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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 18, 1985

Meade Stirland, Manager
Environment, Health and Safety
Anaconda Minerals Company
P.O. Box 638
Grants, NM 87020

Dear Mr. Stirland:

We have reviewed Volume 22: Response to questions expressed in the EID letter of April 24, 1984, concerning the proposed discharge plan for the above-grade tailings impoundment, Bluewater Mill. Please address the following questions.

1. Please provide a complete list of the assumptions and parameters used to estimate the tailings pond seepage rate of 40 gpm. The detailed calculations of the water balance should also be provided.

2. Alluvial-Basalt Aquifer

   Insufficient data have been provided to determine whether concentrations of NO_3, Cl, SO_4 and TDS are decreasing or increasing or at steady state in the alluvial-basalt aquifer.

   A. Only seven data points were used to create the concentration maps for the alluvium. Monitor wells key to the definition of the existing contamination in the alluvial aquifers and in the burried alluvial channel, the probable paths of migration, were not included in the study. We suggest that the Card Abandoned, Simpson, V(M), and K(M) wells be included in the study. Up-gradient wells and any additional down-gradient, off property wells should be included on the isoconcentration maps and chemical hydrographs. Please define concentrations to the east of the Sabre Pinon well.

   B. The period of record provided in the chemical hydrographs is only 4 years, when more than 20 years of analyses have been recorded. The additional period of record should be included.

   C. No chemical hydrographs were provided for TDS. The TDS isoconcentration map indicates two substantial areas of TDS that exceed the standards. There is a large mass of contaminants in the alluvial aquifer, beneath the tailings pond and in the vicinity of

wells U(M) and X(M). Concentrations of Cl and SO_4 in wells U(M) and X(M) show an increasing trend. Presumably, TBS would exhibit the same trend, if a hydrograph were presented as we requested. This indicates that concentrations are increasing in the alluvial aquifer at Anaconda's property boundary. This slug of contaminants may cause the standards to be exceeded at a place of foreseeable future use. Reducing the seepage rate at the tailings pond may not be sufficient to prevent this residual mass of contaminants in the alluvial-basalt aquifer from migrating. Because the alluvial-basalt aquifer is a narrow channel, lateral hydrodynamic dispersion will probably not be an effective natural means of reducing concentrations from a point source at a distance. The flow regimen would more likely be approximated by one dimensional flow with dispersion only on the leading and trailing edges of the contamination (longitudinal dispersion).

Anaconda should model the migration of the contamination in the alluvial-basalt aquifer as our analysis of information presented indicates that the standards will be exceeded at places of foreseeable future use both on and beyond Anaconda's property.

D. Anaconda may appeal to the Director of the EID pursuant to Section 3-110 of the WQCC Regulations to obtain discharge plan approval for its plan where areas of the alluvial aquifer exceed the standards for Cl, SO_4 and TDS. NO_3 can be excluded as chemical hydrographs indicate that it is approaching the standards. Additional up-gradient and down-gradient wells off property should be monitored so that increases in concentrations above the standards can be detected. Anaconda should monitor the wells included in Section D of this letter. Should modeling indicate that the standards will be exceeded beyond its property, Anaconda may commit to a method of contaminant control.

3. Chinle Aquifer

Geologic cross sections presented in Volume 22 indicate saturation in the Chinle south of the fault that transects the geologic section through the tailings pond. The statement has been made in other submittals by Anaconda (Volume III) that the Chinle is an aquitard to the San Andres-Glorieta aquifer. However, immediately to the east, in the vicinity of Homestake, sandstones within the Chinle are a major water supply. What attempts have been made to define the areal extent of the Chinle and limits of saturation south of the tailings pond, to ascertain whether sandstone units within the formation exist and to define the water quality within those sandstone units?

4. San Andres-Glorieta

The full record of monitoring, not just the last 4 years should be provided for all chemical hydrographs of wells in the San Andres-Glorieta.

TDS chemical hydrographs should also be provided.

Key monitor wells down-gradient of the tailings pond near Anaconda's property boundary, including monitor wells I(SG) and W(SG), show increases in TDS or chloride. There is a suggestion from this study that the contaminants from Anaconda's tailings pond may have migrated as far as Homestake. Concentratons of TDS in Homestake's San Andres wells are starting to increase slightly. The large thickness of Chinle shale at the Homestake site precludes the possiblity that the increase in concentration in the San Andres-Glorieta aquifer is due to Homestake's activities. A large area extending several miles beyond Anaconda's property down-gradient in the San Andres-Glorieta aquifer has been impacted by Anaconda's operations. According to the TDS map Anaconda presented, a large mass of greater than 4,000 mg/l TDS water exists down-gradient from the tailings pond. This plume is already causing concentrations to increase at Anaconda's property boundary and probably beyond Anaconda's property, down-gradient.

Anaconda may appeal to the Director of EID pursuant to Section 3-110 of the regulations to obtain discharge plan approval for their plan for areas of the San Andres-Glorieta aquifer where the ground water standards are exceeded for Cl, SO_4 and TDS. NO_3 can be excluded as chemical hydrographs indicate that concentrations are approaching the standards. Additional down-gradient wells, beyond Anaconda's property should be included in a study to define the extent of contamination resulting from Anaconda's activities. Modeling efforts should be conducted to ascertain whether residual concentrations in the San Andres aquifer will cause standards to be exceeded at places of foreseeable future use. If modeling indicates that the standards will be exceeded, Anaconda may commit to a method of contaminant control.

Sincerely,

Kent Bostick

Kent Bostick
Water Resource Specialist
Ground Water Section

Sincerely,

Doug Jones

Doug Jones
Water Resource Specialist
Ground Water Section

KB:DJ:jba

cc: Richard Mitzelfelt, EID District I, Albuquerque
Ray Madson, EID Field Office, Milan