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# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

December 21, 2018

John Byars, General Manager  
Canyon Fuel Company, LLC  
597 South SR24  
Salina, Utah 84654

Subject: Pines East Panels, Canyon Fuel Company, LLC, Sufco Mine, C/041/0002, Task #5777

Dear Mr. Byars:

The Division has reviewed your application. The Division has identified deficiencies that must be addressed before final approval can be granted. The deficiencies are listed as an attachment to this letter.

The deficiencies authors are identified so that your staff can communicate directly with that individual should questions arise. The plans as submitted are denied. Please resubmit the entire application.

If you have any questions, please call me at (801) 538-5325.

Sincerely,

Daron R. Haddock  
Coal Program Manager

DRH/sqs  
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## Technical Analysis and Findings

### Utah Coal Regulatory Program

**PID:** C0410002  
**TaskID:** 5777  
**Mine Name:** SUFCO MINE  
**Title:** PINES EAST PANELS

## General Contents

### Right of Entry

#### Analysis:

The application meets the requirement of the R645-301-114 rules with respect to Right -of-Entry. An amendment to address the mining of coal panels in the eastern region of the Pines Lease Tract (UTU-76195) was submitted to the Division on November 13, 2018. The Pines lease had been approved for mining a number of years ago (June 22, 2000) but this area was not mined and the company chose to pursue coal in other areas of the mine. The Company retained the lease and is now planning to mine the Pines East Panels. No surface disturbance is planned on the Pines Lease. This application contains text, appendices, tables and drawings previously submitted and approved for the lease. Information pertaining to the lease and the proposed mining already within the permit have been updated to reflect the proposed mining area. On the drawings submitted, two mine plans have been outlined one set of panels is oriented southwest to southeast, the second set of panels is oriented north to south. The final mine plan will be submitted in a future submittal, however at this time both outlined areas are being evaluated. The determination of the panel orientation is awaiting the review of exploration drilling results.

dhaddock

## Environmental Resource Information

### Historic and Archeological Resource Information

#### Analysis:

The amendment does not meet the State of Utah R645-301-411 requirements for historic and archeological resource information. A cultural resources report titled "Cultural Resource Evaluation of a Potential Mining Subsidence Zone in the Pines Locality, Sevier and Emery Counties, Utah" is included in the confidential section of the MRP. This report was made in 1997 and covers the area of potential subsidence proposed by the current amendment. From this report, two NRHP-eligible sites are identified in the proximity of the currently-proposed amendment: 42SV2432 and 42SV2378. These sites are not located directly within the area of potential subsidence but are located nearby. A copy of this cultural resources report has been sent to Charmaine Thompson, an archeologist with the Manti-La Sal National Forest. Upon her review and consultation, a determination can be made regarding the potential impact of the current proposal on cultural resources in the Pines Lease area and concurrence can be sought from SHPO.

#### Deficiencies Details:

The amendment does not meet the State of Utah R645-301-411 requirements for historic and archeological resource

information. The following deficiency must be addressed prior to final approval:

R645-301-411: The amendment does not provide evidence of clearance by SHPO. A copy of the 1997 "Cultural Resource Evaluation of a Potential Mining Subsidence Zone in the Pines Locality, Sevier and Emery Counties, Utah" report has been sent to the Manti-La Sal National Forest archeologist. Upon her review and the findings of DOGM and the MLS-NF, concurrence can be sought from SHPO. The permittee is not obligated to provide anything at this time, however, dependant on the findings of MLS-NF, DOGM, and with the concurrence of SHPO, future action may be required of the permittee.

tmiller

## Soils Resource Information

*Analysis:*

The application meets the State of Utah R645 requirements for Soil Environmental Resources. The application for mining in the Eastern Pines Tract does not involve any increase in surface disturbed area. Therefore, there is no change to the soils environmental resource information. Soils on the surface of the tract are shown as Map Unit 57 on Plate 2-2. Appendix 2-8 Pines Tract Soil Types provides a brief description of this soil map unit. The composition is 55% Falcon Family soils; 30% sandstone rock outcrops; 15% inclusions of deeper more stoney and sandier soils.

pburton

## Geologic Resource Information

*Analysis:*

The application meets the regulatory requirements of R45-301-623 with respect to Geologic Resource Information.

The Pines Tract Lease was acquired in October of 1999 and approved for mining by the Division on June 22, 2000. Information in Chapter 6 has been updated to reflect the current mining scenario. The Geology and Drill Hole Location Map (Plate 6-1) has been updated as November 7, 2018. Not much has changed since the 2000 approval. No surface disturbance is planned. The Company has proposed two different panel layouts which show the area planned for mining. The final layout will be determined by mining conditions and future drilling. Mining will occur in the Hiawatha seam with the overburden ranging from 750 feet to 1000 feet. The seam dips 2 degrees to the northwest. Drill logs are found in the confidential folder.

