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OK

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

July 3, 2013

TO: Internal File

THRU: Daron Haddock, Permit Supervisor

FROM: Steve Christensen, Team Lead *SKC*

RE: Mid Term Review, Consol Energy Company, Emery Deep Mine, C0150015, Task #4363

SUMMARY:

Consolidation Coal Company (the Permittee) owns and operates the Emery Deep Mine located approximately 4 miles south of the town of Emery in Emery County, UT. In addition, the site has a small blending plant to size the coal and a truck loading area.

In 2009, the Emery Deep Mine produced approximately 1.2 million short tons of coal. However; due to poor market conditions, the mine went into temporary cessation in December of 2010. Mining was last conducted in the 2nd Right and 00 North panel.

On May 31st, 2013, the Division of Oil, Gas and Mining (the Division) notified the Permittee that the mid-term review had commenced and that the following items were being reviewed:

- A. Review of the Plan to ensure that the requirements of all permit conditions, division orders, notice of violations, abatement plans, and permittee-initiated Plan changes approved subsequent to permit approval or renewal (whichever is the most recent) are appropriately incorporated into the Plan document.
- B. Ensure that the Plan has been updated to reflect changes in the Utah Coal Regulatory Program which have occurred subsequent to permit approval or renewal.
- C. Review applicable portions of the permit to ensure that the Plan contains commitments for application of the best technology currently available (BTCA) to prevent additional contributions of suspended solids to stream flows outside of the permit area.
- D. Evaluate the compliance status of the permit to ensure that all unabated enforcement actions comport with current regulations for abatement; verify the status of all finalized

penalties levied subsequent to permit issuance or permit renewal, and verify that there are no demonstrated patterns of violation (POV). This will include an AVS check to ensure that Ownership and Control information is current and correct.

E. Evaluate the reclamation bond to ensure that coverage adequately addresses permit changes approved subsequent to permit approval or renewal, and to ensure that the bond amount is appropriately escalated in current-year dollars.

F. Evaluate the permit for compliance with variances or special permit conditions.

G. Optional for active mines, mandatory for reclamation only sites: conduct a technical site visit in conjunction with the assigned compliance inspector to document the status and effectiveness for operational, reclamation, and contemporaneous reclamation practices undertaken on predetermined portions of the disturbed area to minimize, to the extent practicable, the contribution of acid or toxic materials to surface or groundwater, and to otherwise prevent water pollution.

The following technical review will evaluate the hydrologic portions of the approved mining and reclamation plan (MRP) including, but not limited to, commitments/permit conditions relative to hydrology and the application of the best technology currently available (BTCA) to prevent additional contributions of suspended solids to stream flows outside of the permit area.

The following deficiency was identified during the mid-term review process and must be addressed by the Permittee:

R645-301-731.210, -731.214: The Permittee must satisfy the commitment located at the bottom of page VI-56. The Permittee must provide the Division with the annual hydrologic evaluation of Emery Town wells #1 and #2.

TECHNICAL ANALYSIS:

GENERAL CONTENTS

VIOLATION INFORMATION

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645-300-132; R645-301-113

Analysis:

The MRP meets the Violation Information requirements of the State of Utah R645-Coal Mining Rules.

Division staff reviewed the current AVS information for the Emery Deep Mine on May 31st, 2013. The permit evaluation retrieved 21 violations in the system. A narrative was requested and received from OSM on May 31, 2013 stating that all of the violations are either under settlement, payment plan or pending challenge.

Findings

The MRP meets the Violation Information requirements of the State of Utah R645-Coal Mining Rules.

RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

The MRP meets the Right of Entry requirements of the State of Utah R645 Coal Mining Rules.

On page 7 of Chapter 1 of the approved MRP, the Permittee discusses right of entry. The coal mining activity occurs based on surface and/or sub-surface ownership by Consol or on lease agreements. A detailed description of the documents is provided in Appendix I-2.

Appendix I-2 provides the names and contact information of all private land-owners within the permit and adjacent area.

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Findings

The MRP meets the Right of Entry requirements of the State of Utah R645 Coal Mining Rules.

LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

Analysis:

The MRP meets the Legal Description and Status of Unsuitability Claims requirements of the State of Utah R645-Coal Mining Rules.

Areas unsuitable for mining are not located within the permit area. The adjacent area contains one dwelling that is occupied intermittently (located in Section 30, Township 225, R6E) and several public roads (depicted on Plate III). Protection of land surface features is presented in Chapter V of the MRP.

Findings

The MRP meets the Legal Description and Status of Unsuitability Claims requirements of the State of Utah R645-Coal Mining Rules.

PERMIT TERM

Regulatory References: 30 CFR 778.17; R645-301-116.

Analysis:

The MRP meets the permit term requirements of the State of Utah R645 Coal Mining Rules.

