

# TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

---

December 4, 2006

*JK*

TO: Internal File

THRU: Wayne H. Western, Environmental Scientist III *W. H. W.*

FROM: Priscilla Burton, CPSSc, Environmental Scientist III *PWB by an*

RE: 1st North Federal Lease Boundary Addition, CONSOL Energy Company, Emery Deep Mine, C/015/0015, Task ID #2646, Alluvial Valley Floor Analysis

## SUMMARY:

On December 15, 2006 an amendment to include full extraction within the federal Incidental Boundary Change (IBC) was received. The current Incidental Boundary Change (IBC) area encompasses approximately 160 acres of federal coal lease U50044 located on privately held surface (D.U. Company) in the Sec. 22, T. 22 S., R. 6 E., SLBM: SW/4NW/4, NW1/4SW1/4, NE1/4SW1/4, and SE1/4SW1/4.

The First North IBC lies to the east of Christiansen Wash and to the west of the Muddy Creek drainage. (Chapter VIII). Christiansen Wash flows through the northeast portion of the permit area and meets Quitcupah Creek at the mine facilities area. In the 1985 Technical Analysis, the Division determined that Christiansen Wash is not an alluvial valley floor, mainly because the source of irrigation water is brought to Christiansen Wash from the adjacent Muddy Creek drainage. **The Muddy Creek drainage is an Alluvial Valley Floor (MRP Chapter XI).**

The Division learned through discussion with the NRCS that the federal lease 1<sup>st</sup> North IBC surface is agricultural land that is irrigated from an upstream Muddy Creek diversion and therefore is not an alluvial valley floor. However, prior to approval, the application must accurately reflect the location of irrigation diversion structures and acres of land under irrigation as well as provide for mitigation of subsidence damage to these lands.

[Note: A previous IBC in April 2005 added 348 acres to the northeast of the permit area in T. 22 S., R. 6 E., SLBM as follows: Sec 22: NE1/4, SE1/ 4, SE1/4NW1/4 (19 acres owned by Christiansen), Sec 23: W1/2 SW1/4, Sec 27: NE1/4.]

**TECHNICAL MEMO**

---

**TECHNICAL ANALYSIS:**

**ENVIRONMENTAL RESOURCE INFORMATION**

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

**ALLUVIAL VALLEY FLOORS**

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

**Analysis:**

**Alluvial Valley Floor Determination**

The existence of an alluvial valley floor with irrigated pastures and areas of sub-irrigation along the upper Quitchupah Creek Valley was previously established by the Division (February 25, 1985 Technical Analysis of the Emery Deep Mine, ACT/015/015), and Emery described in the MRP Chapter XI.B.5 and Plate XI-1. The upper reaches of the streams contributing to the alluvial valleys will be undermined with planned subsidence as described in the MRP, Chapter XI.B.5 and Plate V-5.

Christiansen Wash flows through the northeast portion of the permit area and meets Quitchupah Creek at the mine facilities area. In the 1985 Technical Analysis, the Division previously determined that Christiansen Wash is not an alluvial valley floor, mainly because the source of irrigation water is brought to Christiansen Wash from the adjacent Muddy Creek drainage. The negative AVF determination for Christiansen Wash is discussed in Chapter XI.B.3 of the MRP

The fee and federal leases of the First North IBC lie between Christiansen Wash and Muddy Creek. (Chapter VIII). Plate 1 in App. XI indicates the area geology is alluvial deposits that are flood irrigated, specially managed land. More recently, Plates VI-6 and VIII-1 indicate the current land use of irrigated pasture. The acreage of irrigated land is not accurate according to the information available from the Farm Service Agency showing approximately 48 acres under irrigation. The irrigation system is shown on Plate V-3. The source of water for the irrigation must be indicated on the Plate as well. Plate 1-1 shows that the land surface within the federal lease portion of the First North IBC is entirely owned by D.U. Company, Inc. [The D.U. Co. land is leased and irrigated, according to Muddy Creek Irrigation Co. representative Morris Sorenson.] Consol owns the majority of the fee land in the First North IBC, with the remainder owned by Kenneth L. and Earlene Christiansen. The Consol land is leased and irrigated. MRP Section XIII.C.2 and the Prime Farmland determination letter in App. XII-1 provide information on irrigated pasture yields.

The historical piezometric surface for the upper ferron sandstone and lower ferron sandstone aquifers are depicted on Plates VI-4 through VI-9. In the vicinity of the 1<sup>st</sup> North IBC, the potentiometric surface of the Lower Ferron Aquifer was 35 to 38 ft. below the surface in 1990. The Upper Ferron Aquifer was approximately 90 ft below the surface in 1995.

### **Protection of Agricultural Activities**

Three areas are illustrated on Plate XI-1, of which Area 1 is grandfathered and not subject to the AVF rules. A buffer zone has been established around Areas 2 and 3 to protect these areas from subsidence (Chap. V and Plate V-5). Subsidence is not anticipated, but a restoration plan for Areas 2 and 3 is described in Appendix XI-3.

Soil Resources for the First North IBC are described in Section XIII.C.2. In this section, the Permittee indicates that there are 2 acres of Penoyer Loam and 10 acres of Ravola loam irrigated within the IBC. According to Mr. Roger Barton and Jim Greenan of the Utah Association of Conservation Districts and Morris Sorenson of the Muddy Creek Irrigation Company, approximately 300 acres on either side of the muddy creek irrigation ditch is irrigated.

### **Monitoring**

MRP App. XI-2 Section 2.3.4 contains monitoring commitments for the ditch and water supply to the Jack Lewis field during operations and a topographic survey of the AVF in the upper Quitcupah Creek valley bottom prior to bond release. This commitment should be put into the MRP and extended to the parcels owned in T . 22 S., R. 6 E., SLBM by D.U. Company and Kenneth L. & Earlene Christiansen.

### **Findings:**

Prior to making an alluvial valley floor finding, the following information is required, in accordance with:

**R645-302-323.110**, The irrigation system is shown on Plate V-3. The source of water for the irrigation must be indicated on the Plate as well. ●Plates VI-6 and VIII-1 indicate the current land use of irrigated pasture. The acreage of irrigated land is not accurate according to the information available from the Farm Service Agency showing approximately 48 acres under irrigation. ● MRP App. XI-2 Section 2.3.4 contains monitoring commitments for the ditch and water supply to the Jack Lewis field during operations and a topographic survey of the AVF in the upper Quitcupah Creek valley bottom prior to bond release. A similar commitment must be put into the MRP and extended to the parcels owned in T . 22 S., R. 6 E., SLBM by D.U. Company and Kenneth L. & Earlene Christiansen.

---

TECHNICAL MEMO

---

**RECOMMENDATIONS:**

The application is not recommended for approval until deficiencies are addressed.

Private ground owned by D.U. Company (160 acres), is shown in Sec 22, SE1/4NW1/4 (Plate I-1 Surface Ownership Map). This land will be undermined in 2006 and 2007 and the Permittee must make notification to the surface owner six months prior to mining, as per plan.

**The Muddy Creek drainage is an Alluvial Valley Floor (MRP Chapter XI)** and that should be reflected in the SUFCO mine plan Probable Hydrologic Consequences (PHC) document and the Division's Cumulative Hydrologic Impact Assessment (CHIA).