

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

October 18, 2012

TO: Internal File

THRU: Steve Christensen, Permit Supervisor/Team Lead *SFC*

FROM: Ken Hoffman, Environmental Scientist/Hydrology *KH m SCS*

RE: Construction of Burma Evaporation Basin, Genwal Resources, Inc., Crandall Canyon Mine, C/015/0032, Task #4163

SUMMARY:

This Significant Revision to the Mining and Reclamation plan was received on January 12, 2012, revised June 22, 2012, and this updated version September 5, 2012. The amendment details 7.32 acres of additional disturbed area on SITLA land under a 30 year lease. The evaporation basin will be approximately 200 ft long x 100 ft. wide x 6 ft. deep. Using the Permittee's estimates, of 1.5 inch accumulation per year, the life of this facility is twenty four years, at which time the dried waste will be at the design maximum of 36 inches, leaving 24 inches of freeboard (Chap. 5). The waste will be covered with 48 inches of soil.

Appendix 7-66 of the application contains a brief description of hydrology as well as Attachment 7 on sedimentation and drainage control. The application covers source sampling, existing drainage topography, nearby surface water bodies, disturbed area runoff control, precipitation control, and sediment control measures. The application is recommended for conditional approval.

Conditional approval is based on the operator:

- Fulfilling the requirements and/or permitting of the Department of Environmental Quality- Division of Solid and Hazardous Waste (DEQ) which the operator committed to under response in Task #4163.
- Correcting the following typos:
 - Page 1 of Appendix 7-66 "Attachment 2.....Removed from Appendix 7-66" change to "Attachment 2.....Pond Liner Information"
 - Page 11 of Appendix 7-66 "Attachment #2 of Appendix 7-65" change to "Attachment #2 of Appendix 7-66"

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TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GENERAL

Regulatory Reference: 30 CFR 779.11, 779.12, 783.12; R645-301-411, -301-521, -301-721.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 779.18, 783.18; R645-301-724.

Analysis:

The previous technical analysis (Task ID #3997) identified a deficiency of lacking climatological resource information. The revised amendment includes climatological factors such as: average monthly temperature, average monthly precipitation, average monthly evaporation, and average monthly wind direction and velocity.

Finding:

The requirement for inclusion of climatological resource information is fully met.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Baseline Information

Analysis:

The previous technical analysis (Task ID #3997) identified a deficiency relating to baseline hydrologic and geologic for cumulative impact area. The Permittee conducted a search of the area for available data and no active groundwater wells, springs or other expressions within the search area. Given the engineered liner of the evaporation pond eliminating infiltration and the total containment design eliminating surface discharge no further investigation for baseline data is required.

Finding:

The amendment meets the requirements for baseline information.

Probable Hydrologic Consequences (PHC)

Analysis:

The previous technical analysis (Task ID #3997) identified a deficiency relating to the lack of a PHC for the proposed project area. The Permittee included a PHC as Attachment 14 in the revised amendment. The PHC addresses: contamination by sludge materials, increased sediment yield from disturbed areas, increased sediment yield from disturbed areas, increased total dissolved solids concentrations, impacts to groundwater or surface water availability, hydrocarbon contamination from trucks or from the use of hydrocarbons in the permit area, contamination of surface and groundwater from road salting, and contamination of surface water from sludge spillage due to hauling operations.

Finding:

The PHC in the revised amendment meets these requirements.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Well Maps

Analysis:

The previous technical analysis (Task ID #3997) identified a deficiency relating to the lack of water well maps. The Permittee has added Figure 7-1 of water rights and conducted a search of available data and found no active groundwater wells, springs or other expressions within the search area.

Findings:

The requirement for inclusion of well maps has been met.

Monitoring and Sampling Location Maps

Analysis:

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The previous technical analysis (Task ID #3997) identified a deficiency relating to the lack of monitoring and sampling location maps. The Permittee conducted a search of available data and found no active groundwater wells, springs or other expressions within the search area.

Findings:

The requirement for inclusion of well maps has been met.

Surface Water Resource Maps

Analysis:

The previous technical analysis (Task ID #3997) identified a deficiency relating to the lack of surface water resource maps. The Permittee has added Figure 7-1 of water rights and conducted a search of available data and found no active groundwater wells, springs or other expressions within the search area.

Findings:

The requirement for surface water maps has been met.

