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October 9, 1991

Mr. Ramon E. Hall
United States Nuclear Regulatory Commission
Region IV
Uranium Recovery Field Office
P.O. Box 25325
Denver, Colorado 80225



RE: License SUA-1482, Johnny M Site, August 16, 1991, NRC Letter

Dear Mr. Hall:

Provided in this letter is additional information as requested by you in your letter of August 16, 1991. With respect to the impact of the tailings backfill on the aquifer, you will find attached two documents that address this topic: "Water Quality and Hydrologic Impacts of Disposal of Uranium Mill Tailings by Backfilling" by B.M. Thomson and R.J. Heggen, and "Geochemical Constraints on Underground Disposal of Uranium Mill Tailings" by B.M. Thomson, P.A. Longmire, and D.C. Brookins. The conclusion reached in both reports is that there is negligible, if any, long-term effects on the groundwater quality from the backfilling of tailings in uranium mines in the area.

In 1985, the New Mexico Environmental Improvement Division (NMEID) sampled groundwater at the Johnny M. Included in this transmittal is the NMEID's report of that groundwater sampling. The NMEID report states that the groundwater sampled was of good quality, inferring no impact from the backfilled tails.

The aquifer of concern relative to the backfilling of tails at the Johnny M would be in the Westwater Canyon Member of the Morrison Formation. (A photocopy of the site lithology is attached for your reference.) Mr. Richard Ohrbon of the NMEID was contacted regarding Westwater Canyon aquifer use in the vicinity of the Johnny M. Mr. Ohrbon stated that the primary aquifer use in the area is for uranium mining. The area around the Johnny M is inundated with uranium mines. It is believed that there is in excess of one hundred mines in the area, possibly as many as three hundred. Conversations with the New Mexico State Engineers office, and the U.S. Geological Survey (USGS), in addition to the NMEID, indicate that there is little consumptive use of the water from this aquifer in the area other than for mining purposes. This amounts to very little use given the current depressed state of uranium mining.

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Add Info
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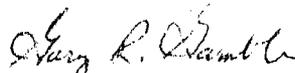
In 1989, the U.S.G.S. Water Resources Division, Albuquerque office was contacted. At that time, they indicated knowledge of two wells located within four miles of the site. One is approximately three miles west-southwest of the site and is in the Westwater Canyon Member. The second well is located approximately four miles northwest of the site and is in the Mancos Shale Formation, and possibly extends down to lower formations. There is also a well in Ambrosia Lake, about 5 miles west of the site that apparently draws from the Westwater Canyon Member. The water is used for a uranium operation.

There are wells closer to the Johnny M site; however, the agencies contacted indicate that these wells are located in overlying aquifers, above the Morrison Formation. They are located at the Marcus Ranch about 1 1/2 miles from the Johnny M and the Lee Ranch about three miles away. The water is used for irrigation and stockwater. Mr. Charles Wallenburg of the New Mexico State Engineers office stated that groundwater is used in San Mateo, but that this water is also drawn from an overlying aquifer.

Additionally, we have thoroughly researched our files and, due either to the age of the files or the transfer of ownership of the Johnny M from Ranchers Development and Exploration Corporation to Hecla, we have found no substantive additional site-specific information concerning the quality of the water in the Westwater Canyon Member of the Morrison Formation.

In conclusion, we believe that we have answered the questions posed in your August 16, 1991, letter. Studies conducted on the impact of backfilled uranium tailings on the groundwater indicate no long-term adverse effects. Additionally, the Johnny M Mine is located in a remote area where the predominant activity is uranium mining. Inquiries with several area government agencies suggest that there is very little consumptive use of Westwater Canyon Member aquifer water in the area other than for uranium mining/milling purposes.

Sincerely,


Gary R. Gamble
Environmental Engineer

GRG:csm

Attachments