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August 12, 1998

TO: File

THRU: Daron Haddock, Permit Supervisor *DGH*

FROM: Sharon Falvey, Reclamation Specialist *SXF*

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

**SUMMARY**

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

- The permit area is increased with an additional 40 acre parcel.
- The proposed mine plan layout now shows mining across the Mill Fork Fault Graben (Map 1). The previous plan (CE-10902-EM) did not project mining across the graben.

The focus of this review is on the PHC and CHIA. The following areas of concern identified in previous reviews should be considered in the IBC analyses:

- Potential for escarpment failure. Potential extent of subsidence.
- Location of raptors on escarpments.
- Acceptance by the B.M. lease modification to include Section 20 SE 1/4 NW 1/4.
- Determining whether the existing PHC and CHIA contemplate crossing the Graben and contemplate the impacts associated with the crossing.

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

According to the engineering section page 15, the 4<sup>th</sup> North Main will be developed as a two entry section to delineate the western margin of the Blind Canyon coal seam or to intersect the projected Mill Fork Graben. A stipulation from the Forest Service States a method other than direct mining is needed to delineate the graben. The plan states that if mining intersects the fault permanent seals will be installed. Currently the 4<sup>th</sup> North Main is developed across the region where the Mill Fork Graben was projected (Map 1 submitted with this IBC). Projections and delineations for the Mill Fork Graben need to be corrected.

#### **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 Mill Fork drainage intersects the graben at approximately 7,750 to 7,800 feet and the Little Bear Canyon drainage intersects the graben at approximately 7,550 feet. These drainages limit the recharge area to the graben and may discharge ground water that moves along the graben. The coal formation is above the elevation where the drainage intersects the graben. This explains why little water was observed at the No. 4 mine.

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 proposed mining will be up-gradient along the linear graben feature, reducing the potential for water to collect in this region and thus has a lower potential impact. Additionally information from drill holes

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EM-158 through EM-164 and EM-56, drilled to delineate the graben, showed no significant changes in elevation across bedding formations (phone conversation with Charles Semborski, Energy West Mining Co.).

**Surface-water information.**

Existing surface water information adequately describes the permit and adjacent area for the proposed IBC area.

**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 should be incorporated into the plan. See findings below.

**Probable hydrologic consequences (PHC) determination.**

The information provided in phone conversations with Charles Semborski, Energy West Mining Co. suggest the potential for impact associated with mining in the IBC area is low and the Mill Fork Graben is not in the location shown on existing maps.

The PHC and earlier proposed mining sequence and layout did not propose the mine workings cross-through the graben as is illustrated in the IBC amendment. The discussions in the approved plan provide for protection and assessment to minimize impact in locating the graben. There are commitments to monitor and collect stability analyses for the 4<sup>th</sup> North Mains. Additional information pertaining to the graben location was obtained while mining the 4<sup>th</sup> North Mains. This information was not included in this submittal. From information gathered through phone conversations with Chuck Semborski, Energy West Mining Co. the mine plan layout has been designed to minimize material damage to the hydrologic balance.

**Supplemental information.**

Questions as to impacts to spring resources arose when water was intercepted along the Roan Canyon Fault. 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 fracture voids. This sample should include chemical composition characterization for stiff diagrams as well as tritium and carbon dating.

**Findings:**

The permittee must provide the following in accordance with the requirements of:

**R645-301-728.200.** The discussions in the approved plan providing for protection and assessment to minimize impact while locating the graben need to be updated. The information gathered while mining the 4<sup>th</sup> North Mains should be used to update the plan. Specifically discussions in Volume 11, pages 87 and 88 (revised 5/6/97), need to be updated. Projected versus known locations for the Mill Fork Graben need to be identified within this IBC amendment. The PHC and other areas of text should be updated as appropriate.

## **OPERATION PLAN**

### **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 drawing DU1752D provides the proposed mine sequence, maps CM-10899-DR 3-6 and CM-10900-DR 3-7 make the plan unclear because they do not show the changes associated with this IBC.

#### **Findings:**

The permittee must provide the following prior to approval in accordance with the requirements of:

**R645-301-521.140**, the permittee must provide the maps which reflect the proposed changes for the IBC including but not limited to subsidence maps, underground mining maps (CM-10899-DR and CM 10900-DR), and all other maps showing the permit area boundary.

## **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.

#### **Analysis:**

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. From the information gathered through phone conversation with Chuck Semborski, Energy West Mining Co. the mine plan layout has been designed to prevent material damage to the hydrologic balance outside the permit area.

The CHIA and the planned 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. There is a considerable amount of information that was gathered while mining the 4th mains that is not included in the plan and should be provided in this IBC amendment.

**Findings:**

From the information gathered through phone conversation with Chuck Semborski, Energy West Mining Co., the mine plan layout has been designed to prevent material damage to the hydrologic balance outside the permit area. The information obtained does not change the findings in the CHIA.

**RECOMMENDATIONS:**

The deficiencies identified above should be addressed prior to approval.

Stipulation 1 in Attachment A in the permit: **Special conditions for ground water monitoring in the North Rilda Area**, does not allow a description for water that may travel along the graben/fault/fracture systems. The condition should be changed to the following:

1. If during mining development significant quantities of ground water are encountered which issue from the fault zone, the water volume issuing from this zone should be quantified and initial inflow should be sampled for water quality according to the approved baseline parameters and must also include tritium and carbon dating. Inflows, flowing at 5 gpm or greater, that are sustained for 30 days from any identifiable source area will be monitored for quantity and quality according to the frequency and parameters in the approved ground water monitoring plan.

The bat survey, Archeological and vegetative information provided in the list of appendices does not specifically identify the proposed IBC area. A biologist should be assigned to the review to determine if these surveys are applicable to the IBC area.