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# TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

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June 17, 2008

TO: Internal File

THRU: Jim Smith, Permit Supervisor *JS 06/25/08*

FROM: Steve K. Christensen, Environmental Scientist/Hydrologist *SKC*

RE: Permit Area Expansion- 560 Acres, Canyon Fuel Company, LLC, Dugout Canyon Mine, C/007/0039, Task ID #2958 (Previous Task ID #2873)

## SUMMARY:

On October 25, 2007, Canyon Fuel Company (the Permittee) provided the Division of Oil, Gas and Mining (the Division) with an application to expand their current permit area an additional 560 acres. The Division conducted a technical analysis of the application and sent the Permittee a list of deficiencies to be addressed prior to approval (Task ID #2873).

On April 18<sup>th</sup>, 2008, the Division received the Permittee's response to the aforementioned deficiencies. It should be noted that the proposed acreage to be added to the existing Dugout Mine permit area has changed with this most recent application. The initial permit expansion proposal of 560 acres has been reduced to 240 acres. The 240 acres of additional permit area are located in Federal Coal Lease U-070674-027821. The 320 acres of State Lease ML-50582 (included in the initial application) has been removed from the proposed permit area expansion.

No additional surface disturbance is associated with this permit expansion application. Future surface disturbance associated with methane degasification wells will be addressed in subsequent permitting actions. The following analysis has been assigned a review number of Task ID #2958 for tracking purposes.

The hydrologic information provided in the Permit Area Expansion- 240 Acres submittal (the application) does not meet the requirements of the State of Utah R645-Coal Mining Rules. The application should not be approved at this time.

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**Deficiencies:**

**Baseline Data Collection**

**R645-301-724:** The Permittee must address a discrepancy in the first paragraph of page 7-5 of the application. A reference is made to “the 600 acre expansion”. As the mine plan has changed with the removal of the 320-acre SITLA tract, this language should be revised.

**R645-301-724: R645-301-724:** The Permittee must provide a citation and/or reference for the ‘Perched Groundwater Systems’ discussion on pages 7-5 thru 7-7 in Chapter 7 of the application as well as on pages 6-8 of the Addendum to the PHC in Appendix 7-3. The discussion provided in both the Chapter 7 section the application and the PHC Addendum is identical. In order for the Division to accept the baseline groundwater information presented for the proposed permit expansion (without drilling data from the expansion area itself), the Permittee must provide a reference that supports the groundwater characterizations that are presented on the aforementioned pages.

At the end of the second complete paragraph of the discussion, the Permittee states, “As indicated in Appendix 7-3 and based on drilling data, large portions of the rock sequence overlying mining areas in the Dugout Canyon Mine area do not appear to be fully saturated in the vicinity of the Dugout Canyon Mine”. The first complete paragraph on page 7-6 of Section 7 (1<sup>st</sup> paragraph on page 7 of Addendum to PHC) concludes “As discussed above, the observation that the Castlegate Sandstone does not support many springs in the region and that much of the formation was dry when drilled supports these conclusions”. The Permittee should provide a reference to where this drilling data can be found and discuss why the data is indicative of the conditions found in the proposed permit expansion.

In general, the statements made as to the groundwater characterization of the proposed permit expansion area described in pages 7-5 thru 7-7 of Section 7 and pages 6-8 in the PHC Addendum need to be referenced. The Division can accept a scientifically justifiable explanation as to the groundwater characteristics of the area based on data from other locations. However; the Permittee must demonstrate why that data is indicative of the groundwater conditions in the proposed permit expansion area and provide a reference so the Division can verify the information.

**R645-301-724.200:** The Permittee provides the acquired field data from surface water monitoring site 323 in Appendix 7-2, *Groundwater Monitoring Data*. Appendix 7-2 of the approved MRP provides ground water data. The Permittee should amend the application so the surface water data is located in Appendix 7-7, *Surface Water Data*.

