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**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

August 31, 2015

Deborah Barr, Site Manager  
U.S. Department of Energy  
Office of Legacy Management  
2597 Legacy Way  
Grand Junction, CO 81503

**RE: NMED Comments on U.S. Department of Energy's November 2014 *Site Status Report: Groundwater Flow and Contaminant Transport in the Vicinity of the Bluewater, New Mexico Disposal Site***

Dear Ms. Bar:

The Ground Water Quality Bureau (GWQB) of the New Mexico Environment Department (NMED) has reviewed the above referenced report and makes the following comments and suggestions in order to maintain consistency with abatement of ground water contamination as provided for by the Water Quality Control Commission Regulations (20.6.2.NMAC). NMED appreciates the high quality information, organization, and graphics of the report and makes the following comments and suggestion to further the investigation and ultimate remediation of ground water contamination resulting from the operation of the Bluewater Mill/Disposal Site (Bluewater site). Additionally, the comments are intended to encourage the integration and use of all available data and understanding across the conceptual model study area in an effort to better understand potential impacts to ground water from the Bluewater site.

1. NMED agrees that it appears there is a continuous source of uranium contamination in the vicinity of the Main Tailings Impoundment that sustains the plume over time. NMED recommends developing a sampling and analysis plan to investigate and characterize the source. The plan should include mechanisms to physically investigate the inferred mineralized zone, as well as methods to estimate the flux of water and contaminants through the stored material. If a continuous source of uranium contamination is identified as coming from the Bluewater site, a remedy or selection of remedies should be proposed.

2. Modeling may be useful to show or verify the geochemical equilibrium (steady-state condition) of the plume. A model designed with input characteristics that would be necessary to show sustainment of the plume as defined by existing and new ground water monitoring data could be compared with data from the source investigation described in number 1 above.
3. The existing monitoring well network and potentially the quality of the data obtained from that network should be improved. Existing monitoring wells and supply wells that are sampled should be evaluated to determine if the wells are properly constructed and to identify screened intervals and which aquifer is being sampled. If well completion documentation is not available, or is suspected to be inaccurate, then the well construction should be determined and logged using a downhole camera. Additional monitoring wells should be constructed to fill gaps in the monitoring network resulting from insufficient spatial distribution or to replace wells whose construction results in data that are not useful. The following are some specific suggestions by aquifer:
  - a. The alluvial aquifer seems to have an adequate number of wells that are monitored; however, little ground water quality data is provided for wells outside of the Bluewater site boundary, especially toward the Homestake site. If this data is available, distinctions may be made between the mills, and the results of mixing of the two plumes observed.
  - b. The San Andres Aquifer has a paucity of wells monitored and lacks recent ground water quality data. Additional monitoring wells should be installed between the Bluewater and Homestake sites, as well as to the southeast of the Homestake site to further delineate the nature and extent of contamination from the Bluewater site.
  - c. Analytes selected for all wells monitored should be based on the contaminants observed in the Bluewater site area and the Bluewater list of “Tailings Liquor Chemistry” as provided in the report.
4. Ground water monitoring data for this site, as well as the entire Grants Mining District, is difficult for investigators to understand because of the complexities that arise from multiple aquifers, different analyte suites, multiple non-standard well identifications, and varying well types/construction (improper construction may lead to inaccurate data). Additionally, having to look up analytical data for each well in a separate table is time consuming and makes it difficult to comprehend the spatial distribution of contaminant concentrations, especially for minor and trace elements. NMED recommends that the data be incorporated into a GIS database. Presentation of layers of data with notes on well type and construction would greatly enhance investigators’ abilities to analyze the data and understand the hydrogeology and contaminant transport in the area of concern.

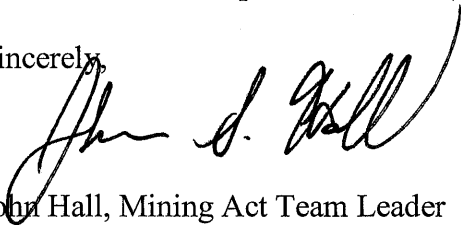
EPA Region 9 is developing a database for the TRONOX settlement groundwater investigation. If Region 9 is willing to share the database product, and any relevant data they intend to populate the database product with, this may be very helpful for resolving data issues that exist for the Bluewater, New Mexico site and to encourage a broader understanding of the conceptual model study area. Ultimately, the population of one database product, or at least multiple database products that are compatible, would be

helpful to all investigators working in the region by allowing them access to all available data.

5. NMED suggests looking for possible geochemical and isotopic distinctions between contaminants discharged by the Bluewater and Homestake mills. Were there differences in the acid-leach processes, the materials (e.g., chemicals, waters, etc) used, or the ore processed that would result in recognizable differences in ground water chemistry or isotope ratios between the two mills? A list of the Bluewater “Tailings Liquor Chemistry” was provided with this site status report—It would be useful to obtain similar data for the Homestake mill if it exists to aid in characterization of areas where contaminant migration overlaps

If you have any questions, please contact me at (505) 827-1049 or Kurt Vollbrecht, Mining Environmental Compliance Section (MECS) Program Manager, at (505) 827-0195.

Sincerely,



John Hall, Mining Act Team Leader  
Mining Environmental Compliance Section  
Ground Water Quality Bureau

cc: Jack Parrott, Nuclear Regulatory Commission (signed PDF: Jack.Parrot@nrc.gov)  
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