



United States Department of the Interior

GEOLOGICAL SURVEY  
WATER RESOURCES DIVISION  
Room 1016 Administration Building  
1745 West 1700 South  
Salt Lake City, Utah 84104

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**RECEIVED**  
JUN 23 1989

June 22, 1989

Mr. Benjamin Grimes  
Sr. Environmental Engineer  
Cyprus Plateau Mining  
P.O. Drawer PMC  
Price, Utah 84501

DIVISION OF  
OIL, GAS & MINING

RE: Monitor wells above "Third" seam

Dear Mr. Grimes:

I am writing this letter in response to your request to summarize the discussion between Utah Department of Oil, Gas and Mining (UDOGM), Cyprus Plateau, and the United States Geological Survey (USGS) on June 13, 1989 at the UDOGM office in Salt Lake City concerning the drilling of four proposed "Third" seam monitor wells.

Initially, the merits of drilling the four proposed monitor wells in the "Third" seam were discussed. The primary reason for drilling the wells was to establish ground-water conditions prior to mining the "Third" seam. In order to establish pre-mining ground-water conditions, monitor wells should be drilled and monitored at least one year prior to any mining in the area. A one-year monitoring period would permit the assessment of changes in "natural" ground-water conditions related to climate rather than to mining. The one-year period would provide a range of change through the annual cycle of temperature and precipitation.

The USGS expressed concern that mining under the Miller Creek drainage is proceeding so rapidly that not enough time is available to collect pre-mining data. This lack of pre-mining data will make identifying the effects of mining on ground water difficult.

Following the discussion on the merits of drilling the proposed monitor wells, access to drill sites was discussed. Access to P3 and P4 proposed monitor-well drill sites represented little problem; however because of dense tree cover at the P1 and P2 sites, a substantial up-front cost would be necessary to provide access. Because of the additional costs in providing access to the P1 and P2 sites, it was agreed that P3 and P4 proposed monitor wells would suffice for data collection on pre-mining ground-water conditions above the "Third" seam.

In the vicinity of the the proposed wells, the perched aquifer is approximately 1,000 feet below land surface. Several concerns were raised pertaining to the perched aquifer's areal



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extent and water content above the "Third" seam. To address these concerns it was suggested that prior to drilling the monitor wells, the perched aquifer should be better delineated through underground drilling; the drilling would also give an indication on whether the perched aquifer has been de-watered. Results of the underground drilling would be discussed before a decision would be made on the depth of the monitor wells.

The cost, in relation to who would drill the monitor wells, was then discussed. The monitor wells need to be installed by the end of August 1989. Because of the availability and low cost of USGS drillers, it was suggested that an estimate for drilling holes, large enough to install 4-inch casing, be obtained from them. Installing 4-inch casing would increase the chance the monitor wells would remain open.

The USGS also expressed concern that the wells drilled to monitor the Wattis seam had been lost, and requested that at least one well be drilled to replace them, in order to characterize post-mining recovery of the system, if any.

The latter portion of the meeting was devoted to Cyprus Plateau's concerns on what items the project monies were being spent. Cyprus preferred that their funds would be spent only on equipment purchases and contract items, and not on personnel costs. A breakdown of all costs incurred on the project will be given to Cyprus Plateau by the USGS. The USGS requested that if Cyprus Plateau is not satisfied with the current funding arrangement, they inform the USGS and UDOGM so that, if necessary, the project can be terminated.

The USGS indicated, however, that all incoming funds, including USGS matching contributions, must be placed into one account. There is no separate source of funding to cover USGS personnel costs only.

Cyprus Plateau also indicated that they would prefer to have a long-term agreement between USGS and UDOGM to show the USGS commitment to the project. The USGS has no problems with a multi-year agreement; UDOGM will check with administrative personnel to ensure that a multi-year agreement can be signed by state personnel.

*Cecil Slaughter*  
Cecil Slaughter  
Hydrologist

Copy to: Rick Smith, Utah Division of Oil, Gas, and Mining  
: Joe Gates, Chief of Investigations, WRD