



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

January 4, 1999

TO: File

THRU: Daron Haddock, Permit Supervisor *DH*

FROM: Sharon Falvey, Reclamation Specialist *SF*

RE: Incidental Boundary Change (IBC) Federal Coal Lease U-06039, PacifiCorp, Deer Creek Mine, ACT/015/018-98A, Folder #2, Emery County, Utah

SUMMARY

The proposed lease area IBC changed the approved mining plan in the following manner:

- The permit area is increased with an additional 50 acre parcel in Section 20 SE1/4 NW1/4 and, E1/2E1/2SW1/4NW1/4.
- Projected mining under the Right Fork of Rilda Canyon was relocated further east. This increased the overburden at the channel, above the Blind Canyon panels, from 97.8 - 132 feet (drill hole EM-158 and EM-159) to approximately 148 - 200 feet (drill holes EM-160 and EM-162 drawing DU1687E 9/30/98).
- The projected Mill Fork Fault Graben west fault zone is believed to diminish south of Beaver Creek No. 4 Mine based on the drill hole information now incorporated in the plan.
- The plan now projects mining across the western projected Mill Fork Fault where the mine ramps down to the lower seam.
- Rilda Canyon was proposed to be monitored above RCF#1 at a point upstream of the Blind Canyon Seam adjacent to EM-163. This monitoring point was changed from monthly flow data and quarterly water quality data to a proposed annual low flow measurement.
- The existing plan committed to conducting baseline sampling the 1997-1998 season at MFA-1 and MFB-2. Operational monitoring was conducted in 1997 and 1998

and baseline information, initiated in November 1998, will be conducted for a two year period. Because the plan was inconsistent, the collection of baseline information was not enforced, according to the previously approved plan in chapter 11, for 1997 and 1998.

This technical analyses is focused on determining whether the existing PHC and CHIA are adequate for the changes contemplated in this amendment. The following areas were identified as commitments and information that are needed prior for to incorporation to the permit as the final approved submittal from the permittee.

- Commitment to revise Volume-9 Hydrologic Section Appendix A needs to be submitted without redline strikeout as part of this amendment. (December 10, 1998 cover letter from Energy West). This information was reviewed for the changes consistent with Volume 11.
- RCF#1-Above, should be included on the water monitoring map.
- Plates 3-6 and 3-7 need to be submitted for inclusion as indicated in the May 28, 1998 letter from Energy West.
- Lease modification must be approved by the BLM.

TECHNICAL ANALYSIS

ENVIRONMENTAL RESOURCE INFORMATION

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

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

Baseline information.

Baseline information on the Mill Fork Graben is located in Volume 11, Deer Creek Mine North Rilda Area.

Information from previous mining at the Beaver Creek No 4 mine along the southern most fault indicate the Mill Fork Graben displacement was 20 feet down dropped on the north west side. Where the fault crosses East Mountain, it is displaced 30 feet down on the

North Rilda IBC Area

ACT/015/018-98-A

January 4, 1999

Page 3

northwest side. Other faults in the graben have relative displacement up on the north west side.

Ground-water information.

The southern Mill Fork Graben Fault was crossed by mining in Beaver Creek No. 4 Mine north of the proposed IBC area at an elevation between 7,800 and 7,850 feet. A few isolated roof drippers were the only water associated with mining in this area of the Mill Fork Fault system. The graben is intersected by the Mill Fork Drainage at approximately 7,750 to 7,800 feet and by the Little Bear Canyon at approximately 7,550 feet. The drainages limit the recharge area to the graben and may discharge ground water that moves along the graben. The coal formation is located above the elevation where the drainage intersects the graben.

The Right Fork in Rilda Canyon intersects the graben at approximately 8,200 to 8,400 feet. The coal outcrop at the Hiawatha seam is approximately 7,800 feet. The potential recharge zone is larger than that observed in the Beaver Creek Number 4 Mine. The coal is located below the elevation where the drainage intersects the graben, increasing the potential to capture and store water that would discharge to the surface. However, the relative location, (up-gradient) reduces the potential for water collecting in this region and results in lowered potential impacts.

Drill holes EM-158 through EM-164 and EM-56 were drilled to delineate the graben. According to the amendment significant changes in elevation across the bedding formations were not evident from these drill holes.

Surface-water information.

Existing baseline surface water resource information described for the proposed IBC area should not need to be changed with this amendment.

Baseline cumulative impact area information.

Hydrologic and geologic information acquired to understand the probable cumulative hydrologic impacts for the proposed operation and all anticipated mining on surface- and ground-water systems is incorporated into the plan with the revisions to Deer Creek Mine North Rilda Area, Volume 11 September, 30 1998.

Probable hydrologic consequences (PHC) determination.

The information provided in the revisions to Deer Creek Mine North Rilda Area, Volume 11 dated September 30, 1998 suggest the potential for impact associated with mining in the IBC area is low and the Mill Fork Graben is believed to diminish south of Beaver Creek

North Rilda IBC Area

ACT/015/018-98-A

January 4, 1999

Page 4

No. 4 Mine. It should be noted, however, "The location and geologic characteristics of the Mill Fork Canyon Fault together with the western margin of the Blind Canyon and Hiawatha coal seams are not totally known..." (exhibit 23 *Amendment to Application for Second Modification of Federal Coal Lease U-06039*).