At the time of this review, the mine is currently in temporary cessation. However; all indications are that the mine will not be active for some time. Essentially all of the underground equipment has been removed from the site (communications, mining equipment, electrical cable etc.) and the portals have been sealed.

The extent of the underground workings over the life of the permit is shown on Plate IV-I and IV-2.

Findings

The MRP meets the permit term requirements of the State of Utah R645 Coal Mining Rules.

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:

As part of the mid-term review the Division evaluated the applicable portions of the permit to ensure that the MRP contains commitments for utilizing the best technology currently available (BTCA) to prevent additional contributions of suspended solids to stream flow outside of the permit area.

A field inspection was performed on June 27th, 2013. The storm water runoff system was inspected (culverts, diversions, sediment ponds etc.).

Groundwater Monitoring

The Groundwater Monitoring requirements of the MRP have not been met. On page VI-56 of Chapter VI, the Permittee commits to providing an annual report that evaluates the monitoring data collected from Emery Town Wells #1 and #2. During the Divisions review of the annual report information (completed June 27th, 2013), it was determined that the Permittee had failed to provide this report.

The Permittee must satisfy the commitment located at the bottom of page VI-56. The Permittee must provide the Division with the hydrologic evaluation of Emery Town wells #1 and #2.

Water-Quality Standards and Effluent Limitations

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The Utah Division of Water Quality (DWQ) has issued UPDES (Utah Pollution Discharge Elimination System) Permit No. UT0022616 for the Emery Deep Mine. The permit specifies the reporting and self-monitoring requirements for nine UPDES outfall points (001 thru 009).

Although the mine has been in temporary cessation for approximately 2 ½ years, the Permittee has maintained compliance with the required water monitoring requirements. At the time of this review, there are no known compliance issues associated with the required effluent limitations identified in the current UPDES permit.

In July of 2012, the UPDES permit was re-issued with an expiration date of June 30th, 2017. During a lengthy review process, the DWQ altered the receiving stream water quality standard from total dissolved solids (TDS) to sulfate (SO₄). The receiving stream standard for SO₄ is 2,000 milligrams per liter (mg/L). The effluent limit is 3,366 mg/L. The higher effluent limit takes into account mixing/dilution processes that occur in the receiving stream. The TDS limit is now 4,766 mg/L.

Diversions: General

The MRP meets the requirements for Diversions as required in R645-301-732.300, 742.100, 742.200, 742.300, 742.320 and 742.330. The drainage ditch designs consist of a narrative description, design parameters, flow calculations, flow line profiles and cross-sections for each ditch. The Permittee incorporated design parameters including: drainage area calculations, design storm information, curve numbers and channel dimensions.

The design storms used for the ditches were a 10-year/24-hour event for temporary ditches (not associated with refuse disposal areas) and a 100-year/24-hour event for permanent stream diversions, waste disposal site diversion and ditches associated refuse disposal areas. The ditches have been designed to maintain flow velocities during design storm event peak flows under 4.0 feet per second (fps) in earthen channels and less than 12 fps in rock lined channels. The Permittee has committed to utilizing rock checks and/or other stabilizing structures in earthen channels where gradient slopes result in peak velocities exceeding 4.0 fps. In addition, channel bottoms will armored with rock riprap where necessary.

All diversions are depicted on Surface Drainage Control Maps Plates VI-10, VI-10A, VI-10B and VI-10C. Table VI-18 provides a summary of the operational diversion ditches and culverts at the mine site. The table provides design criteria utilized in the sizing of the ditches including: bottom width, side slopes, design flow depth and the design storm event. Detailed design calculations and drawings are presented in Appendix VI-6 of the MRP.

The Permittee constructed a crossing over Quitcupah Creek in the late 1970's using a multi-plate arch on a concrete foundation. The structure consists of concrete wing walls and was

equipped with a guardrail. The crossing was installed to allow access to the stockpile area south of Quitchupah Creek. It replaced two 3-foot diameter culverts, which were determined to be undersized for design flood conditions. The design information for this structure is provided in Appendices IV-7 and IV-8.

Stream Buffer Zones

The MRP meets the Stream Buffer Zone requirements as provided in R645-301-731.600. Page VI-27 discusses stream buffer zones. Plate V-5, Subsidence Monitoring Points and Buffer Zones, depicts the location of stream buffer zones established on both Christiansen Wash and Quitchupah Creek. All perennial and intermittent streams in the permit area are protected by 100-foot stream buffer zones on either side of these streams. Coal mining and reclamation operations have been designed to minimize any adverse effects on water quantity and quality for these receiving streams. Areas surrounding the streams that are not to be disturbed are designated as buffer zones, and the Permittee has marked these areas as specified in R645-301-521.260.

