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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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TO: Susan Linner, Permit Supervisor

FROM: Mike DeWeese, Reclamation Hydrologist MD

RE: Mid-Permit Term Review, Soldier Creek Coal Company, Soldier Canyon Mine, ACT/007/018, Carbon County, Utah

SUMMARY:

The Division has reviewed the approved Mining and Reclamation Plan (MRP) regarding hydrologic concerns. No major problems were noted during this review. However several items should be addressed at this time, as discussed in the following analysis.

ANALYSIS:

UMC 713.17 Alternative Water Supply Information - MMD

UMC 817.41 Hydrologic Balance: General Requirements - MMD

The operator incorrectly states in the MRP (page 7-7) that UMC 713.17 has been remanded. This regulation is currently employed in the Utah Coal Mining Rules and all requirements thereof must be addressed in the MRP. The operator appears to have confused this regulation with UMC 817.54, pertaining to the replacement of water rights, which has been remanded.

Mining has been conducted below Soldier Creek, a perennial stream, under as little as 60 feet of overburden. The lower stream reach through the permit area is therefore considered extremely vulnerable to potential subsidence effects. The operator should specifically address potential effects of subsidence upon streamflow and subsequent effects upon the alluvial valley floor immediately downstream of the mine permit area. A description identifying alternative sources of water supply which can be developed to replace the existing sources must be included in the MRP.

UMC 817.47 Hydrologic Balance: Discharge Structures - MMD

UMC 817.49 (c) Hydrologic Balance: Permanent and Temporary Impoundments - MMD

The operator has committed to utilizing energy dissipators at the sedimentation pond inlet structure outlet and the spillway outlet. However these structures are not depicted on the as-built pond drawing (D 202) nor could any detailed engineering structural designs be located in the MRP. The operator must submit specific designs for any energy dissipation structures utilized on site including dimensions, material size gradation, etc. The location of these structures must be depicted in the as-built drawing of the sedimentation pond as well as the sewage lagoons.

UMC 817.52 Hydrologic Balance: Surface and Ground Water Monitoring - MMD

Page 4-70 of the MRP states that static water levels will be monitored in four wells and refers to Table 4.4-2. This table identifies only two wells as monitored observation wells. The operator must clarify this discrepancy by identifying the additional monitoring wells in Table 4.4-2 and Exhibit 3.2-1.

As part of the mid-term review process the Division is currently implementing the attached surface and ground water monitoring guidelines. The operator is currently monitoring the water quality constituents listed in the guidelines with the exception of surface water acidity. The Division feels that conditions in Soldier Creek justify analyzing nitrate and nitrite levels in addition to the listed constituents for both surface and ground water monitoring. Therefore the operator must include nitrate and nitrite analysis in both the surface and ground water operational monitoring programs and add total alkalinity analysis (to replace acidity) to the surface water program only.

A detailed description of surface and ground water sampling methodology must be included in the MRP. This will verify that samples are being collected properly thus ensuring data integrity and quality assurance of the monitoring program. All groundwater constituents should be analyzed in dissolved form while surface water constituents should be analyzed in both dissolved and total forms.

UMC 817.46 (e-u) Hydrologic Balance: Sedimentation Ponds - MMD

UMC 817.49 Hydrologic Balance: Permanent and Temporary Impoundments - MD

The operator must submit a certified, as-built longitudinal cross section and plan view of the sewage lagoon which includes the spillway structure. This drawing should show 1 or 2 foot contours of the impoundment extending at least to the spillway outlet (including the energy dissipator where appropriate). Elevations and/or dimensions of the following features should be identified:

Top of the embankment.

Crest of the emergency spillway.

Principle spillway inlet.

Riser to barrel connection.

Principle spillway outlet invert.

Spillway barrel length, diameter, and slope.

Maximum water level.

Maximum sediment level.

60 % sediment cleanout level.

Bottom of the pond.

UMC 817.42 through UMC 817.49 - MMD

A preliminary analysis has been conducted on the approved runoff control system at the existing mine facilities but a thorough technical evaluation has not been conducted at this time. The operator has recently notified the Division of its intention to submit plans in the near future for additional surface facilities. The operator has indicated that significant alterations of the present facilities will take place requiring a thorough technical analysis of the runoff control system at the time of submittal. Therefore, to avoid analytical duplication and facilitate the review process the aforementioned regulations will be reviewed as part of the proposed amendment.

RECOMMENDATIONS:

The Division recommends that no further analysis of the surface runoff system be conducted until such time as a complete proposal of the surface facilities portal expansion is submitted. The operator must submit the additional information described in the analysis prior to determining the existing plan to be technically adequate.

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