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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

August 6, 2009

TO: Internal File

THRU: Priscilla Burton, Lead PWB by SRS
James D. Smith, Permit Supervisor JDS 08/17/09

FROM: April Abate, Environmental Scientist II 8-17-09

RE: Reduce Water Monitoring Requirements, Canyon Fuel Company, Skyline Mine, C007/0005, Task #3356

SUMMARY:

Skyline Mine has submitted an amendment to reduce and /or omit several water monitoring locations from their current water monitoring plan. The locations include one monitoring well W99-28-1, stream sites F9, F-10, CS-4 and two stream locations in the north lease section of the permit area, NL-13 and NL-14. The amendment also proposes to eliminate a series of NL sample locations along the side panels. The remaining NL sites will be spaced such that they are centered along each longwall panel as the panels intersect/undermine the creeks.

The amendment is deficient and requires additional information outlined below:

[R645-301.722.300]: All sample locations proposed for removal should still be depicted on the maps such that they can be identified for historical purposes. The locations should be denoted on Drawings 2.3.6-1 and 6-2 as inactive sampling stations. Please resubmit Drawings 2.3.6-1 and 6-2.

[R645.301-731.214.1 and 731.224] and Technical Directive 004: The proposed changes to the water monitoring plan do not demonstrate any additional disturbance to the hydrologic balance of the coal mining operation within or outside of the permit area. The proposed modifications of the water monitoring requirements have been thoroughly reviewed based on the criteria outlined in the regulations and in the Division of Oil, Gas and Mining (the Division) Technical Directive 004 and are not considered to compromise the water quantity and quality to support the approved post-mining land use.

In accordance with the regulations and Technical Directive 004, protection and replacement of the water rights of other users must be considered. Therefore, if any of the sampling locations proposed for modification in this application are included in a water right, the surface landowner or water right owner, must be given notification of the change and given an opportunity to respond. Please provide the Division with confirmation that the Permittee provided notification to a landowner/water right user (where applicable) and that they were given adequate time to respond to the notice.

[R645.301-765]: Well 99-28-1 has been approved for removal from the water monitoring plan. This regulation states that all wells when no longer needed for monitoring or any other approved use, or unless approved for a transfer as a water well, the well is required to be permanently sealed. The Permittee must provide either a commitment that the well will be permanently sealed, or notification of any alternative future plans for this well to the Division.

TECHNICAL ANALYSIS:

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: R645-301-731.214 and 224

Analysis:

General

The Permittee proposes to remove or modify several water monitoring locations within and adjacent to the permit area. The application provided the following listing of locations with narratives justifying the reasons for their removal/modifications.

Groundwater Monitoring

Well 99-28-1 (Subject Well) is located just outside the western boundary of the Skyline mine permit area in Section 28 of Township 13 S Range 6 East. This well is located on top of a ridge between Swens Canyon and Little Swens Canyon. The Permittee indicates that mine personnel have been having difficulty advancing probes down the well to obtain accurate water levels. Mine personnel believe that the casing of this well has been breached and that water levels seen in this well are the result of water sources from higher elevations. The mine contends that deep aquifer data from nearby wells W20-28-1 and W99-21-1 is adequately being monitored and that Subject Well should be removed from the water monitoring plan.

Based on data reviewed by the Division, Table PHC A-2 contained within the Addendum to the PHC prepared in July 2002, indicates that depth to water levels in the Subject Well have averaged approximately 993 feet below ground surface, not 1250 feet as the Permittee indicated on the application. Well 99-21-1 is located approximately 5,000 feet north of Subject Well. Both wells are screened in the Star Point Sandstone and are advanced through the Flat Canyon Coal Seam. Depth to water in 99-21-1 is slightly lower, averaging 1,052 feet below ground surface (bgs). Well 20-28-1 is located approximately 2,000 feet to the northwest of Subject Well and is closer in proximity. However, despite this well's closer proximity to the Subject Well, this well does not serve as a good comparison, since it is screened in the Blackhawk formation and is advanced through the Lower O'Conner "B" Coal Seam and potentially has differing aquifer characteristics. The Division feels that groundwater monitoring in Well 99-21-1 would be adequate enough to collect representative samples from the deep aquifer (Star Pointe

Sandstone) in this area and therefore, agrees with the assessment that the Subject Well be removed from the monitoring program.

Surface Water Monitoring

F-9 and F-10 stream samples located in James Canyon are located downstream of the James Canyon well JC-1. The purpose of collecting stream samples from these locations was to monitor potential surface water losses due to mining taking place below the surface and to monitor water quality during the construction of James Canyon wells.

Samples have been collected from F-9 since 1993. F-10 has been an active monitoring point since 2008. The Permittee is proposing to remove F-9 from the water monitoring plan citing that data from this location provides similar data to that of F-10 located further downstream. Moreover, it is proposed that F-10 be monitored on a quarterly basis for field and flow parameters consistent with that of other stream samples in the monitoring program.

