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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

November 14, 2011

TO: Internal File

THRU: Daron Haddock, Coal Program Manager *DH*

FROM: Steve Christensen, Environmental Scientist *SC*

RE: Evaluation/Revision of Groundwater Monitoring Plan, Consolidation Coal Company, Emery Deep Mine, C/015/0015, Task ID #3898

SUMMARY:

On September 15th, 2011, the Division of Oil, Gas and Mining (the Division) received an amendment from Consolidation Coal Company (the Permittee). The amendment outlines revisions of the ground-water monitoring plan currently approved in the Emery Deep Mining and Reclamation Plan (MRP).

The amendment was submitted in response to a notice of violation issued June 30th, 2011 (NOV #10088). NOV #10088 was issued for failing to provide required water monitoring data as outlined in Table VI-17 of the approved MRP (See page VI-56). NOV #10088 required the Permittee to submit an amendment to the Division that revised the water monitoring plan to accurately reflect the current conditions on the ground. The revision was to take into account historical water monitoring data and the condition of the water monitoring sites. The condition of numerous water monitoring wells had been reported as being either broken, inaccessible or impacted. The revision was to address these conditions and determine whether the wells could be repaired, and if not, propose alternative data collection measures that would effectively detect any potential impacts to the hydrologic balance as a result of mining activity.

The amendment does not meet the State of Utah R645-Coal Mining Rules. The following deficiencies must be addressed prior to final approval:

R645-301-728: The Permittee must revise the Probable Hydrologic Consequences Determination (PHC) of the approved MRP to address potential hydrocarbon contamination of ground and surface water resources within the permit and adjacent area of the Emery Deep Mine. Oil has been reported in monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U. (SC)

R645-301-731.210: The Permittee must provide additional groundwater monitoring data. Oil has been reported in monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U. Additional sampling of these wells must be conducted in order to determine the nature, chemical composition and extent of potential hydrocarbon contamination. (SC)

R645-301-301-748 and -765: The Permittee must revise Section VI.4.8, *Casing and Sealing of Wells* (See page VI-39) and Section VI.6.5, *Permanent Casing and Sealing of Wells* (See page VI-41). The revision must outline the techniques/methods that will be utilized when permanently sealing monitoring wells that are no longer required. The monitoring well sealing methods must be compliant with R655-4-14 (State of Utah rule outlining the abandonment of wells). (SC)

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

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

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

Probable Hydrologic Consequences Determination

The amendment does not meet the Probable Hydrologic Consequences Determination requirements of the State of Utah R645-Coal Mining Rules.

The Permittee has reported several wells as having been impacted by or containing oil. Monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U have all been identified as having contained oil. In order to evaluate potential impacts to ground and surface water resources, additional information is required.

The Permittee must revise the Probable Hydrologic Consequences Determination (PHC) of the approved MRP to address potential hydrocarbon contamination of ground and surface water resources within the permit and adjacent area of the Emery Deep Mine. Oil has been reported in monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U.

Findings:

The amendment does not meet the Probable Hydrologic Consequences Determination requirements of the State of Utah R645-Coal Mining Rules. The following deficiency must be addressed prior to Division approval:

R645-301-728: The Permittee must revise the Probable Hydrologic Consequences Determination (PHC) of the approved MRP to address potential hydrocarbon contamination of ground and surface water resources within the permit and adjacent area of the Emery Deep Mine. Oil has been reported in monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U.

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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, -300-148, -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:

Groundwater Monitoring

The amendment was submitted in response to a notice of violation issued June 30th, 2011 (NOV #10088). NOV #10088 was issued for failing to provide required water monitoring data as outlined in Table VI-17 of the approved MRP (See page VI-56). NOV #10088 required the Permittee to submit an amendment to the Division that revised the water monitoring plan to accurately reflect the current conditions on the ground. The revision was to take into account historical water monitoring data and the condition of the water monitoring sites. The condition of numerous water monitoring wells had been reported as being either broken, inaccessible or impacted. The revision was to address these conditions and determine whether the wells could be repaired, and if not, propose alternative data collection measures that would effectively detect any potential impacts to the hydrologic balance as a result of mining activity.

Table VI-17, Emery Mine Hydrologic Monitoring Program, has been revised to reflect the removal of the wells that will no longer be monitored.

Appendix VI-17, Evaluation/Revision of Groundwater Monitoring Plan (08/2011) provides a discussion/presentation of the process the Permittee undertook in determining which wells could be eliminated from the groundwater monitoring program. Of the 46 monitoring wells that are currently part of the groundwater monitoring program for the mine, the amendment proposes eliminating 31 of them.

Table 1 of Appendix VI-17 provides a summary of the trends observed at each monitoring well, the wells' conditions and recommendations regarding whether each well should be retained or eliminated from the groundwater monitoring program.

The Permittee must provide additional groundwater monitoring data. Oil has been reported in monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U. Additional sampling of these wells must be conducted in order to determine the nature, chemical composition and extent of potential hydrocarbon contamination.

Findings:

R645-301-731.210: The Permittee must provide additional groundwater monitoring data. Oil has been reported in monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U. Additional sampling of these wells must be conducted in order to determine the nature, chemical composition and extent of potential hydrocarbon contamination.

RECLAMATION PLAN

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:

The amendment does not meet the State of Utah R645-Coal Mining Rule requirements for the reclamation of mine openings. The following deficiency must be addressed prior to final approval:

The Permittee must revise Section VI.4.8, *Casing and Sealing of Wells* (See page VI-39) and Section VI.6.5, *Permanent Casing and Sealing of Wells* (See page VI-41). The revision must outline the techniques/methods that will be utilized when permanently sealing monitoring wells that are no longer required. The monitoring well sealing methods must be compliant with R655-4-14 (State of Utah rule outlining the abandonment of wells).

The Permittee has reported several wells as having been impacted by or containing oil. Monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U have all been identified as having contained oil. In order to evaluate what measures may be necessary to safely seal and reclaim these wells, additional information is necessary. The Permittee must address potential contamination issues associated with monitoring wells AA-M, AA-U, H-L, H-M, H-U, I-B, I-L, I-M, R2-U and Lewis-U. The origin of the oil contamination, its extent and its chemical composition must be addressed (See PHC discussion above).

Findings:

The amendment does not meet the State of Utah R645-Coal Mining Rule requirements for the reclamation of mine openings. The following deficiencies must be addressed prior to final approval:

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R645-301-301-748 and -765: The Permittee must revise Section VI.4.8, *Casing and Sealing of Wells* (See page VI-39) and Section VI.6.5, *Permanent Casing and Sealing of Wells* (See page VI-41). The revision must outline the techniques/methods that will be utilized when permanently sealing monitoring wells that are no longer required. The monitoring well sealing methods must be compliant with R655-4-14 (State of Utah rule outlining the abandonment of wells).

RECOMMENDATIONS:

The amendment should not be approved at this time.

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