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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

February 10, 1992

Mr. Val Payne, Sr. Environmental Engineer
PacifiCorp Electric Operations
P.O. Box 1005
Huntington, Utah 84528

Dear Mr. Payne:

Re: Probable Hydrologic Consequence (PHC) Review, PacifiCorp Electric Operations, Des-Bee-Dove Mine, ACT/015/017, Deer Creek Mine, ACT/015/018 (Including the proposed Rilda Canyon Lease Tract), Cottonwood/Wilberg Mine, ACT/015/019, Folder #2, Emery County, Utah

Enclosed please find a review of the PHC document submittal. This review encompasses the PHC relative to all three mines, including the proposed Rilda Canyon Lease Tract at the Deer Creek Mine.

A meeting has been scheduled for February 14, 1992 to discuss drill hole locations related to the PHC review. If you have any questions, please call me or Tom Munson.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

pgl
Enclosure
cc: Tom Munson
Ken Wyatt
Hugh Klein

an equal opportunity employer

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February 6, 1992

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Tom Munson, Senior Reclamation Hydrologist

RE: PacifiCorp's Probable Hydrologic Consequences (PHC) Review, PacifiCorp Electric Operations, Cottonwood/Wilberg Mine (ACT/015/019), Deer Creek Mine (ACT/015/018), Des-Bee-Dove Mine (ACT/015/017), Folder #2, Emery County, Utah

Synopsis

The Pacificorp PHC document (Volume #9) has been reviewed relative to the operator's data adequacy that must be met to meet the requirements of the PHC rules. The rules which are applicable to baseline ground-water and surface-water data are noted, followed by a discussion of the PHC submittal and its completeness.

Analysis

The current rules require the following information be presented in the Permit Application Package for PHC's (note certain rules have been highlighted for emphasis):

R645-301-700

722.100. **Location and extent of subsurface water, if encountered, within the proposed permit or adjacent areas. For UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES, location and extent will include, but not limited to areal and vertical distribution of aquifers, and portrayal of seasonal differences of head in different aquifers on cross-sections and contour maps;**

724. Baseline Information. The application will include the following baseline hydrologic, geologic and climatologic information, and any additional information required by the Division.

724.100. Ground-Water Information. The location and ownership for the permit and adjacent areas of existing wells, springs and other ground-water resources, **seasonal quality and quantity of ground water, and usage. Water quality descriptions will include, at a minimum, total dissolved solids or specific conductance corrected to 25 degrees C, pH, total iron and total manganese. Ground-water quantity descriptions will include, at a minimum, approximate rates of discharge or usage and depth to the water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam.**

724.300. Geologic Information. Each application will include geologic information in sufficient detail, as given under R614-301-624, to assist in:

724.310. **Determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface- and ground-water monitoring is necessary;** and

724.320. **Determining whether reclamation as required by the R614 Rules can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.**

724.600. Survey of Renewable Resource Lands. For the purposes of UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES, **the applicant will provide a survey that shows whether aquifers or areas for the recharge of aquifers exist within the permit and adjacent area and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of aquifers or areas for the recharge of aquifers**. Renewable resource survey information will be

incorporated into the subsidence control plan listed under R614-301-525.

725. Baseline Cumulative Impact Area Information.

725.300. **The permit will not be approved until the necessary hydrologic and geologic information is available to the Division.**

726. Modeling. The use of modeling techniques, interpolation or statistical techniques may be included as part of the permit application, but actual surface- and ground-water information may be required by the Division for each site even when such techniques are used.

728. Probable Hydrologic Consequences (PHC) Determination.

728.100. **The permit application will contain a determination of the PHC of the proposed coal mining and reclamation operation upon the quality and quantity of surface and ground water under seasonal flow conditions for the proposed permit and adjacent areas.**

728.200. **The PHC determination will be based on baseline hydrologic, geologic and other information collected for the permit application and may include data statistically representative of the site.**

728.300. The PHC determination will include findings on:

728.310. **Whether adverse impacts may occur to the hydrologic balance;**

728.320. Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface- or ground-water supplies;

728.330. What impact the proposed coal mining and reclamation operation will have on:

728.331. Sediment yield from the disturbed area;

728.332. Acidity, total suspended and dissolved solids and other important water quality parameters of local impact;

728.333. Flooding or streamflow alteration;

728.334. **Ground-water and surface-water availability**; and

728.335. Other characteristics as required by the Division; and

728.400. An application for a permit revision will be reviewed by the Division to determine whether a new or updated PHC determination will be required.

729. Cumulative Hydrologic Impact Assessment (CHIA).

729.100. **The Division will provide an assessment of the probable cumulative hydrologic impacts of the proposed coal mining and reclamation operation and all anticipated coal mining and reclamation operations upon surface- and ground-water systems in the cumulative impact area. The CHIA will be sufficient to determine, for purposes of permit approval whether the proposed coal mining and reclamation operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The Division may allow the applicant to submit data and analyses relevant to the CHIA with the permit application.**

Roan's Canyon Graben Area

The operator has not provided enough baseline ground-water information to adequately define the hydrologic balance of the Roans Canyon Graben Area and the Rilda Canyon Lease Area. The operator must characterize the Hydrologic system in terms of the potential impacts to the hydrologic system within the permit area. The PHC must also discuss how the mining and reclamation plan will minimize impacts to the hydrologic balance within the permit area and prevent material damage to the hydrologic balance outside the permit area. A ground-water study program in the area of Cottonwood Creek within the Roan's Canyon Graben to better define hydraulic gradient and movement of ground

water in this adjacent area would help define ground-water movement in the graben. The information provided in Volume #9 of the PAP, Figure HF-5C Roans Canyon Fault Graben Piezometric Gradient-1988, is site specific to the Roan's Canyon Crossing area almost two miles from Cottonwood Creek and does not fulfill this need.

Rilda Canyon Lease Area

In regards to the Rilda Canyon lease area, north of the Graben, the operator has not provided any seasonal baseline (quality and quantity) ground-water data on the aquifers above the coal seam, within the coal seam, and below the coal seam in this lease area. The lease addition cannot be approved until this necessary hydrologic and geologic data is available to the Division.

Recommendations

The applicant is required to provide the Division with a Probable Hydrologic Consequences (PHC) Determination for their current permit area and the Rilda Canyon Lease Tract. This PHC must explain to what extent the coal mining and reclamation operations are designed to minimize disturbance to the hydrologic balance within the permit area and prevent material damage outside the permit area. The PHC will be based upon an analysis of all of the available information that Pacificorp has at its disposal, including hydrologic and geologic information in the currently mined area, previously mined-out areas, future areas, and information about the Rilda Canyon Springs.

The PHC should interpret the hydrologic and geologic information available and discuss the system as it relates to past and future mining. Discussions of potential water encountered should also be considered by the applicant, i.e. potential for additional quantities, handling and disposal, impacts to the hydrologic system from mining, subsidence, and post mining.

The purpose of the probable hydrologic consequence (PHC), prepared by the applicant, is to collect adequate data in order to understand the hydrologic system that will be affected by coal mining and reclamation. The Division cannot approve a permit until the necessary hydrologic and geologic information is available for the Cumulative Impact Area (CIA). Once the applicant has defined the quality and

quantity of surface and ground water under seasonal (one year) conditions, the applicant then presents a comprehensive PHC plan to the Division. The Division must review that information and assesses it in terms of the Cumulative Impact Area. The Division then prepares the Cumulative Hydrologic Impact Assessment (CHIA).

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