The Division reviewed field parameter and flow data from 2008 and compared the results in both F-9 and F-10 samples. Flow was less in F-9 but proportional to F-10 as shown in Figure B provided by the Permittee in the application. Specific conductivity and pH levels were consistent in both sample locations. The Division agrees with the Permittee and approves the removal of sample location F-9 and the quarterly sampling for field and flow parameters for F-10.

Stream sampling point CS-4 is another location proposed for removal. This point is located above the water tanks in the Upper Left Fork of Eccles Creek and was designed as an upstream stream monitoring location. The Permittee contends that CS-11 another sampling point downstream of CS-4 in the same canyon will serve the same water monitoring purposes.

The Division reviewed the field and laboratory parameter data for these two points for the past 3 years. Total Dissolved Solids (TDS) concentrations in these samples have shown to be well below the 1,310 milligrams per liter daily limit criteria established in the UPDES permit for the mine. The cation/anion balance of these samples appears to be within the allowable +/-5% quality control balance considered acceptable. No other anomalies or any stark contrasts in the data between the two samples were observed.

The Division agrees with the Permittee and approves the removal of sample location CS-4.

Two stream locations monitored for flow on the North Lease section of the permit area are proposed for removal. Sites NL-13 and NL-14 were designed to monitor stream flow in perennial streams before, during and after the undermining from longwall mining activities below. Mining below this area was completed in November 2006. The approved MRP on page

2-44B states that the required monitoring was due to be discontinued as mining advances and no effects to the stream flow are observed.

NL-13 and NL-14 are located in Section 11 of Township 13S, Range 6 East. These locations are monitored for flow only and have been monitored since 2006 when mining in that area was started and completed. The data show that there was an initial drop in water levels at the beginning of the monitoring period in 2006 from the NL points that monitored the subsidence effects of the 1L, 2L and 3L longwall panels. Flow has since stabilized in recent months. The data do show that flow is heavily influenced by snowmelt in periods of high flow (June 2008). The flow data were reviewed for NL monitoring points 12, 13 and 14 located above panel 1L for each year they were monitored and no significant loss of water was noted from these perennial stream points monitored above the mined-out longwall panels despite the fact that minor subsidence has been confirmed to have taken place in this area.

No significant loss of groundwater or surface water has been demonstrated in this area and therefore in accordance with the approved MRP, the removal of NL13 and NL 14 is approved.

The amendment also requests that the locations of all the perennial stream NL monitoring points be relocated such that they are spaced directly above the center of the longwall panels. This would result in an increased change of spacing between samples from 425 feet to 825 feet. The purpose is to provide for better accuracy when measuring flow rates. In accordance with the approved MRP, the increase spacing and elimination of select NL monitoring points is approved.

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 application included a map (Drawing 2.3.6-1) showing all the hydrologic monitoring stations in and adjacent to the permit area. The locations included wells, springs, stream, mine discharges and UPDES sample locations with the sample locations proposed for removal omitted from the map. The samples proposed for elimination were not shown on the map. This map should be resubmitted and label all sampling points eliminated as inactive or historical locations.

Drawing 2.3.6-2 was submitted with the application showing the North Lease subsidence hydrologic monitoring points in the North Lease section of the permit area. This map should be resubmitted and label all sampling points to be eliminated as inactive or historical locations.

Findings:

[R645-301.722.300]: All sample locations proposed for removal should still be depicted on the maps such that they can be identified for historical purposes. The locations should be denoted on Drawings 2.3.6-1 and 6-2 as inactive sampling stations. Please resubmit Drawings 2.3.6-1 and 6-2.

[R645.301-731.214.1 and 731.224] and Technical Directive 004: The proposed changes to the water monitoring plan do not demonstrate any additional disturbance to the hydrologic balance of the coal mining operation within or outside of the permit area. The proposed modifications of the water monitoring requirements have been thoroughly reviewed based on the criteria outlined in the regulations and in the Division of Oil, Gas and Mining (the Division) Technical Directive 004 and are not considered to compromise the water quantity and quality to support the approved post-mining land use.

In accordance with the regulations and Technical Directive 004, protection and replacement of the water rights of other users must be considered. Therefore, if any of the sampling locations proposed for modification in this application are included in a water right, the surface landowner or water right owner, must be given notification of the change and given an opportunity to respond. Please provide the Division with confirmation that the Permittee provided notification to a landowner/water right user (where applicable) and that they were given adequate time to respond to the notice.

[R645.301-765]: Well 99-28-1 has been approved for removal from the water monitoring plan. This regulation states that all wells when no longer needed for monitoring or any other approved use, or unless approved for a transfer as a water well, the well is required to be permanently sealed. The Permittee must provide either a commitment that the well will be permanently sealed, or notification of any alternative future plans for this well to the Division.

RECOMMENDATIONS:

The amendment should not be approved based on the criteria outlined above.