

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

June 2, 2005

TO: Internal File

THRU: Stephen J. Demczak, Environmental Scientist III/Engineering, Team Lead

FROM: David W. Darby, Environmental Scientist III/Hydrologist

RE: Additional Boundary to Facilitate 1st North Mining, Consolidation Coal Company, Emery Deep Mine, C/015/0015, Task ID #2222

SUMMARY:

The Division received an application for an incidental boundary change from Consolidation Coal Company's (Consol), which will add 348 acres to the existing permit area. Addition of the area known as the 1st North addendum will allow Consol to develop additional coal reserves in the area without the need for new surface disturbance. The area is within the current cumulative impact area (CIA).

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.



Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

Analysis:

The Permittee states that coal will be extracted from the I-J coal zones in the Ferron Sandstone using room and pillar mining methods. The overlying stratum is relatively shallow ranging from 80 to 400 feet. There will be no pillar extraction planned for this amendment as

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proposed, and thus no planned subsidence. This review evaluates the hydrology sections of incidental boundary change (IBC) application. There will be no planned subsidence.

Findings

Information submitted by the Permittee meets the minimum requirements of the General regulation of the Environmental Resource Information section.

PERMIT EA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

The permittee has described the permit area, ownership, and areas to be mined.

Findings:

Information submitted by the Permittee meets the minimum requirements of the Permit Area section of the regulations.

CLIMATOLOGICAL RESOURCE FORMATION

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

Analysis:

Climatological information for the Emery Mine and 4th East Portal areas is already provided in the MRP.

Findings:

The applicant has previously addressed this information.

GEOLOGIC RESOURCE FORMATION

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

Analysis:

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There are several drill holes in the area of the proposed amendment, Plate V-6. Plate V-19 shows the coal thickness for the J seam to be approximately 5 to 7 feet thick. Where as Plate V-13A shows the J Seam to be about 3 ft thick at Drill Hole FC-159 (in the 1st North area). Plate V-13A does not show an I Seam. Plate does show a J Seam (3ft), UI Seam (5ft) and a L10 Seam (11.9ft). The seams appear close together giving rise to the question, which seams will be mined? What percent of the coal will be mined, and how much coal will be left in place? On May 18, Mr. John Gefferth, Environmental Coordinator for Consolidation Coal Company, came into the office to update the IBC. He addressed the question about the coal seams to be mined. Only the "I" and "J" coal seams will be mined for this IBC. The "L" coal seam will not be mined because it is of poor quality; the quality is not within the standards the company requires sales. The Permittee will conduct first mining only, leaving pillars in place so no immediate subsidence takes place. Mr. Gefferth mentioned there would be new plans forthcoming that updated the mine plan including the IBC.

Findings:

The Permittee has submitted sufficient information to address the Coal Resource Information section of the Regulations. See stipulation under Hydrologic Resource Section.

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

Sampling and Analysis

Consol has conducted sampling over the Emery Deep mine site, at planned sampling stations for the past 20 years. The applicant does not propose additional monitoring sites for the area.

Baseline ormation

Plate V-3 shows the natural drainage and irrigation ditches, but the boundaries do not extend to the proposed 1st North mining area. Surface drainage for the proposed site should flow southwest; however, there are no maps showing the flow pattern or no information describing the flow pattern, type of flow, or water resources.

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Baseline Cumulative Impact Area Information

Baseline information was collected over 25 years for springs and ground water levels in the mine. The information was used to establish a model of the groundwater impacts. Updated information was submitted with the 4th East mine portal proposal. The PHC was updated to include changes of groundwater flow, effects and changes during periods when the mine was not operating.

Modeling

The Permittee has supplied an early model showing the draw down of the groundwater as coal is mined and the mine water is pumped from the mine to Quitcupah Creek.

Probable Hydrologic Consequences Determination

A probable hydrologic consequences determination was submitted with the application for the 4th East Portal submittal. The PHC included a long-term summary of the groundwater changes as mining expanded over the past 20 years.

Groundwater Monitoring

The Permittee is currently conducting a groundwater monitoring plan, which includes measuring and sampling springs, wells and mine water discharges (UPDES point source discharge) on and adjacent to the permit area. The information is input into the DOGM Coal Mining database.

Surface-Water Monitoring

The Permittee is currently conducting a surface water monitoring plan, which includes measuring and sampling streams and ponds (UPDES) on and adjacent to the permit area. The information is input into the DOGM Coal Mining database.

Findings:

The Permittee has supplied sufficient information to describe the amount of coal that will be mined from the seams J, UI, and L10 Plate V-20 (personal communication with John Gefferth on May 20, 2005), the L coal seam will not be mined because the quality of coal cannot be used

by their customers. The total thickness of coal is shown to be range from 20 feet to 8 feet. More information is needed if second or full extraction mining takes place in the future.

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:

Affected Area Boundary Maps



The affected area boundary is shown on Plate XII-1.

Coal Resource and Geologic Information Maps



Coal resource and geological maps are submitted in Chapter 6 of the MRP for the old permit area. Some of the coal resource maps cover the proposed IBC, such as Plate V-19, V-20, and V-21. There are coal resources or geological units provided in Plate VI-2 for the IBC.

Existing Structures and Facilities Maps



The current structural geological maps are provided in Chapter 6 of the MRP. Plates V-19, V-20, and V-21 show the geology and structure of the area and coal Isopach for the J, IU, and L11 seams.

Existing Surface Configuration Maps

Several maps in Chapters 6 and 7 show the existing surface configuration of the IBC; however, the IBC is not outlined in any of the maps.

Mine Workings Maps



Plate XII-1 shows the proposed mine plan and timing sequence of mining.