### **Probable Hydrologic Consequences**

**R645-301-728:** The Permittee must provide a discussion as to the probable hydrologic consequences of the proposed mining activity on the unnamed tributary to Cow Canyon Drainage in T13S, R13E, Section 17. Page 7-26 of the application states, "this tributary becomes perennial a short distance above Site 261". However, the application does not discuss any potential impacts to this drainage (either in terms of base flow impacts or surface interception). Based on the presented information, the perennial flow of the unnamed tributary to Cow Canyon is located within the potential subsidence boundary as depicted on Plate 5-7.

### **Subsurface Water Resource Maps**

**R645-301-722-100:** The application does not meet the Maps, Plans and Cross Sections requirements for Subsurface Water Resource Maps as required by R645-301-722.100. In section 722.100 on Page 7-2 of the application, a reference is made to Figure 7-1. Figure 7-1 does not appear to be in the application. The Permittee must address this discrepancy.

**R645-301-731:** Monitoring and Sampling Location Maps. Plate 7-1, Hydrologic Monitoring Stations does not depict Spring #322 as being actively monitored. Plate 7-1 should be revised to depict Spring #322 as an active monitoring site.

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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.

**CLIMATOLOGICAL RESOURCE INFORMATION**

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

**Analysis:**

The application meets the Climatological Resource Information requirements as required by R645-301-724. Climate data is provided in Appendix 4-1 of the approved MRP. The climate data includes a discussion of the climatological factors in the region of the existing permit area as well as the proposed expansion.

**Findings:**

The application meets the Climatological Resource Information requirements as required by R645-301-724.

**GEOLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

**Analysis:**

The application meets the Geologic Resource Information requirements as required by R645-301-724. The application contains updates to the plates depicting the geologic conditions within the proposed expansion area. Plate 6-1, *Geology of Dugout Canyon Mine Permit Area*, depicts the surficial geology within the proposed expansion area. Plate 6-4, *Rock Canyon Seam Overburden Thickness*, depicts the overburden above the Rock Canyon coal seam within the proposed expansion area.

**Findings:**

The application meets the Geologic Resource Information requirements as required by R645-301-724.

## HYDROLOGIC RESOURCE INFORMATION

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

### Analysis:

#### Baseline Information

The application does not meet the Hydrologic Resource Information requirements as provided for in R6450-301-724.

The initial permit expansion proposal of 560 acres (Task ID #2873, submitted October 25<sup>th</sup>, 2007) has been reduced to 240 acres. The 240 acres of additional permit area are located in Federal Coal Lease U-070674-027821. The 320 acres of State Lease ML-50582 (included in the initial application) has been removed from the proposed permit area expansion. The reduction in proposed expansion area has changed both the scope of the Division's technical analysis and consequently, the technical information required (Per State of Utah R645-Coal Mining Rules).

The removed 320 acres of State Lease ML-50582 encompassed a portion of the Cow Canyon Drainage located in T13 S, R13 E in Section 17. The previous mining plan had called for long-wall mining operations to proceed directly underneath the headwater region of the Cow Canyon drainage. As a result, several baseline deficiencies had been identified by the Division's previous technical analysis (Task ID #2873). With the removal of the 320-acre tract from the mine plan, the associated deficiencies relative to the Cow Canyon Drainage are no longer a concern at this time. Due to the overburden in the area of the Cow Canyon Drainage (in excess of 2,000 feet) and its location well outside the potential subsidence boundary (See Plate 5-7, Proposed Mine Sequence and Planned Subsidence Boundary), it is unlikely that the proposed mining activity under review would produce impacts to this drainage.

Plate 7-1, Hydrologic Monitoring Stations, depicts the monitoring locations for both surface and ground water.

The Permittee must provide a citation and/or reference for the 'Perched Groundwater Systems' discussion on pages 7-5 thru 7-7 of the application. In order for the Division to accept the baseline groundwater information presented for the proposed permit expansion (without drilling data from the expansion area itself), the Permittee must provide a reference that supports the groundwater characterizations that are presented on the aforementioned pages.

