Therefore this map is necessary to ensure that the surface landowners are notified in the time frame required.

## SLIDES AND OTHER DAMAGE

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

### Analysis:

This section has been addressed in the approved mining and reclamation plan.

### Findings:

The information provided has received a previous approval, as it has met the minimum regulatory 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 Classification System

All eleven roads within the Bear Canyon Mines disturbed area have been classified as primary, (See page 5-21, section R645-301-527 Transportation Facilities of the approved MRP). All roads associated with the lease additions are the property of the surface landowner.

As such surface roads in Federal leases U-024316, U-46484, U-61048 and U-61049 are owned either by the Forest Service or the C. O. P. Coal Development Company.

If the Permittee has a need to utilize any FS roads in the future, it will be necessary for them to obtain a Road Use Permit from that agency.

### Plans and Drawings

Maps, plans and drawings of the eleven primary roads within the Bear Canyon Mine disturbed area are contained on Plates 5-2 and 5-4, as well as Appendices 5-J and 5-K.

Chapter 5, page 5-21 of the Bear Canyon MRP makes the following statement; “construction of the Mohrland Road is discussed in Appendix 5-L.” At the present time, Appendix 5-L does not exist. The Permittee intends to do this permitting in the future. Plans and drawings will be submitted at that time.

### Primary Road Certification

Plates 5-2A-G depict the plan views of the surface facilities associated with the Bear Canyon Mines from the ball park area to the #'s 1, 2, 3 and 4 Mine portal areas. Thus, all of the eleven primary roads are depicted. Mr. Charles Reynolds, General Manager, and Utah registered professional engineer has placed his P.E. certification on each of these maps. Similarly, Plate 5-4A-D contains cross-sections and P.E. certifications for the primary access road (coal haul road / Bear Canyon), the Shop road and pond “A” access road (4B), the shower house road and #2 Mine road (reclaimed) ((4C)), and the #1 and #2 conveyor access roads, and the #3 Mine access road in the Wild Horse Ridge area, (4D).

Appendix 5-K contains cross sections and stability analyses for the #4 Mine, or Tank seam primary road. Neither the road design nor the stability analyses have a certification by a Utah registered professional engineer. Thus the requirements of R645-301-512.200 have not been met.

## Findings:

The minimum regulatory requirements of this section have not been met. In accordance with the requirements of this section, the Permittee must provide the following:

**R645-301-512.250, Primary Roads**, the Permittee must either submit an “as-built” design for the #4 Mine Tank seam access road and portal pad, or have the project

---

**TECHNICAL MEMO**

---

engineer performing the analyses in Attachment B of Appendix 5-K certify the existing report/analyses. The design that is submitted must be certified by a Utah 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.

### **Analysis:**

#### **Coal Mine Waste**

Page 5-26 of the Task ID# 2292 application contains one text change on page 5-26. That change proposes to change the location for the final disposal of coal mine waste from the #3 and #4 Mines from Slurry Pond 5A at the Hiawatha Complex (C/007/011) to Refuse Pile 1 (MSHA ID #1211-UT-09-02157-04) at the same site. Refuse Pile 1 is adjacent to and NE of the old railroad depot / station location at the Hiawatha site.

The Division should make sure that the Permittee has changed the location for final deposition of the Bear Canyon waste in the Refuse Pile #1 area of the Hiawatha permit in that respective mining and reclamation plan.

#### **Refuse Piles**

As previously noted, all coals produced in the #3 and #4 Mines will be brought to the surface out of the #3 Mine belt portal. Coal processing waste will be generated at the Bear Canyon tipple, and material that is not picked off, and crushed for use as road base underground will be shipped to the Hiawatha permit area (C/007/011) for final disposal in Refuse Pile #1.

#### **Impounding Structures**

There are no impoundments associated with the Task ID# 2292 application.

#### **Burning And Burned Waste Utilization**

This section is not applicable to this amendment.

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

Coal processing waste will not be returned to abandoned underground workings.

#### **Excess Spoil:**

No spoil is generated at the Bear Canyon mining operation.

### **Findings:**

The minimum requirements of this section have been addressed.

## **SUPPORT FACILITIES AND UTILITY INSTALLATIONS**

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

### **Analysis:**

- a) Appendix 5-A, Table 5A-1, Existing Structures (page 5A-2) was resubmitted as part of the Task ID # 2526 response. Corrections have been made to Table 5A-1 to depict the structures which have been built relative to the Wild Horse Ridge addition.

