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Norman H. Bangerter
Governor
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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

August 4, 1992

Mr. Ben Grimes
Cyprus Plateau Mining Corporation
P. O. Drawer PMC
Price, Utah 84501

Dear Mr. Grimes:

Re: Review of Updated Probable Hydrologic Consequences, Cyprus Plateau Mining Corporation, Star Point Mine and Castle Valley Ridge Lease Tract, ACT/007/006-DO-91C, Folder #2, Carbon County, Utah

Enclosed please find the technical review of the updated Probable Hydrologic Consequences (PHC) submitted May 15, 1992 in response to Division Order 91-C and in order to determine the PHC for the proposed Castle Valley Ridge Lease Tract.

On June 25, 1992 a meeting was held at the Division with Cyprus Plateau Mining Corporation (CPMC) and David Hansen of Hansen, Allen, and Luce regarding the PHC. Unfortunately, when the meeting was scheduled on June 10, 1992, it was my understanding that CPMC wanted to discuss the "strategy" to mitigate impacts to water users. However, on the day of the meeting, the questions posed by CPMC focused on the technical adequacy of the PHC. At that time, a technical review had not been completed and, therefore, no specific comments could be made.

In conjunction with this review, the question has arisen as to the status of CPMC's exploration plans. The original exploration plan (covering Wild Cattle Hollow) was submitted on February 6, 1992 and Division comments were forwarded to the Bureau of Land Management on February 20, 1992. Subsequently, you informed the Division that exploration plan would be abandoned. It is our understanding that a new exploration plan is forthcoming. This is important because some of the exploration holes may be converted into water monitoring wells, which would then be utilized to gather baseline water monitoring data. Given this, it is necessary for CPMC to inform the Division of plans for future exploration.

Due to the lack of baseline water monitoring data, the PHC for the Castle Valley Ridge Lease Tract cannot be determined complete. Please submit responses to this review by September 15, 1992.

If you have any questions, please call me.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

pgl
Enclosure
cc: Dianne R. Nielson
Lowell P. Braxton
Hugh Klein
Ken Wyatt
Tom Munson
George Morris, Manti-LaSal FS
Rick Holbrook, OSM, Denver

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TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Thomas Munson and Ken Wyatt, Reclamation Hydrologists
Hugh Klein, Geologist

RE: Plateau PHC Review, Cyprus Plateau Mining Company, Star Point Mine, ACT/007/006, Folder #2, Carbon County, Utah

SYNOPSIS

Cyprus Plateau Mining Company (CPMC), in conjunction with Hansen, Allen and Luce Inc., submitted an updated "Probable Hydrologic Consequences of Mining in the Gentry and Castle Valley Ridge Areas" in May 1992. In order to ensure there will be only one PHC for CPMC's Star Point Mine, review of the PHC has been conducted in a manner that considers both the existing PHC in the PAP and the updated version.

ANALYSIS

For purposes of clarity, the review has been organized by referencing relevant pages and discussing the issues and conclusions raised in the PHC. Bold comments are those that require an operator response.

PAGE	COMMENTS
728-4	Statements regarding "an upward vertical gradient between the Storrs and the Spring Canyon member of the Star Point sandstone" at the Bear Canyon Mine are incorrect. The final report on ground water characterization at Bear Canyon has not been submitted to the Division. Initial results showed that each member of the Star Point is confined by a Mancos Shale aquitard which produces a piezometric surface above the confining layer but below the piezometric surface of the member above. Thus, the overall vertical gradient is downward. **Why were the in-mine wells only completed in the Spring Canyon Member of the Star Point Sandstone? Is other data available from lower members of the Star Point Sandstone (i.e. Storrs and Panther Tongues)? Please provide water level data, drill logs or other information to support the conclusion that the gradient is upward in the Gentry Ridge area.**

728-7 A contradiction of mine inflow sources exists in the second paragraph. This paragraph states that 95 percent of mine inflow originates from channel sands. The following paragraphs state major inflows are associated with the western boundary fault of the Gentry Ridge Horst. Specifically, the source of these inflows is believed to be the interception of finger faults associated with the western boundary fault by mine workings. **Please clarify this statement about mine inflow sources.**

728-8 The second paragraph on this page discusses the exploration holes drilled in the Castle Valley Ridge area. These holes were drilled as exploration holes and were not intended to be ground water monitoring wells. Although a general piezometric surface can be derived from these data, the fact that water was introduced into the holes for logging and the fact that the holes were developed mainly for coal exploration does not provide specific water elevations for various strata. The need still exists for baseline groundwater data. In-mine wells in the Castle Valley Ridge area and development of wells in the Nuck Woodward Canyon/Wild Cattle Hollow area (as discussed in previous meetings at the Division office) would aid in satisfying this requirement. **Please clarify CPMC's plans for baseline data collection in the Castle Valley Ridge area. Exploration wells and in-mine wells developed as groundwater monitoring wells specific to the Castle Valley Ridge area need to be identified and monitored for baseline quality and quantity data for at least one year prior to permit issuance.**

728-9 No submittal from Co-Op Mining Company has been received by the Division. This paragraph is in error as described in the comment for Page 728-4 above.

A typographical error exists in the last paragraph: completed not competed.