At the end of the second complete paragraph of the discussion, the Permittee states, "As indicated in Appendix 7-3 and based on *drilling data*, large portions of the rock sequence overlying mining areas in the Dugout Canyon Mine area do not appear to be fully saturated in

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the vicinity of the Dugout Canyon Mine”. The first complete paragraph on page 7-6 concludes “As discussed above, the observation that the Castlegate Sandstone does not support many springs in the region and that much of the formation was dry when drilled supports these conclusions”. The Permittee should provide a reference to where this drilling data can be found and discuss why the data is indicative of the conditions found in the proposed permit expansion.

In general, the statements made as to the groundwater characterization of the proposed permit expansion area described in pages 7-5 thru 7-7 needs to be referenced. The Division can accept a scientifically justifiable explanation as to the groundwater characteristics of the area based on data from other locations. However; the Permittee must demonstrate why that data is indicative of the groundwater conditions in the proposed permit expansion area and provide a reference so the Division can verify the information.

The Permittee must address a discrepancy in the first paragraph of page 7-5 of the application. A reference is made to “the 600 acre expansion”. As the mine plan has changed with the removal of the 320-acre SITLA tract, this language should be revised to reflect the correct acreage.

### *Surface Water*

Beginning on page 7-23 of the application, the Permittee discusses the surface water located within the proposed permit expansion. A drainage (hereafter referred to as the unnamed tributary of Cow Canyon) is located within the proposed permit expansion in T 13 S, R 13 E, Section 17. The Permittee established a surface water monitoring point below the confluence of two small drainages in the unnamed tributary of Cow Canyon (Surface Water Monitoring Site 323, See Plate 7-1). Seasonal field data was collected in 2007. Flows ranged from 13 to 20.5 gallons per minute. The pH exhibited a range of 7.8 to 8.4. Conductivity values for the drainage ranged from 591 to 675 with temperature ranging from 11 to 14 degrees centigrade. Appendix 7-2 of the application provides the data obtained from this drainage.

During the baseline collection of the unnamed tributary of Cow Canyon, the Permittee made observations as to the nature of flow of this drainage. It was observed that the surface water in the fork below monitoring site 260 ran intermittently between spring site 260 and spring site 261 (See Plate 7-1). The application states, “This tributary appears to become perennial a short distance above site 261.” On page 7-26 of the application, the Permittee commits to conducting further investigations as to the flow characteristics/nature of the unnamed tributary to Cow Canyon.

The Permittee has added site 323 to the operational surface water-monitoring program. No other surface water resources were identified within the proposed permit expansion area.

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The Permittee provides the acquired field data from surface water monitoring site 323 in Appendix 7-2, *Groundwater Monitoring Data*. Appendix 7-2 of the approved MRP provides ground water data. The Permittee should amend the application so the surface water data is located in Appendix 7-7, *Surface Water Data*.

**Groundwater**

On page 7-19 of the application, the Permittee discusses the groundwater resources located within and adjacent to the proposed permit expansion. Two springs (260 and 260A, See Plate 7-1) have been identified within the boundaries of the proposed expansion area that could potentially be impacted by subsidence. Spring 260 has been monitored quarterly since 2000. Spring 260A is not part of the water-monitoring program. However, according to the application on page 8 of Appendix 7-3, both springs 260 and 260A appear to discharge from the same shallow groundwater system (Colton formation) as they are in close proximity to one another and discharge at similar elevations. It is reasonable to assume that mining induced impacts to these two springs would be similar. Attachment 7-1 of Appendix 7-3 provides data obtained from three sampling events of spring 260A. Field parameters were obtained at spring 260A and are tabulated in this attachment. The flow from spring 260A averaged 3.1 gallons per minute from the three sampling events with an average of pH of 7.94. Average temperature for spring 260A was 7.2

Figure 2, *Probable Recharge Area for Springs 260 and 260A*, of Attachment 1 in Appendix 7-3 provides a figure depicting the likely recharge areas for the springs located within and adjacent to the proposed permit expansion. The Permittee discusses the probable areas of recharge to the springs beginning on page 7-19 of Appendix 7-3. Taking into account the existing geologic, hydro geologic and topographic information, the Permittee discusses the probability that the recharge area to the springs located in the proposed permit expansion is located south-southwest of the area.

