



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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TO: Internal File

THRU: Dave W. Darby, Senior Reclamation Specialist, Hydrology/Team Lead 

FROM: James D. Smith, Senior Reclamation Specialist/Geology *JS*

RE: Incidental Boundary Change, Energy West Mining Company, PacifiCorp, Deer Creek Mine, C/015/018-IB01K-1

**SUMMARY:**

On November 28, 2001 the Division received an application from Energy West Mining Company for an Incidental Boundary Change (IBC) to the Deer Creek Mine permit. The IBC incorporates a 65.7 acre addition to Federal Coal Lease U-06039. The USFS completed the required environmental documentation, including NEPA, for this lease modification on September 5, 2001, and a copy of the decision document was included as Exhibit 2 in the November 28 submittal. When the application for the IBC was initially submitted, approval was pending on two items, the revision of the R2P2 and the modification of lease U-06039 to include the IBC area. In separate decision documents dated December 14, 2001, the BLM approved the revision of the R2P2 and the lease modification; the Division received copies of the decision documents and cover letters on January 3, 2002, and these are in Exhibits 4 and 5 in the submittal.

The IBC is within the same hydrologic basin as the areas authorized for mining in the currently approved permit. It also falls within the area covered by the East Mountain CHIA, and the Division has determined this IBC does not require a new or updated CHIA.

The IBC will allow development of multiple-entry, pillar-supported sub-mains off the 6th North Mains of the Deer Creek Mine to access the Mill Fork Lease Tract (ML-48258). The proposed sub-mains will be developed only in the Hiawatha coal seam; rock tunnels to be built within the Mill Fork tract will allow access to the Blind Canyon Seam. There is no plan for long wall or other full extraction mining in the IBC, so the site is expected to remain stable during and after mining. There will be no surface disturbance in the IBC area.

**TECHNICAL ANALYSIS:**

**ENVIRONMENTAL RESOURCE INFORMATION**

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

**HYDROLOGIC RESOURCE INFORMATION**

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

**Analysis:**

The IBC entries will be developed in the Hiawatha coal seam, as shown on Plate 3-7 in the IBC submittal. Drawing DU1752D indicates the IBC entries will drive through the projected Mill Fork Canyon Fault Zone from the 6th North Mains, and it shows that the western extremity of the 6th North Mains has already mined into this area; the 4th and 5th North Mains in the Blind Canyon Seam have also mined this area. Energy West was able to extend the 4th, 5th, and 6th North Mains into this area after exploratory drilling, including a series of closely spaced holes in the Right Fork of Rilda canyon, found no structural discontinuities that would indicate a fault zone, and the fault zone has not been encountered in these workings. Cross-section B-B', which is roughly parallel to and 1,000 feet south of the proposed IBC mains, shows no indication of the Blind Canyon Fault Zone.

Hydrologic information for the mine permit area, including the IBC area, in the approved Deer Creek Mine MRP is sufficient to determine ground water usage, the location and ownership of existing wells, springs, and other ground-water resources, the name, location, ownership, and description of all surface-water bodies such as streams, lakes, and impoundments, and information on surface- and ground-water quality and quantity sufficient to demonstrate seasonal variation and water usage. The Division is not requiring any additional hydrologic information for this IBC.

**Sampling and Analysis**

Surface disturbance is not planned. Subsidence is unlikely because no second mining is planned. Thick overlying strata, 800 to 1,600 feet, will minimize or eliminate propagation of any fracturing. No springs or surface water should be impacted. There is no additional sampling proposed for this IBC.

### **Baseline Information**

There is no new baseline information. This section does not apply to this IBC.

### **Ground-water Information**

Recharge to Little Bear Spring has been studied by Mayo and Associates and by HGI/Water Technology and Research, and both concluded that the majority of recharge flows through the Mill Fork Fault Zone from the stream in Mill Fork. Mining in the Beaver Creek #4 Mine intercepted the Mill Fork Fault Zone between Mill Fork and Little Bear Spring. Offset was approximately 30 feet. Only minor amounts of water were encountered and there was no effect observed at the Little Bear Spring. Drilling in North Rilda Canyon found minor amounts of ground water at the interface of the alluvium and bedrock, but not in the bedrock or coal seam.

