

# TECHNICAL MEMORANDUM

## Utah Coal Regulatory Program

---

April 10, 2006

TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor  
Wayne H. Western, Team Lead

FROM: David Darby, Environmental Scientist, Hydro/Geologist

RE: Phase III Bond Release UtahAmerican Energy, Inc., Horse Canyon Mine,  
C/007/0013, Task ID #2409

### **SUMMARY:**

On January 3, 2006, UtahAmerican submitted a request to the Division for Phase III bond release of the Horse Canyon remaining facilities. Partial bond release was received on in the past on 51.56 acres that have gone through Phase I and Phase II, 6.5 acres associated with the borrow site, were given an alternative postmining land use change and 0.02 acres are associated with a bridge abutment, left unreclaimed at the request of the County.

This memo evaluates the hydrologic and geologic issues for Phase III bond release.

---

TECHNICAL MEMO

---

**TECHNICAL ANALYSIS:**

## **RECLAMATION PLAN**

### **GENERAL REQUIREMENTS**

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

#### **Analysis:**

UtahAmerican Energy received conditional approval for Phase II bond release on November 10, 1999 for 51.56 acres, 6.5 acres associated with the borrow site, were given an alternative postmining land use change and 0.02 acres are associated with a bridge abutment, left unreclaimed, since it is County property and needed to support the bridge. Exempt areas had remained in the disturbed permit area, which included the water tank, the explosives area, fan portal area buildings area and Pond #2. Initially, the exempt areas were going to be used as facilities in conjunction with the proposed Lila Canyon Extension to the Horse Canyon Mine.

Eventually, UtahAmerican decided the exempt areas were not needed for the new mine and changed the post mining land use to recreational/institutional. They donated the property to the University of Utah and College of Eastern Utah in October 2005. Prior to donating the exempt areas UtahAmerican removed the fan and collars around the two remaining portal sites (they had previously been sealed prior to Phase I bond release), then gouged and seeded the portal area. They backfilled all the mechanic pits in the warehouse, and boarded up all the windows. They also removed the oil skimmer collar on the spillway of Sedimentation Pond #1 and backfilled the decant culvert with concrete (the pond is now designed for total storage of the 100 year-24 hour precipitation event.

The condition to the Phase II bond release required removal of the 36-inch refuse pile culvert and sedimentation pond #1. In connection with Sedimentation Pond, the Permittee was to reestablish the channels where the sedimentation pond was located. The Permittee removed the culvert and reclaimed the sedimentation pond in 2003. All disturbed areas (other than the area with an alternative postmining land use) were regraded, gouged and reseeded. Stream channels have been reconstructed according to the designs in the MRP, reclamation plan.

### **Findings:**

The Permittee has met the minimum requirements of the Approximate Original Contour Restoration section of the Regulations.

## **BACKFILLING AND GRADING**

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

### **Analysis:**

#### **General**

The condition to the Phase II bond release required removal of the 36-inch refuse pile culvert and sedimentation pond #1. In connection with Sedimentation Pond, the Permittee was to reestablish the channels where the sedimentation pond was located. The applicant removed the Refuse Pile culvert, filled the decant pipe with concrete and reclaimed the sedimentation pond in 2003. All disturbed areas (other than the exempt areas) were regraded, gouged and reseeded. Stream channels have been reconstructed according to the designs in the MRP, reclamation plan.

The minesite has been subjected to at least three large precipitation events that have damaged the refuse pile channel. Inspection Report 811 describes the last time the channel was repaired. A major storm exceeding the 100 yr-24 hr precipitation event washed through the reclaimed channel in August 2003 destroying the reclaimed configuration of the channel. Repairs were completed on September 11, 2004. Heavy rainstorm hit again in May and June 2005. A Technical Field visit on August 24, 2005 indicates the channel contained the flows without exceptional damage.

Inspection Report 907 addresses the latest reclamation activities after another large storm hit in September 9, 2005. Evidence is seen from clogged access road culverts (with boulders and debris, pictures taken) on Horse Canyon Creek. Flows washed over the road and cut into the banks above the Refuse Pile channel, and for the first time, exposed bedrock in the channel. The same storm washed heavy flows down the Refuse Pile channel cutting into the channel bottom and sides. The damage done to the channel will have to be repaired before Phase III can be issued for the area.