728-10 The third paragraph indicates that water flowing in Nuck Woodward Canyon is lost into the western boundary fault of the Pleasant Valley Graben. **What reference, study or source was used for this conclusion?**

728-18 **A typographical error exists in the third sentence, fifth paragraph: tests not testes.**

728-13 The third paragraph indicates CPMC's commitment to install new groundwater monitoring wells in the Nuck Woodward area and from within the mine. **Proposed drill sites within the mine and in Nuck Woodward Canyon should be included on Map 728b to show their relation to the mine workings.**

728-19 Section 731.100 of the mine PAP indicates that CPMC uses an active exploration program as mining is advanced to determine when mining approaches faults and fractures. The second paragraph of page 728-19 states that CPMC is drilling ahead of mining in an attempt to identify faults and finger faults that may have significant water. **Please elaborate on the procedures used in this exploration drilling and what action CPMC will take if unexpected fault and fractures are found or if significant quantities of water are discovered (i.e., will the drill holes be hydrologically tested?).**

728-19 The last sentence of the fourth paragraph indicates that a potential for high inflows could be encountered along water bearing fracture systems. **What action does CPMC propose to avoid mining through an identified water bearing fracture system? What does CPMC propose to do if mining intersects an unidentified water bearing fracture system?**

728-22 On page 728-19, the statement is made that "Should significant water bearing fracture systems be encountered, higher flows on the order of those experienced by U.S. Fuel may be experienced." This amount is 800-900 gallons per minute. Although the Birch and Bear Canyon Springs are located about six miles from the CPMC permit area, high inflows from interception of the Bear Canyon fault and subsequent interbasin transfer could create impacts to the flow regime of these springs. **Some discussion of these potential impacts and mitigation is appropriate and needs to be included.**

728-23 Paragraph 5 states: "The source of Birch Springs and Bear Canyon springs has yet to be defined thoroughly." Despite this, minimal to no impact is anticipated by CPMC. CPMC proposes to discharge excess mine water produced into abandoned mine workings east of the Bear Canyon fault or inject it directly into this fault. **Could these increased flows along the fault potentially increase flows to the U.S. Fuels Mine, Bear Canyon Spring, or the Bear Canyon Mine? A discussion of the hydrological consequences of these activities must be provided.**

Paragraph 6, item 4 implies that other mines are responsible for hydrologic impacts to these springs which would mask impacts from CPMC. **This statement should be eliminated or the reference or study determining that these impacts are associated with local mines must be provided.**

728-24 The second paragraph discusses pumping water encountered from the Gentry Ridge area across the Bear Canyon Graben into abandoned mine workings. **A map showing areas to be used for sumps and water containment needs to be submitted, as well as a discussion of the associated potential effects on the hydrologic system (i.e., where will this water eventually flow along the Eastern Boundary Fault of the Bear Canyon Graben?)**

The statement in the third paragraph indicates that interbasin transfer may occur through the Mud Canyon Breakout and potential impacts to Huntington Canyon water rights could occur. **A discussion of the hydrologic consequences of interbasin transfer must be provided. How will impacts to the water rights be determined and what mitigation is planned?**

The fourth paragraph indicates a potential alternative as re-injection of mine water into local fault systems. **Where are the proposed locations of these injection wells? These injection locations should be placed on the appropriate map. A discussion of the hydrologic consequences of this activity must be provided.**

728-25 In the second paragraph, a commitment is made to drill additional monitoring wells in the Gentry Ridge, Castle Valley Ridge and the area west of the Castle Valley Ridge. **A description of the proposed well development and potential locations is appropriate and should be included in the text and the locations shown on Map 728b.**

The third paragraph concerning water quality indicates that annual samples will be collected from the in-mine wells. **A discussion summarizing seasonal water quality and quantity based on the baseline data collected to date is appropriate here and must be included. Annual sampling and operational parameters are not adequate to meet the baseline sampling requirements of the Division. Please make the appropriate revisions to the proposed sampling plan.**

728-26 The discussion concerning water rights mitigation does not include those above the mine workings located on U.S. Forest Service (USFS) land with USFS water rights attached. **A discussion of these potential impacts should be considered.**

RECOMMENDATIONS

In general, references are made about other studies and findings which support portions of the PHC text. Please include the appropriate reference when citing these sources.

To make the PHC more clear and to ensure consideration is given to all of the probable hydrologic consequences, all comments and issues raised typed in bold letters above need to be responded to by the operator.

The preferred mitigation measure for dealing with significant in-mine flows in the mine plan is not the same as that in the updated PHC. An explanation as to why re-injection is no longer the preferred alternative should be provided. In addition, the specifics of these mitigation measures need to be provided.

In order to supplement the existing information provided by the maps, the following revisions and/or additions are requested:

Map 728a:

Delete the purple shading.

Map 728b:

Expand this map to include the entire permit area.
Add all previous mine workings.
Add all existing and proposed mine water sumps.
Add all in-mine wells.
Add all proposed in-mine water handling facilities; this includes any proposed re-injection wells and monitoring wells. Add all inflow and discharge points.

Map 722.100A:

Provide a clear copy.
Add geology to the inset.

Map 722.100C:

Show all wells used in constructing the groundwater contours.

Map for subsidence:

Provide a subsidence map at a scale of 1:1000 with five foot isopleths of subsidence and all other surface expressions of subsidence.

jbe
PLATEAU.PHC