Two errors were noted relative to the resubmitted Table 5A-1 list;

- 1) the transformer substation which previously provided power for the #1 and #2 Mines as well as the tipple has been de-energized and is in the process of being dismantled.
- 2) The two coal bins depicted in Photo #11 (used in conjunction with the Bear Canyon #1 Mine) have been dismantled.

The Permittee should make these two corrections with the next submittal.

### **Findings:**

The application is deficient. In accordance with the requirements of this section, the Permittee must provide the following:

**R645-301-526**, Facilities and Structures, the Permittee must make the two corrections listed above to Appendix 5A, Table 5A-1. [phh]

## **SIGNS AND MARKERS**

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

### **Analysis:**

The requirements of this section have been addressed within the currently approved mining and reclamation plan for the Bear Canyon operation.

### **Findings:**

The minimum regulatory requirements of this section have been previously addressed.

---

**TECHNICAL MEMO**

---

## **USE OF EXPLOSIVES**

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

### **Analysis:**

There are no proposed changes to the sections listed below;

### **Findings:**

The minimum regulatory requirements of this section have been previously addressed.

## **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**

Revised maps that have been submitted relative to this application include Plate 1-1, Permit Area Map, and Plate 5-3, Subsidence Map. Problems have been identified with Plate 5-3, Subsidence Map, in that the areas of potential surface impact have not been correctly identified.

#### **Mining Facilities Maps**

Plates 5-2A through 5-2H are contained in the Bear Canyon reformatted mining and reclamation plan, and have been approved and incorporated by the DOGM.

#### **Mine Workings Maps**

Mine workings are depicted on Plates 5-1A and 5-1C for the Blind Canyon seam (#3 Mine) and the Tank seam (#4 Mine) respectively. The Plates which have been re-submitted as part of Task ID # 2526 are certified by a Utah registered professional engineer.

Plates 5-1A and 5-1C show the anticipated dates of secondary extraction for the mining sections in the Blind Canyon and Tank seams respectively. The Permittee must show anticipated projections for the development of the Mines, such that the requirements of R645-301-525.700 can be met. Thus, this required map must also show lease boundaries and surface ownership relative to those leases.

#### **Monitoring and Sampling Location Maps**

Plates 7-4A, Spring Canyon Potentiometric Surface, 7N-2, Water Sampling Locations and 7-4, Water Monitoring have been submitted as part of the Task ID#2292 application.

Plate 5-3, Subsidence Map depicts subsidence monitoring station locations, escarpment locations, potential subsidence zones, and mine workings for the #1 and #2 Bear canyon Mines. Mine workings for the active mines are not shown. It is these areas of potential subsidence that are of interest to this application. Therefore, Plate 5-3 Subsidence Map needs to be revised to show the active mining operations.

Plate 5-3, Subsidence Map, has been certified by Mr. Charles Reynolds, a Utah registered professional engineer.

### **Certification Requirements**

All of the plates submitted as part of the Task ID # 2526 deficiency response have been certified by a Utah registered professional engineer.

### **Findings:**

The application is deficient. In accordance with the requirements of this section, the Permittee must provide the following:

**R645-301-525.700, Public Notice of Proposed Mining;** the Permittee must submit a mining projection map which shows the anticipated dates for Mine development in the Tank seam of the Wild Horse Ridge addition area of the Bear Canyon permit. Projected development dates must also be shown for the lease addition area. This map must also show the leases, and the surface lands owners above those leases such that the requirements of R645-301-525.700 can be met. [pjh]

## **RECLAMATION PLAN**

### **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:**

#### **Certification Requirements.**

None of the cross sections for the cut and fill drawings shown in Appendix 5K, Attachment A are P.E. certified. These include the following:

- a) TS-16, Sections 1,2,3 and 4
- b) TS-17, cross sections 0+00 through 3+50.

---

**TECHNICAL MEMO**

---

These cross sections depict both the pre-mining and post-mining surface configurations and as such, are considered as part of the requirements meeting final surface configuration maps, as well as reclamation backfilling and grading maps. "As built" of the reclamation work including an aerial view drawing will be required post-reclamation.

**Findings:**

The application is deficient. In accordance with the requirements of this section, the Permittee must provide the following:

**R645-301-512.130**, all maps depicting final surface configurations or are relative to meeting the requirements for backfilling and grading must be certified by a Utah registered professional engineer. [phh]