The company provided Plate 5-10C which shows the potential subsidence limits. The limits are outlined in blue. There is a plugged abandoned gas well in section 23 of T21S R5E that is well outside of the area to be mined and an Archeological site 42sv2426 that is also outside of the area of potential subsidence.

dhaddock

## Hydro Baseline Information

*Analysis:*

The amendment meets the State of Utah R645 requirements for Baseline Information.

The amendment and information within the MRP includes narratives and maps outlining baseline hydrologic, geologic, and climatological information. Information on the Pines lease was first incorporated into the MRP when it was permitted for mining in the late 1990's. The permittee has kept up on lease commitments within the MRP keeping baseline information relevant and up to date for the three proposed panels along the eastern extent of the lease.

Baseline groundwater, surface water, and climatic information is up to date. The Permittee has monitored surface and groundwater sites within and adjacent to the Pines lease since the mid- to late-1990's up to the present. Plate 7-10 shows operational monitoring sites which are monitored as outline in Table 7-2 of the Water Monitoring Program. These monitoring data have been uploaded to the Division's water monitoring database on a quarterly basis that continues through to the present. The correlation of climate and surface and groundwater quantity in the Pines lease has been analyzed in annual reports and submitted to the Division. These reports provide baseline climatic information extending back to the early 2000's.

kstorrar

## Probable Hydrologic Consequences Determination

### Analysis:

The amendment meets the State of Utah R645 requirements for Probable Hydrologic Consequences.

The Pines Tract is the eastern most coal lease at the Sufco mine. The proposed panels underlying the plateau are bound on the eastern edge by cliff escarpments. Springs are scarce within the lease area and mostly located in Box Canyon and the East Fork of Box Canyon. These springs are  $\frac{3}{4}$ 's of a mile away and down-dip from the three proposed panels. The original PHC for the Pines lease is located in Appendix 7-18 in the MRP. The hydrogeologic function of probable mining impacts within the lease area outlined in this PHC is still relevant. The amendment also includes a supplement to Appendix 7-18 dated November 8, 2018. This supplemental material evaluates the probable hydrologic consequence of mining the panels up-gradient and near Spring 310.

kstorrar

## Hydro GroundWater Monitoring Plan

### Analysis:

The amendment meets the State of Utah R645 requirements for baseline Groundwater Monitoring.

The MRP outlines groundwater monitoring in the Water Monitoring Program. Groundwater discharge is monitored at multiple spring locations within the lease. The data for these springs extends back to the mid- to late-1990's providing a robust baseline for groundwater within the lease area.

kstorrar

## Hydro SurfaceWater Monitoring Plan

### Analysis:

The amendment meets the State of Utah R645 requirements for baseline Surface Water Monitoring.

The MRP outlines surface water monitoring in the Water Monitoring Program. Surface water is monitored at multiple stream locations within and adjacent to the lease area. The data for these stream monitoring points extends back to the mid- to late-1990's providing a robust baseline for surface water resources within the lease area.

kstorrar

## Operation Plan

### Subsidence Control Plan Subsidence

#### Analysis:

The application meets the State of Utah R645 requirements for Subsidence Control Plans.

The application satisfies the minimum requirements for R645-301-525 because of narrative on pages 5-25 and 5-31 that specifically detail the magnitude and type of subsidence that may be expected above the proposed mine plans. Additionally, Table 5-2 includes survey data for subsidence monitoring points above the proposed mining areas that will be considered in all annual subsidence surveys. Plates 5-10 and 5-10C illustrate where these points are located, and illustrate where on the surface the potential subsidence limits are expected.

jeatchel

### Subsidence Control Plan Subsidence

#### Analysis:

The application meets the requirements of the R645-301-632 rules with regard to subsidence monitoring.

Overburden thickness will average approximately 900 feet in the area. Mining will be conducted using longwall methods and subsidence is expected to average about 4 feet above the panels with a draw angle of 15 degrees. Subsidence is

monitored on an annual basis. Plate 5-10C shows the monitoring control points and also shows the potential subsidence limits.

It is anticipated that subsidence cracks may form generally over the mined panels. The cracks will be repaired as needed to eliminate potentially hazardous situations.

dhaddock

## **Fish and Wildlife Bald and Golden Eagles**

### *Analysis:*

The amendment meets the State of Utah R645-301-358 requirements for fish and wildlife bald and golden eagle protection. Maps showing the location of raptor nests can be found in the confidential portion of the MRP. These maps show few nests in the area of the Pines East panels, none of which are within the area of potential subsidence. The closest nests are 322 and 810, golden eagle nests that have not been observed in over 10 years. Following consultation with the Manti-La Sal National Forest, the closest nest that would be of concern is nest 811, a golden eagle nest located roughly 1/3-mile outside the area of potential subsidence. Forest Service personnel monitor this nest annually and will continue to do so into the future. The permittee has also committed to surveying the area of the Pines East panels for raptors in 2019. No impact from the proposed Pines East Panel amendment is anticipated but should concerns arise from the monitoring of this and other nests, modifications to the mine plan may be made in accordance with R645-301-358.200.

