

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

July 21, 2009

TO: Internal File

THRU: David Darby, Lead *DS 07/28/09*
Jim Smith, Permit Supervisor

FROM: April A. Abate, Environmental Scientist II *AAA 7-21-2009*

RE: New Sedimentation Overflow Pond, Canyon Fuel Company, SUFCO Mine
C/041/0002, Task #3341

SUMMARY:

On June 22, 2009, the Division of Oil, Gas and Mining (the Division) received an application from Canyon Fuel Company (the Permittee) to construct a new sediment overflow pond approximately 800 feet downstream from the existing primary sediment pond. The purpose of the new overflow pond is to allow for increased volume, flood control and extra sediment settling from the disturbed mine facilities and to capture run off from the 10-year, 24-hour storm event. The new overflow pond will also allow runoff to bypass the primary sediment pond thereby facilitating regular sediment removal and maintenance of the primary pond.

The addition of the sediment overflow pond will add an additional 4.6% of disturbed acreage to the permit area.

The application should not be approved until the following deficiencies are addressed:

[R645-301-532,742.120]: No discussion of how sediment from the disturbed area will be controlled during the construction of the new overflow sediment pond is included in the application

[R645-301-742.323]: On page 7-78 of the application, it states that the channels to be constructed on the east and west flanks of the overflow sediment pond were designed for the 100-year, 6-hour storm. The application incorrectly references regulation R645-746-330. No calculations for the 100-year, 6-hour storm are included in Appendix 7-23, nor

are they required. Furthermore, R645-746-330 relates to coal mining waste impoundment structures. The Permittee should remove this language from the application.

[R645-301-760 thru 64]: The application states that the reclamation of the overflow sediment pond will be performed in accordance with the reclamation plan outlined in Sections 5.4 of the MRP. However, Sections 5.4.2.2 and 5.4.2.5 of the MRP only discusses the primary sediment pond and does not specifically provide any information on the removal, timetable and reclamation relating to the overflow sedimentation pond. The reclamation information does not appear to have been updated to include the additional sediment overflow pond and the waste rock site sediment pond. The Permittee should review and update this section of the MRP accordingly and provide a reference in the application that the reclamation plan for the overflow pond has been addressed in the reclamation sections of the MRP.

TECHNICAL ANALYSIS:

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:

General

The application states that the proposed new sediment overflow pond is within the boundaries of the hydrologic basin for which an existing cumulative hydrologic impact assessment (CHIA) has been prepared. Therefore, a separate CHIA is not required.

Diversions: General

All diversion structures are listed on pages 7-57, 7-58 and 7-58A of the application. Four new diversion channels have been created to redirect undisturbed

drainage from the east and west sides of the new overflow pond. The overflow pond channels are designed to accommodate the 10-year, 6-hour storm.

Two additional culverts are proposed: a culvert from the existing primary sediment pond used to divert runoff to the new overflow pond to allow for drainage and sediment removal from the primary sediment pond. A second culvert installed immediately upstream of the proposed sediment overflow pond will allow runoff from the undisturbed watersheds to bypass the overflow pond and discharge immediately downstream of the proposed overflow pond.

Diversions: Perennial and Intermittent Streams

Page 7-65 of the application states that the overflow pond will be located within a perennial stream channel. R645-301-742.221.2 states that a sediment pond shall not be located within a perennial stream channel unless approved by the Division. A 66-inch culvert is to be installed directing undisturbed drainage from East Spring Canyon and Mud Spring Hollow immediately upstream of the overflow pond. The culvert is designed to safely convey peak flow from the 100-year, 6-hour storm and discharge immediately downstream of the overflow pond. Given that the culvert is equipped to handle the capacity of a 100-year, 6-hour storm event, approval is granted to allow for the sediment pond to be located within the perennial stream channel.

Diversions: Miscellaneous Flows

One natural seep was noted on the west slope of the proposed overflow sediment pond. According to Plate 7-4A included in the application, groundwater from the seep will be directed via a culvert and discharged to the outfall of the proposed overflow pond.

Diversions: Ditches

Temporary diversion channels are required to safely pass the peak flow runoff from the 10-year, 6-hour precipitation event in accordance with 742.323. On page 7-78 of the application, it states that the channels to be constructed on the east and west flanks of the overflow sediment pond were designed for the 100-year, 6-hour storm. The regulation incorrectly referenced is R645-746-330. No calculations for the 100-year, 6-hour storm are included in Appendix 7-23, nor are they required. Furthermore, R645-746-330 relates to coal mining waste impoundment structures. The Permittee should remove this language from the application.