Sediment Control Measures

The approved MRP outlines the utilization of diversion channels, sedimentation ponds, containment berms, silt fences and road diversions and culverts as the primary sediment control measures. The application meets the Sediment Control Measure requirements as provided in R645-301-732. On page VI-32, the application discusses the various sediment control measures implemented at the site. The sediment control measures have been designed, constructed and maintained to accomplish the following:

- Prevent additional contributions of sediment to stream flow or to runoff outside the permit area;
- Meet the effluent limitations defined in Section VI.5.1; and
- Minimize erosion to the extent possible.

The sediment control plan includes:

- Retention of sediment within the disturbed area;
- Diversion of runoff away from the disturbed area;
- Diversion of runoff using channels or culverts through disturbed areas to prevent additional erosion;
- Provision of riprap, silt fences, site revegetation, ponds and other measures that reduce overland flow velocities, reduce runoff volumes, or trap sediment; and
- Treatment of mine drainage in underground sumps prior to being discharged to the surface.

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The Permittee also utilizes a number of alternative sediment control methods for surface drainage that does not pass through a sedimentation pond. Details regarding the alternative sediment controls are provided in Appendix VI-8. Table VI-21 provides the locations of the alternative sediment controls that have been installed at the mine site. Alternative sediment control measures installed at the site include: runoff collection berms, rock check dams, silt fences and vegetative cover.

No revisions to the approved MRP relative to Sediment Control Measures are required at this time.

During the June 27th, 20-13 field inspection, each of the aforementioned sediment control measures were observed functioning as designed. There was no evidence of excessive erosion or sediment contributions outside the permit area.

Sediment Pond 3 was observed during the field inspection. Historically, Pond 3 (UPDES Outfall 003) was the primary discharge point for groundwater encountered within the mine workings. At the time of the inspection, the pond was not discharging.

Siltation Structures: Sedimentation Ponds

The application meets the Siltation Structures: Sediment Ponds requirements as provided in R645-301-732.200 and -742.220. The mining operation utilizes 5 sedimentation ponds, not including the 3 mine-water discharge ponds. Discussion of the design of the mine-water discharge and sedimentation ponds are discussed in Section VI.4.2.2 of the MRP.

The sedimentation ponds were designed to provide treatment or full containment of the total runoff volume from a 10-year, 24-hour precipitation event. The sedimentation ponds were constructed with a dewatering system consisting of slide gates that remain closed except when dewatering. Dewatering of these ponds occurs after a minimum of 24 hours of storm water detention is provided to achieve effluent limitations. A registered professional engineer certified all sedimentation ponds at the Emery Mine after construction with as-built drawings submitted and approved by the Division. In addition, all ponds are inspected in accordance with applicable regulations.

Plans and cross sections associated with the sedimentation and mine-water discharge ponds are located provided on Plates VI-14 through VI-20, Plate VI-20A and Appendix VI-7 of the approved MRP. Each plan is designed to work individually to manage the design sediment volume and safely convey the peak discharge rate from its respective drainage area. All sedimentation ponds are located as near as possible to the disturbed areas that report to them.

Sediment storage and cleanout quantities (i.e. volumes and elevations) are presented in Table VI-19. The calculations utilized to generate these quantities are presented in Appendix

VI-7. The Permittee commits to clean out each pond when its actual sediment storage equals 60% of the design volume.

During the June 27th, 20-13 field inspection, each of the aforementioned sediment control measures were observed functioning as designed. There was no evidence of excessive erosion or sediment contributions outside the permit area.

Sediment Pond 3 was observed during the field inspection. Historically, Pond 3 (UPDES Outfall 003) was the primary discharge point for groundwater encountered within the mine workings and typically the only sediment pond that ever produced a discharge. At the time of the inspection, the pond was not discharging.

Ponds, Impoundments, Banks, Dams, and Embankments

The MRP meets the requirements for Ponds, Impoundments, Banks, Dams and Embankments as required by R645-301-536.800 and-744.100. The embankments are discussed on page VI-29 of the application. The embankments were designed and constructed to maintain a combined upstream and downstream slope of not less than 1v: 5h, with neither slope steeper than 1v: 2h. The Permittee has committed to utilizing rock checks and/or other stabilizing structures in earthen channels where gradient slopes result in peak velocities exceeding 4.0 fps. In addition, channel bottoms will be armored with rock riprap where necessary.

It should be noted that during the construction of the sedimentation ponds, the embankment materials were free of sod, large roots, frozen soil and acid- or toxic-forming coal processing waste. The embankments were compacted during placement of the materials.

Findings:

The MRP does not meet the Operational Hydrologic Information requirements of the State of R645 Coal Mining Rules. The Permittee must address the following deficiency:

R645-301-731.210, -731.214: The Permittee must satisfy the commitment located at the bottom of page VI-56. The Permittee must provide the Division with the annual hydrologic evaluation of Emery Town wells #1 and #2.

RECOMMENDATIONS:

The Permittee must address the deficiency identified above relative to the hydrologic evaluation of the Emery Town wells #1 and #2.