tmiller

## **Topsoil and Subsoil**

### *Analysis:*

The application meets the State of Utah R645 requirements for Soil Operation Plan. The application does not involve any increase in surface disturbed area. Therefore, there is no change to the approved soils handling operation plan.

pburton

## **Vegetation**

### *Analysis:*

The amendment meets the State of Utah R645-301-331 requirements for vegetation. Chapter 3 Section 3.2.2.2 details site specific resource information including information for the Pines East Panels. Because there are no new surface disturbances associated with this amendment, the only concern is with subsidence cracking. Section 3.3.3.3 describes wildlife and livestock protective measures that will be taken should subsidence cracking appear. Section 3.2.2.2 states that should a seed mix be required to use on backfilled subsidence cracks in the Pines East Panels area, the same seed mix designated for the 3R4E panel would be used. This seed mix can be found in Section 3.4.1.2.

tmiller

## **Hydrologic Ground Water Monitoring**

### *Analysis:*

The amendment does not meet the State of Utah R645 requirements for Groundwater Monitoring.

The amendment does not include groundwater monitoring of the Castlegate bedrock aquifer underlying the East Fork of Box Canyon. The bedrock aquifer rests at the base of the Castlegate Sandstone and is dominated by fracture flow along a northwest gradient. This aquifer is discussed in the USGS report 'Hydrology and Effects of Mining in The Quitchupah and Pines Coal-Lease Tracts, Central Utah'. Wells originally installed for North Water spring mitigation investigating are screened within this aquifer. One or more of these wells shall be operationally monitored to ensure upgradient mining does not impact this water source.

The old mains and proposed panels will nearly undermine a spring with a water right associated with it within the Pines East lease. It appears Spring 94-591 is to the east of the Pines East mains and will fall west of the proposed panels. In order to ensure mining does not impact this resource it shall be operationally monitored for flow.

A shallow perched lens bedrock aquifer within the Castlegate formation discharges at Spring 310 upper. This perched

aquifer is vertically separate from the saturated aquifer at the base of the Castlegate. The spring 310 monitoring site has been operationally monitored for years and will continue to be monitored as part of the water monitoring program. This spring site is the first downgradient discharge location from the proposed panels. It will be a good indicator site for monitoring potential mining related impacts to the hydrologic balance within the lease area.

*Deficiencies Details:*

The amendment does not meet the State of Utah R645 requirements for Groundwater Monitoring. The following deficiency must be addressed prior to final approval:

Groundwater shall be monitored with wells within the Pines lease in North Water Canyon. One or more of the bedrock aquifer wells NW2-09, NW3-09, or NW4-09 must be monitored for depth.

The spring having the water right 94-591 near the southwest corner of the proposed panels shall be operationally monitored.

kstorrar

## Hydro Surface Water Monitoring

*Analysis:*

The amendment meets the State of Utah R645 requirements for Surface Water Monitoring.

The operational surface water monitoring plan includes sites within and adjacent to the permit area. There are limited surface water resources within the vicinity of the proposed panels in the Pines East lease. The operational Water Monitoring Program in Table 7-2 and Plate 7-10 identifies the surface water monitoring sites within and adjacent to the lease. These surface water monitoring sites are along the two major canyons, Link Canyon and the East Fork of Box Canyon, flowing from the lease area off of the plateau.

kstorrar

## Maps Mine Workings

*Analysis:*

The application meets the State of Utah R645 requirements for Mine Workings Maps.

The application satisfies the minimum requirements for R645-301-512.110 because in addition to the narrative describing where the mine plans reside within the permit area, Plates 5-1, 5-7, 5-10, 5-10C and 5-11 illustrate exactly where the proposed plans reside in relation to adjacent mined out areas within the lease.

jeatchel

## Maps Monitoring and Sampling Locations

*Analysis:*

The amendment meets the State of Utah R645 requirements for Monitoring and Sampling Location Maps.

The amendment provides Plate 7-10 showing the operational Hydrologic Monitoring Stations for the Sufco mine. The map shows mine workings for the proposed panels in the Pines lease in relation to the water monitoring sites. It is important to know the location of the proposed mining area when determining if the water monitoring program will adequately quantify potential impacts to the hydrologic balance.

kstorrar

## Reclamation Plan

### Mine Openings

*Analysis:*

The application meets the requirements of R645-301-631 with respect to casing and sealing of exploration holes and boreholes.

The plan for sealing exploration holes is found in the MRP in Section 7.6.5. Unless used as a pieziometer, all exploration holes are plugged as the last step in the drilling process.

dhaddock

## **Topsoil and Subsoil**

### *Analysis:*

The application meets the State of Utah R645 requirements for Soil Reclamation Plan. The application does not involve any increase in surface disturbed area. Therefore, there is no change to the approved soils handling reclamation plan.

pburton