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September 2, 1986

TO: Coal File

FROM: Richard V. Smith, Geologist RVS

RE: Review of Co-op Mining Company's Probable Hydrologic Consequences Determination for Hiawatha Seam Significant Revision, ACT/015/025, Emery County, Utah

The applicant is required to submit, under UMC 783.14 and UMC 783.15, a site-specific characterization of the ground-water regime within and adjacent to the permit area. This characterization must be supported by a suite of site-specific baseline data.

The site-specific characterization and attendant baseline data shall be further utilized in determining the Probable Hydrologic Consequences (PHC) of the proposed underground mining activities as required by UMC 784.14(c). Co-op Mining Company (CMC) is responsible for deriving the PHC, whereas the Division is responsible for utilizing the PHC to derive a Cumulative Hydrologic Impact Assessment (CHIA). Accordingly, the PHC and attendant CHIA findings are dependent upon a suite of sufficient site-specific baseline data. The Division is responsible for assuring, under UMC 783.14 and UMC 783.15, that baseline data are adequate for deriving a PHC and subsequent CHIA.

The permit issued for the Bear Canyon Mining and Reclamation Plan (MRP) incorporates a CHIA supported by data derived for mining confined to the Bear Canyon seam. Hence, the CHIA conclusions and findings in the permit are inappropriate, until site-specific data indicate otherwise, for assessing the impact(s) associated with additional mining in the Hiawatha seam. Approval of the significant revision is contingent upon CMC acquiring additional site-specific ground-water data pertinent to mining in the Hiawatha seam. Moreover, CMC must integrate these additional data with previously collected data, pertinent to mining in the Bear Canyon seam, for the purposes of deriving an updated Bear Canyon PHC. The updated Bear Canyon PHC will be utilized by the Division to derive an updated Bear Canyon CHIA.

The approved Bear Canyon MRP includes the following borehole data in Appendix 7-D.

| Borehole | Total Penetration | Comments |
|---|---|---|
| Hole 1 Up | 200 Feet | |
| Hole 2 Up | 200 Feet | |
| Hole 1 Down | 170 Feet | |
| Hole 6 Down | 40 Feet | Lost Circulation |
| Hole 7 Down | 100 Feet | Lost Circulation |
| Hole 9 Down | 50 Feet | Lost Circulation |
| Hole WM-C | 50 Feet | Moist from 36-50 feet |
| Hole WM-D | 46 Feet | Most at 42 feet |
| Hole WM-E | 400 Feet | Moist at approximately 50 ft, 70 ft, 370-400 ft |

The above boreholes are located on Plate 3.4-1 in Chapter 7 of the approved MRP. Regional data (Doelling, 1972) indicate the Bear Canyon seam is from 80-120 feet above the Hiawatha seam. Site specific information relating to Bear Canyon/Hiawatha seam interburden was requested in the Division's Determination of Completeness (DOC) letter dated February 18, 1986. Inasmuch as this information has not been forthcoming from CMC, the elevation and configuration of the Hiawatha seam and its spatial relationship to potential water bearing zones remain unknown. Borehole data given above suggest potential water-bearing and/or transmitting zones in six of seven boreholes that partially penetrated lithologies between the seams and in one of two boreholes that penetrated beneath the Hiawatha seam. Consequently, CMC must acquire additional site-specific data, as committed to in the approved MRP, to better characterize ground-water resources (e.g. piezometric surfaces) that occur above and/or below the Hiawatha seam. This information should then be utilized to support the PHC determination.

CMC should also be aware that a PHC report should have the ability to stand independent from the MRP (see Guidelines for the Preparation of PHC, page V-1, paragraph 1). Specifically, the PHC report for the significant revision should not consist of references to the MRP but rather, contain pertinent synopses and data from the MRP. The Division should also strongly recommends that CMC engage the services of a professional that is qualified in the subjects of ground water and subsurface geology and capable of deriving a functional PHC report.

jvb
cc: J. Whitehead
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