OPERATION PLAN

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:

The previous technical analysis (Task ID #3997) identified a deficiency relative to use of an engineered liner. The Permittee has added use of the same engineered liner used in their current treatment system to the revised amendment. The previous technical analysis (Task ID #4138) identified a deficiency relative to some text inconsistencies. After discussion with the Permittee typos exist in the Appendix 66 on Page 1 in the table of contents and on Page 11 and can be corrected in the clean copies.

Finding:

R645-121.200: Text will be altered:

- Page 1 of Appendix 7-66 “Attachment 2.....Removed from Appendix 7-66” change to “Attachment 2.....Pond Liner Information”
- Page 11 of Appendix 7-66 “Attachment #2 of Appendix 7-65” change to “Attachment #2 of Appendix 7-66”

Disposal Of Noncoal Mine Wastes

Analysis:

The previous technical analysis (Task ID #4138) identified a deficiency relative to inappropriate reference of Division Order DO-10A. In addition, the previous technical analysis (Task ID #4138) identified a deficiency relative to waste proposed to be ultimately buried at the Burma Pond site is determined to be noncoal mine waste and must thus meet the standards and permitting for the State of Utah Department of Environmental Quality- Division of Solid and Hazardous Waste (DEQ).

Finding:

The Permittee has removed the inappropriate reference of Division Order DO-10A.

R645-301-528.332: Included in the Task ID #4138 application the Permittee has committed to apply for a permit from DEQ for the operation of a solid waste facility as required. Meeting the requirement of DEQ will be part of conditional approval of this application. (KH)

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, -300-148, -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.

Groundwater Monitoring

Analysis:

The previous technical analysis (Task ID #3997) identified a deficiency relative to an evaluation for the need of a groundwater monitoring program. No groundwater monitoring program is included in the revised amendment. However; due to proposed implementation of an engineered liner, groundwater will be fully protected and no monitoring program will be required.

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Finding:

The requirement for evaluation of a groundwater monitoring program has been met.

Surface Water Monitoring

Analysis:

The previous technical analysis (Task ID #3997) identified a deficiency relative to an evaluation for the need of a surface water monitoring program. No surface water monitoring plan is proposed in the application. However, the amendment fully documents that the evaporation pond can achieve full containment. Further the amendment documents that a sediment cleanout marker and a 100 year 24 hour storm event marker will be installed 4.44 inches below the spillway elevation. These markers will be used to field evaluate that full containment is being maintained. Since full containment will be maintained at all times a Utah Pollutant Discharge Elimination System (UPDES) permit will not be required.

The previous technical analysis (Task ID #3997) identified a deficiency relative to an evaluation for the need to determine that surface water would not be impacted by way of infiltration. The use of an engineered liner in the pond rules out the possibility of infiltration.

Finding:

The amendment meets the requirements for surface water monitoring.

State-Appropriated Water Rights

Analysis:

The previous technical analysis (Task ID #3997) identified a deficiency relative to conducting search of and documenting State-appropriated water rights ownership. The Permittee included as Attachment 13 a water rights summary.

Finding:

The amendment meets the requirements for state-appropriated water rights.

Acid- and Toxic-Forming Materials and Underground Development Waste

Analysis:

The previous technical analysis (Task ID #3997 and 4138) identified a deficiency relative to possibility of toxic forming materials. The Permittee has conducted testing presumed to be properly conducted and included in Attachment 10.

Finding:

The application meets the requirements for identifying toxic forming materials.

Impoundments

Analysis:

The previous technical analysis (Task ID #3997 and 4138) identified deficiencies relative to design of an emergency spillway, addition of field observation level markers, and language concerning the 100-year 24-hour storm event. The Permittee added language to the application about an emergency spillway, sediment cleanout markers and containment of the maximum storm event. This information was further added to the appropriate figures.

Finding:

The application meets the requirements for impoundments.

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:

The previous technical analysis (Task ID #3997) identified deficiencies relative to vegetation during reclamation and restoration of natural drainage. A seed mixture for revegetation is included in Attachment 8 and language was added to the reclamation section concerning the contour of regarding.

Finding:

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The amendment meets the general requirements for reclamation.

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.

Hydrologic Reclamation Plan

Analysis:

The previous technical analysis (Task ID #3997) identified deficiencies relative to underground ponding and impacts to the hydraulic balance. As described previously in the noncoal mine waste section of this memo, the Permittee must obtain a permit from the Utah DEQ for operation of a solid waste facility prior to application approval. The Permittee must fulfill all requirements of DEQ for closure.

Finding:

The previously identified deficiency in the noncoal mine waste section must be addressed.

RECOMMENDATIONS:

The application is recommended for conditional approval.