Sediment Control Measures

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The Permittee has not met the requirements of R645-301-532,742.120. No discussion of how sediment from the disturbed area will be controlled during the construction of the new overflow sediment pond is included in the application.

Siltation Structures: Sedimentation Ponds

A total of four sedimentation ponds will exist at the facility pending the approval of the overflow pond. The system is designed to accommodate runoff from disturbed areas as well as handle all the sediment from equipment wash down and dust suppression activities that occur at the mine on a daily basis. A concrete sediment trap is located at the southern end of the mine yard and used to remove the majority of the sediment from the disturbed area. The function of this trap was originally intended to reduce the size of the primary sediment pond. The sediment trap is tied into the primary sediment pond located immediately below the fill on which the mine facilities are constructed. The proposed overflow pond is to be constructed approximately 800 feet downstream from the primary pond. An additional sediment pond is located at the waste rock disposal site.

The overflow pond has been designed to provide adequate sediment storage from the 10-year, 24-hour storm event from the disturbed and adjacent areas. The disturbed area associated with the pond is reported to be 16.49 acres. The overflow pond was designed in part to allow runoff from the aforementioned concrete sediment trap located upstream to bypass the primary existing sediment pond to allow for drawdown, sediment removal and maintenance to be conducted within the primary pond. The application states that the overflow pond will provide adequate detention time to meet state and Federal effluent limitations.

The Permittee addresses all the requirements outlined in 301-742.221.31 thru 39 required for sediment ponds in the application.

The spillway for the overflow pond has been designed to safely pass the peak flow from the 25-year, 6-hour storm. Calculations for these precipitation events were included in Appendix 7-23 of the application.

Slope stability was addressed in section 5.3.3.3 of the application. A slope stability analysis was performed on the proposed overflow pond with a resulting minimum safety factor against slope failure of 1.76. Minimum acceptable safety factors for impoundments as outlined in R645-301-533.100 under static conditions are 1.5; and under seismic conditions are 1.2. The results of the slope stability analysis indicate that the impoundment slopes meet the minimum safety requirements.

Discharge Structures

Discharge structures to include culverts and spillways are described in the application on Page 7-77 and 7-82. Design diagrams are included on Plates 7-4, 7-5A, 7-5B, 7-5C and in Appendix 7-23. All design diagrams were stamped certified by a Utah registered professional engineer.

Findings:

[R645-301-742.323]: On page 7-78 of the application, it states that the channels to be constructed on the east and west flanks of the overflow sediment pond were designed for the 100-year, 6-hour storm. The application incorrectly references regulation R645-746-330. No calculations for the 100-year, 6-hour storm are included in Appendix 7-23, nor are they required. Furthermore, R645-746-330 relates to coal mining waste impoundment structures. The Permittee should remove this language from the application.

[R645-301-532,742.120]: No discussion of how sediment from the disturbed area will be controlled during the construction of the new overflow sediment pond is included in the application.

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:

Mining Facilities Maps

The Permittee has met the requirements of R645-301-521.125 and 731.740 by providing the location of the new sedimentation overflow pond on Plates 5-2B v.17, and 7-4A, and cross-sections with design details on Plates 7-5A thru C.

Certification Requirements

The Permittee has met the requirements of R645-301-712 and 733.210. A registered professional engineer in the State of Utah has stamped certified each of the above-mentioned maps.

Findings:

The Permittee has complied with the Maps, Plans, and Cross-section requirements of the R645 Utah Coal Rules.

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RECLAMATION PLAN

Hydrologic Information

Regulatory Reference: R645-301-760-64.

Analysis:

The application states that the reclamation of the overflow sediment pond will be performed in accordance with the reclamation plan outlined in Sections 5.4 of the MRP. However, Sections 5.4.2.2 and 5.4.2.5 of the MRP only discusses the primary sediment pond and does not specifically provide any information on the removal, timetable and reclamation relating to the overflow sedimentation pond. The reclamation information does not appear to have been updated to include the additional sediment overflow pond and the waste rock site sediment pond. The Permittee should review and update this section of the MRP accordingly and provide a reference in the application that the reclamation plan for the overflow pond has been addressed in the reclamation sections of the MRP.

Findings:

The application does not meet the reclamation requirements outlined in R645-301-760 thru 64.

RECOMMENDATIONS:

The application should not be approved until the above-mentioned deficiencies are addressed.