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

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H. BEAR PHC

February 17, 1995

Memo to: Daron Haddock

Memo from: Tom Munson

Re: Bear Canyon PHC, Co-Op Mining Company, Bear Canyon Mine,
ACT/015/025-95c, file folder #2, Emery County

Folder #2 (with arrow pointing to the 'Re:' line)

Synopsis

The permittee submitted a revised Probable Hydrologic Consequences statement on 2/6/95 and a review of this document is being carried out to provide suggestions to the permittee on updates or modifications to clarify data presentation of baseline data and look at the input of new drill hole data.

Analysis

The document contains a significant number of tables and figures which show quality and quantity of surface and groundwater. The rules state the permit application will have assessed the impacts of the operation upon the surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas. (R645-301-748.100)

This permit could improve its assessment of water quality and quantity data in its presentation of that data which is known to exist. For example, many of the Tables contained in the PHC are titled Initial Spring and Mine Flow Rates or 1991 Average Spring and Mine Flow Rates. The data is available to update and portray a representative and seasonal flow regime and the influence of season on water quality. Whether the permittee chooses to add an addendum to the PHC or change the tables, it doesn't matter. It is felt that an attempt should be made to be more specific regarding the analysis of data on a seasonal basis and discuss ranges of results from specific parameters and not averages. There are some tables in the PHC which show max, min, and mean data but the tables lack the inclusion of sampling dates to tie them to season.

This recommendation is only meant to enhance the existing document and support the Division's finding of no significant impact. There are many ways to present data and the current PHC has chosen one way but it has been and continues not to tell the whole story. As time goes on, it is an appropriate goal to refine and update this document to enhance its usefulness to the



Permittee, public and the Division. The situation of Big Bear Springs and Birch Springs has prompted a lot of data collection and it would be appropriate to organize and use that data to update the PHC as it becomes available.

Ground Water

Drill Hole DH-4 was added as a result of the loss of drill hole DH-3 abandoned on November, 1993, because pillars were pulled in that section of the mine. Table 2-13 is a summary of the minimum, maximum and mean analytical results for groundwater from all four in-mine wells. This table fails to include dates of the data presented. This is another example of why this information should be refined and dates used to represent the data in a seasonal manner be considered.

The Stratigraphic and Hydrologic Cross-section through in-mine Drillholes DH-1A, DH-2, DH-3 and DH-4 is found in Figure 2-2. The explanation of data regarding water levels in the Blackhawk Formation related to the Spring Canyon Tongue of the Star Point Sandstone is found on page 2-24 of the Revised Hydrologic Evaluation. The new drill hole DH-4 indicated a static water level of 62 feet above the top of the unit. This indicates a confined condition and explains the leakage in the floor of the mine in the area of the Second East entries. The conclusions regarding this leakage are supported by the water levels found in the three in-mine monitoring wells. The drilling of DH-4 does not change the conclusions of the past CHIA but does indicate that any future mining in the federal leases to the North should be examined to determine the impacts of future mining and interception of the water table.

Recommendation

The document needs some refinement in terms of adding and/or enhancing existing Tables to show seasonal trends and variation in water quality data collected for surface and ground water. When the maximum and minimum values are listed, as well as, the mean, it would be appropriate for the Standard Deviation to be calculated as well. Average values do not tell the story and merely give a very general description. They should not be used in future tables. The data ranges must include an explanation of where the data is kept so it can be examined for sample dates and values used to calculate results.