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Monitoring and Sampling Location ps

Plate VI-3 shows the monitoring and sampling locations for surface and groundwater monitoring sites. There are five active wells (SMI-3, Muddy #4, SMI-2, EMRIA #2, EMRIA #3), one spring (SP-15) and one surface water-monitoring site (Site 2, flume) above or adjacent to the IBC that could be affected by mining.

Area Boundary ps

Permit boundary, which includes the IBC, is shown on Plate XII-1. All geology and hydrology maps should be updated to show the IBC in relationship to those features.

Subsurface Water Resource ps

The Permittee has updated the potentiometric surface map for the IBC area within the Upper Ferron aquifer. The last map submitted identified the potentiometric surface in 1979.

Surface and Subsurface Manmade Features Maps ps

There are no known manmade hydrologic features other than what has been mentioned under the Monitoring and Sampling locations map.

Surface Water Resource ps

Plate VI-3 shows the monitoring and sampling locations for surface monitoring sites.

Well ps

Plate VI-3 shows the monitoring and sampling locations for groundwater monitoring sites including wells.

Findings:

The permittee has not submitted sufficient information to address the Maps, Plans, and Cross-sections for the Resource Information section of the regulations.

OPERATION PLAN

COAL COVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

The Permittee supplied sufficient information to describe the amount of coal that will be mined from the seams J, UI, and L10, Plate V-20. The range for total thickness of coal is shown to be from 20 feet to 8 feet. The permittee explained in a meeting held on May 18, 2005, only the J and I coal seams will be mined for this IBC. Mr. Gefferth stated that the coal in the L seam is of poor quality and will not be mined. The Permittee has stated that no subsidence is planned.

Findings:

The Permittee has submitted sufficient information to address the Coal Recovery Information section of the Regulations.

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 nitoring

The Permittee has collected baseline groundwater information for the IBC area in conjunction with the existing monitoring program. The Permittee has calculated that mining the IBC as proposed will produce approximately 45 gallons per minute. Five wells and one spring lie within or adjacent to the IBC. An updated potentiometric surface map has been submitted for the IBC. The data used to update is in the Coal Database. The data and map shows that the potentiometric surface in the Ferron Sandstone has been drawn down some since Plate VI-9 was developed using 1979 water levels. Some of the wells may be destroyed during mining; however, data will be collected from the wells during the mining process. Monitoring wells EMRIA #1 and FC346WW will still be monitored, which lies outside, northeast, of the IBC.

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Surface Water nitoring

All surface water monitoring sites will continue to be monitored.

Acid- and Toxic-Forming Materials and Underground Development ste

No surface mining will take in the IBC. There will be no exposure to acid or toxic forming materials.

Transfer of lls

No IBC wells will be transferred.

Discharges Into An Underground ne

There will be no underground mine discharges in the IBC.

Gravity Discharges From Underground Mines

There will be no discharges from the mine in the IBC.

Water-Quality Standards And Effluent nitions

The mine is discharging groundwater via a current UPDES permit.

Diversions: heral

There will be no diversions on the IBC.

Diversions: Perennial and Intermittent eams

There are no perennial or intermittent streams on the IBC. No secondary mining is proposed for the IBC.

Stream Buffer nes

No stream buffer zones will be established on the IBC.

Findings:

The applicant has submitted sufficient information to address Hydrologic Information in the Operation Section.

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:

Affected Area Maps

The affected map area of the IBC is shown on Plate XII-1. All maps in the MRP that show the permit area need to be updated to include the IBC area. Plate XII-1 in conjunction with existing and geological and hydrologic maps was used to identify potential impacts to surface and ground water in the vicinity of the IBC.

Mining Facilities Maps

No mine facilities will be constructed on the IBC site.

Mine Workings Maps

Plate XII-1 was used to identify the location of mine workings in the IBC area.

Monitoring and Sampling Location Maps

Plate VI-3 was used to identify the water monitoring and sampling locations.

Certification Requirements

All maps were certified by a registered professional engineer.

Findings:

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The information submitted by the Permittee was sufficient to make geological and hydrologic decisions. This submittal was treated as an emergency issue due to the time constraints the operator has to start mining activities in the IBC section or lay off miners until all maps have been completed. All maps showing the permit area in the MRP need to be updated with the boundaries of the IBC.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

There is no rapid planned subsidence, since all mining proposed will entail first mining. All pillars will be left in place for this proposal.

Findings:

The applicant has addressed this section.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

No surface disturbance is planned for the IBC. No rapid subsidence is planned. Pillars will be left to support the overlying strata. Over long periods subsidence could take place. The Permittee has a reclamation plan in the MRP to mitigate subsidence impacts.

Findings:

The applicant has submitted sufficient information to address this section.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation

The operator has submitted a hydrologic reclamation plan in the MRP. No surface disturbance will take place in or adjacent to the IBC.

Findings:

The Permittee has submitted sufficient information to address this section.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS



Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Final Surface Configuration Maps

Final configuration of the IBC will be AOC.

Reclamation Monitoring And Sampling Location Maps

Some wells may be destroyed during mining of the IBC. The Permittee has committed to replace all wells used for water use. Sampling wells will not be replaced; however, other wells outside the IBC will still function, and they will be used and maintained. Water monitoring data is sent to the Coal Mining Database. There is currently over 25 years of data for most sites in and adjacent to the IBC.

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Findings:

The Permittee has submitted sufficient information to address this section.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT



Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

Analysis:

The CHIA will be updated by the Division to include the IBC.

Findings:

The Permittee has provided sufficient information to evaluate and draft a CHIA. The Permittee will have to provide updated geologic and hydrological maps that include the boundary of the IBC.

RECOMMENDATIONS:

This IBC is recommended for approval with the stipulation that the Permittee submit the IBC boundary update within 30 days of all maps in the MRP that show the permit area.