

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

August 31, 2006

JK

TO: Internal File

THRU: Wayne Hedberg, Permit Supervisor *WH*

FROM: David Darby, Senior Environmental Specialist/Hydrology *DD*

RE: Reconstruction of Refuse Pile Channel (#31), UtahAmerican Energy, Inc., Horse Canyon Mine, C/007/0013, Task ID #2611

SUMMARY:

The Division received plans on August 21, 2006 from UtahAmerican Energy, Inc. (UtahAmerican) for the reconstruction of the refuse pile channel at the Horse Canyon Mine. The channel was damaged from an extensive rainstorm in September 2005. The damage was identified in May 2006. Since then the Division and UtahAmerican have been working on a solution, however, there were extenuating circumstances with UtahAmerican's consultant getting the plans developed.

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TECHNICAL ANALYSIS:

OPERATION PLAN

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:

General

UtahAmerican Energy, Inc. (UEI) submitted channel reconstruction designs to reconstruct the refuse pile channel. Some questions have come about with regard to the plans.

Lands within the Horse Canyon permit have either been reclaimed as part of the post mining land-use or donated to the College of Eastern Utah/University of Utah. Utah American has applied for Phase III bond release for the reclaimed lands. The refuse channel (Channel #31) is part of the reclaimed area. A large storm on September 2005 storm eroded the channel, and repairs need to be made. There is a ten-year liability period on the channel that began in February 2002.

The plans show typical cross-sections of the trapezoidal channel and of the longitudinal section. Both cross-sections show a foot of riprap on a filter blanket. Normally this design is adequate if placed on a soil matrix where the matting and riprap can be anchored. In this case the bottom width of the riprap will be placed on a hard layer of clay. It is the Divisions concern that there is no anchor for the riprap at the lower end of the channel and the riprap can be plucked out by flows. The Permittee needs to describe and show in a drawing how the riprap will be anchored to prevent plucking at the lower end of the riprap.

The Permittee has provided calculations to establish the design criteria. Runoff volumes from Watersheds 30 and 31 (see Plate VI-2) have been taken from the MRP, and used for the calculations. After examining the information in the MRP the Division has noted some flaws in the runoff volumes. The runoff volume calculated for the Refuse Pile channel should include all disturbed and undisturbed areas contributing runoff. It appears that the undisturbed area includes some of the drainages above the railroad tracks and escarpments. This observation needs to be confirmed or refuted.

Surface-Water Monitoring

HC-1 is located in the main channel upstream of the mine and RF-1 is located in the Right Fork above the mine. RF-1 often measures the flow from RS-2 as it trickles down the stream channel. Monitoring site B-1 measures flows in the main channel of Horse Canyon Creek below the minesite.

No monitoring sites exist on the Refuse Pile channel.

Findings:

Information provided in the PAP does not meet the minimum requirements of the Maps, Plans, and Cross Sections of Reclamation Operations section of the regulations.

R645-301-730; The Permittee needs to identify the total area contributing runoff through the Refuse Pile channel. The area should be shown on Plate VI-1 (Drainage Boundaries, etc.) and include undisturbed and disturbed areas contributing runoff to the channel.

R645-301-732-300; The Permittee needs to identify the total area contributing runoff through the Refuse Pile channel. The area should be shown on Plate VI-1 (Drainage Boundaries, etc.) and include undisturbed and disturbed areas contributing runoff to the channel.

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

Drawing III-1A submitted for the amendment shows the area of reconstruction for the Refuse Pile culvert.

Reclamation Backfilling and Grading Maps

Drawing VI-3 submitted for the amendment shows the cross-sectional area of the rebuilt channel. The proposed channel is trapezoidal in shape. Riprap will be placed on a filter fabric. Channel detail is illustrated in a table showing a channel depth of one foot (1'), a base width of five feet (5') and 1:2 side slopes. The D50 riprap value is stated as 0'-9".

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Final Surface Configuration Maps

The final surface configuration is not defined at this point. The new Project Manager, Dave Shaver, has planned a meeting between the Division, Contractor, Engineer and UtahAmerican to establish workable design plans. The meeting is planned at the site for September 12, at 10 am. Final surface configuration maps (or as-built drawings) will be required when the reconstruction is complete.

Findings:

Information provided in the PAP does not meet the minimum requirements of the Maps, Plans, and Cross Sections of Reclamation Operations section of the regulations.

R645-301-732.300 The value for the riprap size is not a good value. D50 should not have a range, especially so small. The Permittee should check this value for accuracy.

The channel was not observed for some time after it was damaged by a storm. To ensure the designs are adequate for the area, it is recommended that inspections of the channel be conducted at least monthly and after large precipitation events.

RECOMMENDATIONS:

This amendment is not recommended for approval.

Chronology of Latest Channel Damage at Refuse Pile, Horse Canyon Mine

September 19, 2005 Joe Helfrich conducts quarterly inspection with Jay Marshall at Horse Canyon Mine. Notice culverts on Horse Canyon Creek are clogged and stream has overflowed the road from large storm three or four days earlier. Refuse Pile channel is not observed.

January 3, 2006 UEI submits application for Phase III Bond release on lands donated to College of Eastern Utah and University of Utah. At this time it is thought that the Refuse Pile and channel are part of the donated lands.

March 22, 2006 Field visit is conducted by Dave Darby and Jay Marshall to check the status of the channel since last repaired. It was found that the channel had been damaged. It is suspected from storm last September.

April 10, 2006 Meeting held to discuss damage, remediation measures and bond clock. Determined that a time bond clock should start over.

April 20, 2006 Bond release team conducts on site visit to evaluate status of area, particularly donated area, Borrow Area, and Refuse Pile.

April 29, 2006 Meeting to discuss portals in Lila Canyon and Refuse Pile channel. During the meeting some team members questioned if the channel needed to be rebuilt. Because of the head cutting potential, it was determined that the channel should be rebuilt. It was discussed and determined also that the sedimentation pond bond clock was not intended to restart according to the regulations, but the Refuse Pile channel was thought to restart when the culvert was removed and channel reconstructed at Phase II.

May Review comments were given to UEI for the Phase III Bond release. The channel was listed as required repair and remediation.

July 14, 2006 Jay resubmitted Phase III Bond release. The Refuse Pile channel had been taken out of the application.

July 19, 2006 Dave Darby and Jay Marshall conducted a field visit to Lila Canyon to look at a spring. During the visit Jay mentioned that he had been in contact with Tom Suchoski. Tom planned to talk to Dave Darby to discuss design plans for the channel.

July 26, 2006 Tom Suchowski called and discussed the way he planned to design the channel. Plans call for reinforcement at the channel nick point to stop head cutting. The channel will remain bare where the bedrock is exposed, but the sides will be reinforced with graded riprap. Tom insists on a stabilizing filter fabric behind the riprap, which is acceptable. He said he could get the plans to Jay in about a week.

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I talked to Jay about Tom's plans. He assures me he wants to get the project done ASAP. He stated that if he can get the plans from Tom he would be able to the channel reconstructed by the end of August. He stated he has already retained a contractor.

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