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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

April 10, 2013

TO: Internal File

THRU: Priscilla Burton, Team Lead *PWB km sds*

FROM: Ken Hoffman, Hydrologist *KH*

RE: Draft Revised Diversion Ditch 1 and Sediment Impoundment 4, Alton Coal Development, LLC, Coal Hollow Mine, C/025/0005, Task ID #4292

SUMMARY:

The March 7, 2013 revision alters the design of the Diversion Ditch 1 and Pond 4 on the eastern edge of the disturbed area. This memo addresses the application's compliance with the hydrology (R645-301-700) section of the Utah Coal Mining Rules. The application does not address any hydrologic issues as relevant to this change in mining plan. The application includes numerous deficiencies due to not addressing hydrology. The application is not recommended for approval until the following issues are resolved:

R645.301.731.720 Drawing 5-33 is unclear and needs revision, changes shall be made to the plan view of the Ditch's terminus with the addition of "PLAN VIEW" to be placed at the top or bottom of the view, the note "Rock to be..." shall be moved to where it is legible, and the survey distances of 59+71 and 59+81 shall be added the view. Also the Required Storage Volume shall be updated. Drawings 5-3 and 5-27 shall be updated with the new alignment of Diversion Ditch 1.

R645.301.742.111 The amendment does not include any conveyance structures to delivery disturbed area flows to Pond 4. The amendment must be updated to demonstrate it will control disturbed area runoff and prevent it from runoff outside of the permit area.

R645.301.742.331 Chapter 7 Section 742.331 states "Diversion ditch 4 is planned to direct water from disturbed areas into sediment impoundment Pond 4", this statement is inconsistent with the MRP and needs to be corrected.

R645.301.742.312.3 & 742.331 Since Diversion Ditch 1 no longer reports to a sedimentation pond Ditch 1 must be analyzed for and designed for control of sediment so no additional sediment is discharged off site. Appendix 5-3 includes a very good example of

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analysis for rip rap required given flow velocities. Also Diversion Ditch 1 no longer reports to a sedimentation pond so Appendix 5-2 must be updated with appropriate design information.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

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

CLIMATOLOGICAL RESOURCE INFORMATION

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

Analysis:

The MRP addresses climatic information and the change in drainage does not affect this information.

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

Sampling and Analysis

The MRP addresses sampling and analysis and the change in drainage does not affect this information.

Baseline Information

The MRP addresses baseline information and the change in drainage does not affect this information.

Baseline Cumulative Impact Area Information

The MRP addresses baseline cumulative impact area and the change in drainage does not affect this information.

Probable Hydrologic Consequences (PHC)

The MRP addresses the probable hydrologic consequences and the change in drainage does not affect this information.

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Groundwater Monitoring Plan

The MRP addresses a groundwater monitoring plan and the change in drainage does not affect this information.

Surface-Water Monitoring Plan

The MRP addresses surface-water monitoring plan and the change in drainage does not affect this information.

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.

Analysis:

Monitoring and Sampling Location Maps

The MRP addresses monitoring and sampling location maps and the change in drainage does not affect this information.

Subsurface Water Resource Maps

Map 2.3.5.2-1 has been updated to include the subsurface water resources in the proposed change in drainage.

Surface Water Resource Maps

Map 2.3.5.1-1 has been updated to include the surface water resources in the proposed change in drainage.

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:

Groundwater Monitoring

The MRP addresses groundwater monitoring and the change in drainage does not affect this information.

Surface Water Monitoring

The MRP addresses surface water monitoring and the change in drainage does not affect this information.

Acid- and Toxic-Forming Materials and Underground Development Waste

The MRP addresses acid and toxic forming materials and the change in drainage does not affect this information

Transfer of Wells

There are no wells being transferred as part of this amendment.

Discharges Into an Underground Mine

There are no underground mines in the area

Gravity Discharges from Underground Mines

There are no underground mines in the area

Water-Quality Standards and Effluent Limitations

The MRP addresses compliance with water quality standards and effluent limitations and the change in drainage does not affect any treatment of disturbed area flow treatment.