The Division of Water Rights has identified two other springs within the proposed permit expansion that are located in the eastern portion of Section 17, T 13 S, R 13 E. The two springs identified by the Division of Water Rights were not located in the original spring and seep survey conducted by the Permittee. On pages 7-20 and 7-44 the Permittee commits to conducting a site visit with the water right owners in an effort to locate the springs. In the event that the springs are located, they may be added to the Permittee's groundwater-monitoring program.

Appendix 7-2, *Groundwater Monitoring Data*, provides a table of the field parameter values obtained during three sampling events in 2007 for springs 321 and 322. Springs 321 and 322 have been slated for operational monitoring by the Permittee.

Attachment 1 of Appendix 7-3 of the application provides additional groundwater baseline information for springs located outside the proposed permit expansion area that are

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located within the Cow Canyon Drainage located in T 13 S, R 13E, Section 16. Six springs (211, 211A, 213, 214, 300 and 301) were sampled in the late spring and early summer of 2007. Flow values for these springs were minimal (less than 3 gallons per minute).

Attachment 1 of Appendix 7-3 also provides additional baseline groundwater information for four springs (262, 262A, 263 and 263A) located within the watershed of the unnamed tributary to the Cow Canyon Drainage in T 13 S, R 13 E, Section 17. The springs were sampled in late spring early summer as well as in the fall of 2007.

A memo from professional geologist Alex Papp (Coalgeo, LLC) to Dugout Mine representative Vickie Miller (Attachment 1, Appendix 7-3) discusses the groundwater and geologic conditions located within the permit expansion area. It is the opinion of Mr. Papp that "the groundwater flowing at the springs located in the central part of Section 17, T13S, R13E originate from faults and/or major fractures. The geographical location of the springs, the significant amount of flow, the apparent thin alluvium/colluvium, the small restricted catchment area, and documented faults and/or major fractures within the vicinity leads me to this conclusion."

**Baseline Cumulative Impact Area Information**

The application meets the Baseline Cumulative Impact Area requirements as outlined in R645-301-725. The additional surface and groundwater monitoring data provided with the application will allow the Division to update the CHIA.

**Probable Hydrologic Consequences Determination**

The application does not meet the Probable Hydrologic Consequences Determination requirements as outlined in R645-301-728.

The initial permit expansion proposal of 560 acres (Task ID #2873, submitted October 25<sup>th</sup>, 2007) has been reduced to 240 acres. The 240 acres of additional permit area are located in Federal Coal Lease U-070674-027821. The 320 acres of State Lease ML-50582 (included in the initial application) has been removed from the proposed permit area expansion. The reduction in proposed expansion area has changed both the scope of the Division's technical analysis and consequently, the technical information required (Per State of Utah R645-Coal Mining Rules).

The removed 320 acres of State Lease ML-50582 encompassed a portion of the Cow Canyon Drainage located in T13 S, R13 E in Section 17. The previous mining plan had called for long-wall mining operations to proceed directly underneath the headwater region of the Cow Canyon drainage. As a result, several PHC deficiencies had been identified by the Division's previous technical analysis (Task ID #2873). With the removal of the 320-acre tract from the

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mine plan, the associated deficiencies relative to the Cow Canyon Drainage are no longer a concern at this time. Due to the overburden in the area of the Cow Canyon Drainage (in excess of 2,000 feet) and its location well outside the potential subsidence boundary (See Plate 5-7, Proposed Mine Sequence and Planned Subsidence Boundary), it is unlikely that the proposed mining activity under review would produce impacts to this drainage and the springs located within its watershed boundary.

The application provides an addendum to Appendix 7-3 of the approved MRP. Appendix 7-3 is a PHC document (*Probable Hydrologic Consequences of Coal Mining at Alkali Creek and Dugout Canyon Tracts and Recommendations for Surface and Ground-water Monitoring*) prepared by Mayo and Associates in February 1996.

