TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

July 17, 2008

TO: Internal File

THRU: James D. Smith, Permit Supervisor JDS 07/28/08

FROM: Steve Christensen, Environmental Scientist III S.K.C.

RE: Reclamation of East Mountain Emergency Drill Pads, Task ID # 3013, Genwal Resources, Inc., Crandall Canyon Mine, C/015/0032

SUMMARY:

In August of 2007, Genwal Resources, Inc. (the Permittee) drilled seven holes outside of their permitted disturbed area in an effort to locate trapped miners. Because of the nature of the emergency, the Division of Oil, Gas and Mining (the Division) did not require the Permittee to amend their Mining and Reclamation Plan (MRP), or post a bond for the additional disturbance at that time. When rescue efforts were called off, the Division met with the Permittee, the US Forest Service (USFS), the Bureau of Land Management (BLM) and the State Institutional Trust Lands Administration (SITLA) to work on an agreeable plan for reclamation. As much reclamation as was possible was done before winter conditions forced the Permittee to shut down until spring. The Division asked the Permittee to amend their plan and bond to account for all reclamation work yet to be done on the drill pads. The Permittee submitted such a plan to the Division on December 27, 2007.

The Division performed a technical review of the plan and identified areas where additional information/clarification was needed. Based upon a site visit performed by the regulatory agencies (SITLA, USFS and the Division) on July 16th, 2008, several modifications were made to the plan in order to satisfy the State of Utah R645-Coal Mining Rules.

This technical memorandum discusses the hydrology related issues pertaining to the proposed amendment to the Crandall Canyon Mining and Reclamation Plan (MRP).

The application meets the requirements of the hydrology regulations. The previously identified technical deficiencies have been addressed. The Division should approve the amendment.

TECHNICAL ANALYSIS:

RECLAMATION PLAN

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:

Sediment Control Measures

The application meets the Sediment Control Measure requirements as required by the State of Utah R645-Coal Mining Rules.

In order to prevent sediment loss and erosion from the disturbed areas, (both during reclamation of the remaining pads and associated roads as well as during the stabilization of the SITLA and Forest Service road segments) the Permittee will utilize several sediment control methods.

In order to provide stabilization and prevent erosion on the reclaimed pad areas, the Permittee will roughen and pock the reclaimed surface. A seed mix and a erosion control mulch (wood straw) will be applied to the reclaimed surfaces. In addition, erosion control logs will be placed as needed in areas of concern, such as steep depressional areas, which may be subject to increased surface runoff/erosion. Based upon onsite conditions, the placement of the erosion control logs will be determined by the division. Installation of the erosion control logs will conducted according to the manufacturers instructions. Attachment 8 of the application contains the installation considerations/plans for the erosion control logs as provided by the manufacturer.

The road segments to remain in place (i.e. the SITLA and USFS segments) will be stabilized in the following manner. During the 2008 construction season, stabilization work will be performed on the road segments (SITLA and USFS). The Permittee will re-establish the water bars that convey runoff from the road to the receiving out slope. Three erosion control logs will placed at the outlet of each water bar (one at the shoulder of the road, one at mid-slope and one at the toe of the slope). This three-tier installation of erosion control logs will be done at all water bar locations. The Permittee commits to regularly inspect the erosion control logs and insure that they are maintained and repaired as needed in order to prevent sediment from leaving the disturbed area.

During the site visit performed on July 16th, 2008, the effectiveness of the excelsior logs to retain sediment on the disturbed areas was evaluated. Overall, the logs appeared to have worked very well. In most instances, the Excelsior logs were observed filled with sediment, thus clearly indicating that they had performed their designated function of retaining the sediment on

the site.

On page 12 of the application, the Permittee discusses the stabilization techniques to be used on the out slopes of the road segments. The out slopes of the road will be stabilized through a combination of compaction and re-vegetation. The slopes will initially be compacted using a sheepsfoot rolling compactor affixed to the boom of a track-hoe. After compaction, the slopes will then be re-seeded with a permanent seed mix. A layer of wood straw will then be spread over the re-seeded slopes. The seed and straw will then be crimped into the soil using the same sheepsfoot attachment, but using a single upslope stroke of the backhoe boom. As an added measure, near the end of the construction season, an second application of seeding will be done on all road out slopes.

A seep area was located (See Attachment 3) along a portion of the SITLA road segment. The Permittee will utilize a pseudo-French drain system that employs a collection box with 2" drain rock and a perforated drainpipe to transfer the seep water from one side of the road to the other. The drain rock system design considerations and drawings are provided in Attachment 16 of the application.

Findings:

The Permittee has met the requirements of the Reclamation Plan: Hydrologic Information section of the Regulations.

RECOMMENDATIONS:

The application meets the minimum requirements of the relevant hydrology regulations. The Division should approve the amendment.

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