The PHC and earlier proposed mining sequence and layout did not consider the mine workings crossing through the projected Mill Fork Graben. However, the discussions in the plan commits the permittee to install permanent seals to control ground water that may be present should mining intersect faulting related to the Mill Fork Graben.

Projected mining under the Right Fork of Rilda Canyon was relocated further east. This increased the overburden between the streambed and the Blind Canyon Seam from 97.8 - 132 feet (drill hole EM-158) to approximately 148 - 200 feet (drill holes EM-160 and EM-162 drawing DU1687E, 9/30/98). The amendment indicates the overburden is increased from 120 to 200 feet.

A 15 degree angle of draw from the Hiawatha Coal Seam was previously used and approved to delineate the stream buffer zone. Although the amendment indicates the overburden is increased from 120 to 200 feet, the number is specific to the panel center. The minimum overburden, between the Blind Canyon Seam and the stream channel, is between 148 and 200 feet (drill holes EM-160 and EM-162 drawing DU1687E, 9/30/98).

The December 10 1998 revision corrects the amendment on page 103 to "The stream buffer zone delineates the area restricted from full extraction mining." Entries underlying the Rilda Canyon Right Fork Area. Five-entry mains consists of 20 feet wide entries and cross cuts driven on 80 feet x 130 feet pillar centers. In the stream crossing area the crosscut locations were staggered and pillars were 60 feet wide by 110 feet long to improve long term stability. These features in the mine plan layout were previously approved and implemented.

Supplemental information.

Should water be intercepted along fault and fractures sampling should be conducted **immediately** to characterize that water which has the potential to be more "mobile" within the fault/fracture voids. The amendment states if mining encounters significant quantities from a fault zone the volume will be quantified and sampled according to the approved plan, and isotopic sampling using a systematic approach, tritium analyses and then carbon dating if needed is to be conducted (Volume 11, R645-301-700). The main difference between what is in the plan is the need to obtain a sample in a short time period after intercepting water issuing from a fault/fracture zone.

Findings:

The permittee meets the minimum requirements for this section.

OPERATION PLAN

HYDROLOGIC RESOURCE INFORMATION

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

Ground-water information.

According to this amendment, the development below the Right Fork of Rilda Canyon, in the 5th North Mains, did not intercept any groundwater and has remained "dry" since initial development.

Surface-water information.

The existing plan committed to conducting baseline sampling for a two year period 1997-98. The proposed change states baseline will be conducted 4th quarter 1998 through 4th quarter 2000. Mill Fork was proposed to be monitored above RCF#1 at a point upstream of the stream crossing. This monitoring point was proposed to be monitored for flow the first and second week of the quarter and analyzed quarterly for quality during development. The development passed without this information. Because the main remained dry during and following driving the main they propose to monitor during low flow annually.

Findings:

The permittee meets the minimum requirements for this 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:

CM-10899-DR 3-6 and CM-10900-DR 3-7 are updated to December 31, 1996. Although the Deer Creek Mine lease modification provides the updated information, Maps CM-10899-DR 3-6 and CM-10900-DR 3-7 are proposed to be included following the decision

North Rilda IBC Area
ACT/015/018-98-A
January 4, 1999
Page 6

modification approval.

Findings:

The permittee proposed to include Maps CM-10899-DR 3-6 and CM-10900-DR 3-7 following the approval regarding 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:

No changes to the reclamation plan are necessary with this IBC.

Findings:

The application meets the minimum requirements for this section.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

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

The Division prepared a CHIA for the entire East Mountain area in 1994. The North Rilda Area was included in the CHIA determination. (The leases in the North Rilda Area had been issued to PacifiCorp even though they were not part of the Deer Creek Mine permit at this time). The mine plan characterizes the Mill Fork Graben as having little potential for water interception. The CHIA and the planed 5 year mining sequence did not consider the mine workings crossing through the Mill Fork Graben as is illustrated in the IBC amendment however, it did contemplate delineating the graben. The discussions in the approved plan provide for protection and assessment to minimize impact in locating the graben. Because the overburden of the stream crossing was increased beyond that previously approved in the plan, the mining activities conducted by PacifiCorp were conducted to minimize material damage to

North Rilda IBC Area
ACT/015/018-98-A
January 4, 1999
Page 7

the hydrologic balance in the permit area and to prevent material damage to the hydrologic balance outside the permit area.

Findings:

The information obtained does not change the findings in the CHIA.

RECOMMENDATIONS:

Amendment 98-C "Volume 9 Revision" should be approved in conjunction with the IBC 98A. The hydrologic section should be packaged with and replace the pages revised on 9/30/98. Maps and remaining text from the 9/30/98 revision are part of this amendment. Approval may be granted when the lease modification is approved by the BLM.

The following areas were identified as commitments and information that are needed prior for to incorporation to the permit as for the final submittal.

- Commitment to revise Volume-9 Hydrologic Section Appendix A needs to be submitted without redline strikeout as part of this amendment. (December 10, 1998 cover letter from Energy West). This information was reviewed for the changes consistent with Volume 11.
- RCF#1-Above, should be included on the water monitoring map.
- Plates 3-6 and 3-7 need to be submitted for inclusion as indicated in the May 28, 1998 letter from Energy West.
- Lease modification must be approved by the BLM.