The permittee plans to access the Mill Fork Lease by developing mains from the Deer Creek Mine through the IBC, which also involves mining through the southward projection of this Mill Fork Fault Zone. Previous mining in this projected zone in the Deer Creek Mine has not encountered faults or ground water.

### **Alternative Water Source Information**

Section 731.800 contains commitments to replace water determined lost or adversely affected by the proposed mining operation. Water will be replaced from an alternate source in sufficient quantity and quality to maintain the current and post-mining land use. The alternative source is not specifically identified, but PacifiCorp holds extensive water rights in the Huntington Canyon drainage. (When Rilda Canyon was added to the permit a water-treatment plant was built on Huntington Creek to provide an alternative water supply; that plant was never used and is no longer usable.) The mine is designed for non-subsidence extraction beneath the IBC. No springs will be undermined. A stream buffer zone protects the alluvial – colluvial system in the Right Fork of Rilda Canyon.

### **Probable Hydrologic Consequences Determination**

The permittee has added a section to the PHC to assess the potential influence of mining in the IBC on Little Bear Spring. The probability of impacts on Little Bear Spring or other water resources is very low. Castle Valley Special Services District (CVSSD) monitors ground-water flow from Little Bear Spring to characterize hydrologic trends and identify impacts potentially associated with coal mining.

### **Findings:**

Information provided in the proposed IBC amendment is considered adequate to meet the requirements of Hydrologic Resource Information section.

## 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:

#### Coal resource and Geologic Information Maps

Maps HM-9 and HM-10 of Volume 11 have been updated to include the IBC area; these maps are certified by a PE. Information that was previously on Map HM-11 has been added to HM-10 and HM-11 is to be removed from the MRP. Cross-section B-B' on HM-10 has been extended approximately one-half mile to the east with data from three bore-holes. This extension of Cross-section B-B', which is roughly parallel to and 1,000 feet south of the proposed IBC mains, shows no indication of the Blind Canyon Fault Zone.

### Findings:

The information provided in the application meets the minimum Maps, Plans and Cross-section requirements of the regulations.

## 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

Hydrologic information for the mine permit area, including the IBC area, in the approved Deer Creek Mine MRP is sufficient to identify ground water usage, the location and ownership of existing wells, springs, and other ground-water resources above the IBC. The Permittee has submitted the name, location, ownership, and description of all surface-water bodies such as streams, lakes, and impoundments, and information on surface- and ground-water quality and quantity sufficient to demonstrate seasonal variation and water usage in the Deer Creek MRP.

#### Ground-water monitoring

Little Bear Spring emanates east of the lease area. Recharge to Little Bear has been studied by Mayo and Associates and by HGI/Water Technology and Research, and both concluded that the majority of recharge flows through the Mill Fork Fault Zone from the stream in Mill Fork. Mining in the Beaver Creek #4 Mine intercepted the Mill Fork Fault Zone between Mill Fork and Little Bear Spring, but water was not encountered and there was no impact observed at the spring. CVSSD monitors ground-water flow from Little Bear Spring to characterize hydrologic trends and identify impacts potentially associated with coal mining.

The permittee plans to access the Mill Fork Lease by developing mains from the Deer Creek Mine through the IBC, which also involves mining through the southward projection of this Mill Fork Fault Zone. Previous mining in this projected zone in the Deer Creek Mine has not encountered faults or ground water.

#### **Acid and toxic-forming materials**

Samples collected from drilling in the Deer Creek Mine show that overlying strata, coal and underlying strata have low acid- and toxic-forming potential. Information submitted in the Deer Creek MRP shows low acidity and high alkalinity in ground waters.

#### **Stream buffer zones**

No surface disturbance is planned for the IBC area. There are no streams in the IBC area. This section does not apply to this IBC.

#### **Findings:**

Information provided in the proposed amendment is considered adequate to meet the requirements of Hydrologic Operations section.

#### **RECOMMENDATIONS:**

Approval of the proposed amendment is recommended