

Doc. 40-8903



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**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

January 20, 2005

Mr. Sai Appaji, Remedial Project Manager  
Superfund Division  
U. S. Environmental Protection Agency, Region 6  
1445 Ross Avenue  
Suite 1200  
Dallas, TX 75202

RE: New Mexico Environment Department comments on proposed ground water background concentrations for the Homestake Mining Company Mill Site (CERCLIS ID NMD007860935), Milan, New Mexico

Dear Mr. Appaji:

The New Mexico Environment Department (NMED) has received a letter dated June 21, 2004, addressed to Gary Janosko of the U. S. Nuclear Regulatory Commission (U.S. NRC), entitled "Grants Project—SUA-1471—Docket No. 40-8903, Chinle Aquifer Site Standards." This letter follows upon earlier submittals to the U.S. Environmental Protection Agency (U.S. EPA) and U.S. NRC that address the establishment of background or existing concentrations for aquifers that have been impacted by Homestake Mining Company (HMC) Site activities:

Overall the statistical methods and hydrogeological interpretations are appropriate. However, the currently proposed background values require further evaluation of the alluvial aquifer dataset. The NMED recommends the following changes be made:

1. Background concentrations for the alluvial dataset should be calculated based on the last 10 years of data in order to better define possible contaminants migrating from off-site. Older

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than 10 year data would not be representative of the water quality that moves on site today based on the physical hydraulic characteristics of the alluvial aquifer, such as, pumping within the alluvial aquifer and the distance of the background wells from the site. This is demonstrated by the time series plots and comparing the entire dataset from 1977-2003 with the last 10 years of that dataset from 1993-2003. Nitrate concentrations in the alluvial wells for example decreased with time from 1977 to 2003 for most alluvial wells, while concentrations increased with time from 1993 to 2003. De-nitrification may result in the decreasing trend observed in the earliest data. Similar changes occur for other contaminants of concern. Background values should be determined after comparing the results of calculations from the last 10 year dataset to the results from the entire dataset and evaluating differences and determining which values are most appropriate as background values.

2. Outlier criteria should be applied to individual well datasets rather than the entire dataset, which favors keeping extraneous data. Since there is variability from well to well within an aquifer, the internal consistency of a dataset makes sense on a well by well basis. Apply the outlier criteria to the raw data instead of after duplicate results for a given day have been averaged.
3. In the event new information becomes available, the background value may require revision. For example, the alluvial aquifer nitrate and selenium values are relatively high compared to the other aquifers without a defined natural or manmade source. Near the intersection with state highways 509 and 605, four alluvial wells were sampled by the U.S. Department of Energy in 1980 to 1982. The selenium concentrations ranged from 0.005 to 0.028 mg/L; uranium ranged from 0.178 to 0.22 and molybdenum ranged from 0.01 to 0.159 mg/L. The uranium and molybdenum concentrations are reasonably close to Homestake's proposed values. Similarly, the lower Chinle selenium value is relatively high compared to the other aquifer values without identifying a natural or anthropogenic source. If the sources of nitrate and selenium are better defined, the established background values may require revision.
4. An explanation needs to be provided about why proposed representative existing background contaminant concentrations for uranium and TDS are greater in the mixing zone than in the alluvial aquifer and greater in the Lower Chinle for selenium, sulfate and TDS than in any other aquifer.
5. Once items 1-4 above are adequately addressed, the background concentrations may only be approved for the Homestake Mining Company Mill and will be delineated by aquifer and a geographically defined area which specifies townships, ranges and sections. The defined area includes Township 11 North, Range 10 West in Sections 2 and 3 and Township 12 North, Range 10 West in Sections 22 - 29 and 33 - 36.

Sai Appaji, U.S. EPA RPM

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Please contact Jerry Schoeppner at (505) 827-0652 if you should have any questions.

Sincerely,



William C. Olson, Chief  
Ground Water Quality Bureau

Copies: Dana Bahar, SOS Program Manager  
Kevin Myers, MECS  
Robin Brown, SOS  
Jerry Schoeppner, MECS  
William von Till, U.S. NRC  
Al Cox, Homestake Mining Co. (HMC)

HMC 2004 correspondence file  
NMED/GWQB/SOS November 2004 read file  
DP-200 file