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**State of Utah**  
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DIVISION OF OIL, GAS AND MINING

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October 23, 1996

To: File

Thru: Daron Haddock, Permit Supervisor

From: James D. Smith, Reclamation Specialist *JDS*

Re: Technical Analysis of Alkali Lease Incidental Boundary Change (IBC), including assessment of the Cumulative Hydrologic Impact Assessment (CHIA) Soldier Canyon Mine - Soldier Creek Coal Co. ACT/007/018, Folder #2, Carbon County, Utah

**SUMMARY**

Soldier Creek Coal Company (SCCC) submitted an application for an Incidental Boundary Change (IBC) on October 3, 1996. Additional information was received at DOGM on October 18, 1996. This IBC application is for acreage in addition to the IBC approved in 1995. The purpose of both IBC's is to permit a portion of the Alkali Tract Significant Revision that would allow continuation of mining operations pending approval of the entire Alkali Tract Significant Revision. Presence of a more extensive burn area than anticipated in the 1995 IBC has placed SCCC in need of additional area to mine. No new hydrologic data have been submitted, and geologic maps covering the existing permit area have simply been extended to include the IBC.

**TECHNICAL ANALYSIS**

**CHIA**

Analysis

A CHIA covering the entire Soldier Canyon Mine, including the Alkali Tract Significant Revision, was completed October 7, 1996. The proposed IBC is within the boundary of the Cumulative Impact Area (CIA) for that CHIA. It is also within the CIA of the previous CHIA, dated February 4, 1987. The effects to surface and ground water from the proposed mining in the IBC should not extend outside either the new or old CIA. There should be no material damage to the hydrologic balance outside the permit area from the proposed mining in the IBC area.

There are only ephemeral surface drainages and no known springs or seeps within or adjacent to the IBC. The mining for the IBC will advance entries by room-and-pillar method, with no second mining. There has been no measured subsidence in other mined areas of the



Soldier Canyon Mine and there should be no subsidence from the mining proposed in the IBC. This mining activity should create no hydrologic consequences at the surface. Exhibit 5.21-5 submitted for this IBC shows projected mining in the IBC.

Finding:

The IBC is included in the area covered by the CHIA. No change or modification to the CHIA is required by this IBC.

**PHC**

Analysis

The only probable hydrologic consequence of mining coal in this area is interception of perched water in the Blackhawk Formation. When a perched water table is encountered by the coal mines in the Book Cliffs, water flow rapidly diminishes and often ceases soon after the water bearing zone is breached. Water intercepted in this manner in the Soldier Creek Mine is collected in sumps and used for in-mine operations, with excess water discharged into Soldier Creek. The mine was discharging roughly 130 gpm in 1987 when, in addition to water intercepted by mining, water was being pumped to dewater a sealed area where a fire had occurred. From 1988 to 1991 water discharge increased from 259 acre-feet (approximately 160 gpm) to 927 acre-feet (approximately 580 gpm) as the mine intercepted a fracture zone with flowing water. In 1993 the discharge from the mine was down to 528 acre-feet (330 gpm). In 1994 it was down to 503 acre-feet (312 gpm), and 397 acre-feet (245 gpm) in 1995. Mining in the Alkali Tract is projected to intercept 460 acre-feet of ground water yearly. No appreciable change in the amount of ground water intercepted or discharged should be expected from the proposed mine operations in the area of the IBC.

Finding

Probable Hydrologic Consequences (PHC) of mining in the IBC will be similar to those from mining in the currently permitted mine area. No additional monitoring is required.

**RECOMMENDATION:**

Approval of the IBC is recommended.