The Permittee must provide a discussion as to the probably hydrologic consequences of the proposed mining activity on the unnamed tributary to Cow Canyon Drainage in T13S, R13E, Section 17. Page 7-26 of the application states, "this tributary becomes perennial a short distance above Site 261". However, the application does not discuss any potential impacts to this drainage. Based on the presented information, the perennial flow of the unnamed tributary to Cow Canyon is potentially located within the potential subsidence boundary as depicted on Plate 5-7.

On page 18 of the Update to the Probable Hydrologic Consequences of Coal Mining at the Dugout Mine in Appendix 7-3 (PHC Update), the Permittee discusses the potential for decreasing spring flows in the permit expansion area as a result of coal mining activity. Based on the subsidence impact boundary depicted on Plate 5-7 (based on a calculated 30 degree angle of draw), the potential for impacts to springs 261, 262, 262A, 263 and 263A appears minimal. However, mining activity in the 240-acre expansion area could decrease flows at or alter the discharge for springs 260 and 260A. Based upon Figure 2 of Attachment 1 of Appendix 7-3, the recharge area to these springs is located to the south/southeast and overlies a small portion of one proposed longwall panel. However, impacts to these springs are expected to be minimal and short lived. The recharge area to these springs is more than 2,000 feet above the projected mine workings. The springs appear to discharge from the Colton formation. The Colton formation contains interbedded sandstones, siltstones and shales. If the Colton formation in this area were to be fractured or cracked by subsidence, the composition of the formation would lend itself to heal relatively quickly as the clays expanded.

The previous Division technical analysis (Task ID #2873) identified the need to discuss the potential for mining related impacts to the water rights identified on Plate 7-2. On page 7-20 and 7-44 of the application, the Permittee discusses how these water rights were not identified/located during the original spring and seep survey. The Permittee has committed to conducting a site visit with the water right owners (once access allows) to locate these groundwater resources. Upon locating these groundwater resources, a determination will be made as to whether they should be added to the Permittee's water monitoring program.

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The Permittee must provide a citation and/or reference for the 'Perched Groundwater Systems' discussion on pages 6-8 of the Addendum to the PHC in Appendix 7-3. In order for the Division to accept the baseline groundwater information presented for the proposed permit expansion (without drilling data from the expansion area itself), the Permittee must provide a reference that supports the groundwater characterizations that are presented on the aforementioned pages.

At the end of the second complete paragraph of the discussion, the Permittee states, "As indicated in Appendix 7-3 and based on *drilling data*, large portions of the rock sequence overlying mining areas in the Dugout Canyon Mine area do not appear to be fully saturated in the vicinity of the Dugout Canyon Mine". The first paragraph on page 7 concludes "As discussed above, the observation that the Castlegate Sandstone does not support many springs in the region and that much of the formation was dry when drilled supports these conclusions". The Permittee should provide a reference to where this drilling data can be found and discuss why the data is indicative of the conditions found in the proposed permit expansion.

In general, the statements made as to the groundwater characterization of the proposed permit expansion area described in pages 7-5 thru 7-7 needs to be referenced. The Division can accept a scientifically justifiable explanation as to the groundwater characteristics of the area based on data from other locations. However; the Permittee must demonstrate why that data is indicative of the groundwater conditions in the proposed permit expansion area and provide a reference so the Division can verify the information.

### **Sampling and Analysis**

The application meets the Sampling and Analysis requirements as outlined in R645-301-723. On page 7-4 of the approved MRP, the Permittee states "All water samples collected for use in this MRP have been analyzed according to methods in either the 'Standard Methods for the Examination of Water and Wastewater' or 40 CFR parts 136 and 434".

### **Findings:**

The application does not meet the requirements for Hydrologic Resource Information as required by the State of Utah R-645 Coal Mining Rules. The following deficiencies must be addressed:

#### **R645-301-724: Baseline Data Collection (Surface and Groundwater)**

**R645-301-724:** Baseline Data NEW The Permittee must address a discrepancy in the first paragraph of page 7-5 of the application. A reference is made to "the 600 acre

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expansion". As the mine plan has changed with the removal of the 320-acre SITLA tract, this language should be revised.