Diversions: General

The amendment proposes to discharge undisturbed area flows to Sink Valley from Diversion Ditch 1 and no longer report this flow to Sediment Pond 4 and will no longer collect any disturbed area flows. In addition, Ditch 1 will have a berm on the western edge. There is no design for control of flows encountered from the disturbed area to the west of Ditch 1. The amendment includes a ditch inlet into Pond 4 but no ditches connect to Pond 4 anymore. Since

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disturbed area flows will no longer be collected in Ditch 1 an analysis and design of the disturbed area is required.

In Chapter 7 Section 742.331 states “Diversion ditch 4 is planned to direct water from disturbed areas into sediment impoundment Pond 4” this statement is in disagreement with the amendment and needs to be corrected.

Stream Buffer Zones

The MRP addresses compliance with stream buffer zones and the change in drainage does not affect this information.

Sediment Control Measures

The amendment proposes to discharge undisturbed area flows to Sink Valley from Diversion Ditch 1. The amendment includes a ditch inlet in Pond 4 but no ditches connect to Pond 4 anymore. Since Diversion Ditch 1 no longer reports to a sedimentation pond the Ditch 1 must be analyzed for and designed for control of sediment so no additional sediment is discharged off site. Appendix 5-3 includes a very good example of analysis for rip rap required given flow velocities.

Siltation Structures

The amendment proposes to discharge undisturbed area flows to Sink Valley from Diversion Ditch 1 and no longer report this flow to Sediment Pond 4. The amendment includes a ditch inlet into Pond 4 but no ditches connect to Pond 4 anymore.

Discharge Structures

The amendment proposes the addition of rip rap to UPDES discharge location 004. This addition should only add in the control and minimization of discharge of suspended solids.

Impoundments

No impoundments are included as part of the amendment.

Ponds, Impoundments, Banks, Dams, and Embankments

The amendment proposes alteration to the design of Pond 4. The amendment removes a inlet and adds rip rap to the spillway. These alterations will not have any adverse impacts to the function of the sediment pond.

Findings:

Contents and information provided are not sufficient enough to meet the minimum requirements of this section of the Utah Coal Mining Rules. The following deficiencies must be addressed prior to the Division approval of the application:

R645.301.742.111 The amendment does not include any conveyance structures to delivery disturbed area flows to Pond 4. The amendment must be updated to demonstrate it will control disturbed area runoff and prevent it from runoff outside of the permit area.

R645.301.742.331 Chapter 7 Section 742.331 states “Diversion ditch 4 is planned to direct water from disturbed areas into sediment impoundment Pond 4”, this statement is inconsistent with the amendment and needs to be corrected.

R645.301.742.312.3 & 742.331 Since Diversion Ditch 1 no longer reports to a sedimentation pond Ditch 1 must be analyzed for and designed for control of sediment so no additional sediment is discharged off site. Appendix 5-3 includes a very good example of analysis for rip rap required given flow velocities. Also Diversion Ditch 1 no longer reports to a sedimentation pond so Appendix 5-2 must be updated with appropriate design information.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Monitoring and Sampling Location Maps

As part of the amendment two maps were submitted Drawing 5-31 and 5-33. Drawing 5-31 is of Pond 4. Drawing 5-33 is of Diversion Ditch 1 in plan view, Division Ditch 1’s typical cross section and Division Ditch 1’s terminus in plan view. Drawing 5-33 is unclear and needs revision, changes shall be made to the plan view of the Ditch’s terminus with the addition of “PLAN VIEW” to be placed at the top or bottom of the view, the note “Rock to be...” shall be moved to where it is legible, and the survey distances of 59+71 and 59+81 shall be added the view. In addition, Drawings 5-3, 5-22, and 5-27 show Diversion Ditch 1 and must also be updated with the new alignment.

Findings:

Contents and information provided are not sufficient enough to meet the minimum requirements of this section of the Utah Coal Mining Rules. The following deficiencies must be addressed prior to the Division approval of the application:

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R645.301.731.720 Drawing 5-33 is unclear and needs revision, changes shall be made to the plan view of the Ditch's terminus with the addition of "PLAN VIEW" to be placed at the top or bottom of the view, the note "Rock to be..." shall be moved to where it is legible, and the survey distances of 59+71 and 59+81 shall be added the view. Also the Required Storage Volume shall be updated. Drawings 5-3 and 5-27 shall be updated with the new alignment of Diversion Ditch 1.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

Analysis:

The amendment will not result in any changes to the CHIA.

RECOMMENDATIONS:

The application is not recommended for approval until the deficiencies are addressed.