---

TECHNICAL MEMO

---

**Findings:**

**R645-301-762.100** The Permittee must reconstruct the Refuse Pile channel to meet the standard for a 100 yr-24 hr precipitation event prior to receiving Phase III bond release.

**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:**

All mine openings have been sealed.

**Findings:**

The applicant has met the minimum requirements of the Mine Openings section of the Regulations.

**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:**

**Hydrologic Reclamation Plan**

The hydraulic controls at the site were surface roughening, vegetation and silt fences to contain runoff flow. The procedure of surface roughening by gouging then seeded, controlling erosion and reducing sediment loading downstream. Silt fences were installed at the edges of disturbed areas to contain runoff that wasn't trapped in the gouges.

**Ground-water monitoring.**

Only one groundwater site exists at the Horse Canyon Mine. UtahAmerican continues to monitor Redden Spring (RS-2).

### **Surface-water monitoring.**

UtahAmerican continues to monitor three surface water sites RF-1, HC-1 and B-1. The Division has not received proposals from UtahAmerican to abate monitoring of these sites. Locations of surface-water monitoring sites are on Plate 7-1.

### **Acid and toxic-forming materials.**

Numerous places in the text describe how there are no acid- or toxic-forming materials at this site. Included are Chapter 6, Geology, Chapter 5, Engineering, and Chapter 7, Hydrology. It appears this is not a problem at this site.

### **Transfer of wells.**

Two wells exist on the minesite. UtahAmerican owned one. The well is located near the facilities area and is not monitored because a pump sits on top of the well casing. The Minerals Development Company, it is enclosed by a small building. Neither well has been sealed. The Utah American well was transferred to the College of Eastern Utah along with the donated land and buildings. The Minerals Development Company well is in disrepair and unused. Anyone could build a case for abandonment and disuse of water rights that amount to nine (9) gallons per minute.

### **Discharges into an underground mine.**

No discharges of surface water will be made to underground mines.

### **Gravity discharges.**

No gravity discharges will be made from an underground mine.

### **Water quality standards and effluent limitations.**

UtahAmerican sealed the decant to the sedimentation pond so no point source discharges will take place, thus they were allowed to relinquish their UPDES permit. The sediment pond structure was donated to the College of Eastern Utah and will be under their control.

### **Diversions.**

All corrugated metal culverts were removed prior to and during Phase II bond relinquishment. The site restored to its approximate original contour except at the Refuse Pile channel. The Permittee must rebuild the stream channel as soon as weather permits. The Division asked the Permittee to evaluate the expected velocities where the stream channel has

---

TECHNICAL MEMO

---

been disturbed and to provide designs to protect the channel. The required 100-year, 24-hour design event will be used to size the channel.

It should be noted that the steam channels function ephemerally and there is no fish inhabit in Horse Canyon Creek.

**Sediment control measures.**

The sediment control measures during reclamation include silt fences and straw bales, which are considered adequate when used as described.

**Other treatment facilities.**

The Permittee will use gouging, mulch and reseeded, to establish vegetation, to control erosion and contribution of sediment to stream channels during and after reclamation.

**Findings:**

The information provided in the MRP meets the minimum requirements of Hydrology Information section of the Regulations.

## **CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)**

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

**Analysis:**

The Permittee has submitted a Probable Hydrologic Consequences assessment and pertinent information in the Geology and Hydrology sections of the Horse Canyon Mine MRP. The Books Cliffs IV CHIA, which incorporates the hydrologic features of the Horse Canyon.

**Findings:**

The information provided by the Applicant in the PHC, Geology and Hydrology sections of the MRP meet the minimum requirements for the Cumulative Hydrologic Impact Assessment section of the Regulations.

**RECOMMENDATIONS:**

The Division should not approve the application for Phase III bond release until the Permittee reclaims the Refuse Pile channel to meet the hydrologic standards of the regulations.