**R645-301-724:** The Permittee must provide a citation and/or reference for the 'Perched Groundwater Systems' discussion on pages 7-5 thru 7-7 in Chapter 7 of the application as well as on pages 6-8 of the Addendum to PHC in Appendix 7-3. The discussion provided in both the Chapter 7 section the application and the PHC Addendum is identical. In order for the Division to accept the baseline groundwater information presented for the proposed permit expansion (without drilling data from the expansion area itself), the Permittee must provide a reference that supports the groundwater characterizations that are presented on the aforementioned pages.

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**R645-301-724.200:** The Permittee provides the acquired field data from surface water monitoring site 323 in Appendix 7-2, *Groundwater Monitoring Data*. Appendix 7-2 of the approved MRP provides ground water data. The Permittee should amend the application so the surface water data is located in Appendix 7-7, *Surface Water Data*.

**R645-301-728: Probable Hydrologic Consequences**

- The Permittee must provide a discussion as to the probable hydrologic consequences of the proposed mining activity on the unnamed tributary to Cow Canyon Drainage in T13S, R13E, Section 17. Page 7-26 of the application states, "this tributary becomes perennial a short distance above Site 261". However, the application does not discuss any potential impacts to

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this drainage (either in terms of base flow impacts or surface interception). Based on the presented information, the perennial flow of the unnamed tributary to Cow Canyon is potentially located within the potential subsidence boundary as depicted on Plate 5-7.

## **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:**

#### **Subsurface Water Resource Maps**

The application does not meet the Maps, Plans and Cross Sections requirements for Subsurface Water Resource Maps as required by R645-301-722.100. In section 722.100 on Page 7-2 of the application, a reference is made to Figure 7-1. Figure 7-1 does not appear to be in the application. The Permittee must address this discrepancy.

### **Findings:**

The application does not meet the requirements for Maps, Plans and Cross Sections of Resource Information as required by R645-301-722, -731.

#### **R645-301-722, -731: Location and Extent of Subsurface Water**

- The application does not meet the Maps, Plans and Cross Sections requirements for Subsurface Water Resource Maps as required by R645-301-722.100. In section 722.100 on Page 7-2 of the application, a reference is made to Figure 7-1. Figure 7-1 does not appear to be in the application. The Permittee must address this discrepancy.

## **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 and Surface Water Monitoring**

The application meets the Ground and Surface Water Monitoring requirements as required in R645-301-731.

The Permittee has added two additional groundwater-monitoring points (springs 321 and 322) as well as a surface water-monitoring site on the unnamed tributary to Cow Canyon (Site 323). The additional groundwater monitoring sites have been added to Table 7-4, *Groundwater Monitoring Program*. The addition of surface water monitoring site 323 has been added to Table 7-5, *Surface Water Monitoring Program*.

#### **Findings:**

The application meets the Ground and Surface Water Monitoring requirements as required in R645-301-731.

### **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**

The application does not meet the Maps, Plans and Cross Sections requirements for Subsurface Water Resource Maps as required by R645-301-722.100, -731. Plate 7-1, Hydrologic Monitoring Stations does not depict Spring #322 as being actively monitored. Based upon meetings with Dugout representatives regarding this lease expansion, it was agreed that Spring #322 would be added to the operational monitoring plan for ground water. Plate 7-1 should be revised to depict Spring #322 as an active monitoring site.

#### **Findings:**

The application does not meet the Monitoring and Sampling Location Maps requirement as required in R645-301-731.

##### **R645-301-731: Monitoring and Sampling Location Maps**

- Plate 7-1, Hydrologic Monitoring Stations does not depict Spring #322 as being actively monitored. Based upon meetings with Dugout representatives regarding this lease expansion, it

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was agreed that Spring #322 would be added to the operational monitoring plan for ground water. Plate 7-1 should be revised to depict Spring #322 as an active monitoring site.

**RECOMMENDATIONS:**

The application should not be approved at this time. The aforementioned deficiencies relative to the hydrology section of the State of Utah R645-Coal Mining Rules must be addressed prior to Division approval.

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