

# TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

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November 10, 2009

TO: Internal File

THRU: Steve Christensen, Hydrologist *SC*

FROM: James Owen, Reclamation Engineer *JO*

RE: Mine Discharge Water Iron Treatment Facility, Genwal Resources, Crandall Canyon Mine, C/015/0032, Task ID # 3415, Internal File

## SUMMARY:

On October 13<sup>th</sup>, 2009, the Division of Oil, Gas and Mining (the Division) received an application to amend the Crandall Canyon Mining and Reclamation Plan (MRP) from Genwal Resources, Inc. (the Permittee). The Permittee proposes to include the Mine Discharge Water Iron Treatment Facility for addressing the mine water currently discharging from the north portals at the mine site.

It is expected that the iron concentration will be stabilized through use of the treatment facility but on a temporary basis only. The expectation is that discharging water will not stabilize naturally and permanent means of treatment will be required. Design options for permanent treatment are being explored, but are not included in the application amendment. The Permittee has already begun construction and installation of the treatment facility according to the details specified in the aforementioned application for amendment. However, the effectiveness of the treatment facility is not yet known.

Prior to receiving Division approval, the Permittee must address the following deficiencies:

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**R645-301-533.110 and R645-301-533.712-** The Permittee must revise the information contained in Appendix 7-65, Attachment 6. This section of the plan discusses the construction specifications and drawings for the iron treatment facility used to treat the discharging mine water. The Permittee should revise Attachment 6 to include engineering design specifications for the 'settling basin' or 'sediment pond' that will be used for settling iron. The engineering design specifications should demonstrate adequate calculations, drawings, and engineering analyses that provide a minimum static safety factor of 1.3 for impoundment stability.

**R645-301-533.612 and R645-301-533.712-** The Permittee must revise the information contained in Appendix 7-65, Attachment 6, page 1, bullet 4) which states, "Using structural granular borrow material, construct a berm". The Permittee should include more detailed geotechnical information for material that will be used for berm construction and backfill.

**R645-301-533.210-** The Permittee must revise the information contained in Appendix 7-65, Attachment 6. This section of the plan discusses the construction specifications and drawings for the 'settling basin'. The Permittee should demonstrate that necessary laboratory testing was conducted to achieve adequate geotechnical information for the foundation material. The Permittee should include design details for the foundation stability of the settling basin. The Permittee must revise the information contained in Appendix 7-65, Discussion, page 2, paragraph 3, which states, "By lining the entire bottom of the basin the pit liner will prevent the underlying fill material from becoming saturated, thereby maintaining its geotechnical stability". The Permittee should provide more details and design specifications for the foundation stability of the "foundation fill material" that will be covered with pit liner.

**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:**

### **Impoundments**

The application does not meet the Impoundments requirements of the State of Utah R645-Coal Mining Rules.

The Permittee must revise Appendix-75, Attachment 6. The Permittee must include settling pond design considerations that reference the calculation and analysis of an adequate safety factor (1.3). The Permittee must include more geotechnical details in terms of berm and backfill materials as well as foundation stability.

### **Findings:**

The application does not meet the Hydrologic Information requirements of the State of Utah R645-Coal Mining Rules. The following deficiencies must be addresses prior to Division approval:

**R645-301-533.110 and R645-301-533.712-** The Permittee must revise the information contained in Appendix 7-65, Attachment 6. This section of the plan discusses the construction specifications and drawings for the iron treatment facility used to treat the discharging mine water. The Permittee should revise Attachment 6 to include engineering design specifications for the 'settling basin' or 'sediment pond' that will be used for settling iron. The engineering design specifications should demonstrate adequate calculations, drawings, and engineering analyses that provide a minimum static safety factor of 1.3 for impoundment stability.

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**RECOMMENDATIONS:**

The application is not recommended for approval at this time.

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