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NUCLEAR REGULATORY COMMISSION
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MEMORANDUM FOR: Joseph J. Holonich, Acting Chief
LLUR, LLWM, NMSS

THROUGH: Mike Fliegel, Section Leader
Special Issues Section
LLUR/LLWM/NMSS

FROM: Latif Hamdan
LLUR/LLWM/NMSS

SUBJECT: TRIP REPORT ON VISIT TO UNITED NUCLEAR CORPORATION'S
CHURCH ROCK TAILINGS SITE NEAR GALLUP, NEW MEXICO

Ed Hawkins, Deputy Director of URFO, and I participated in a visit to UNC's Church Rock uranium mill tailings site near Gallup, New Mexico, on February 17, 1994. The site visit included a brief meeting with UNC staff, and a site tour. Other participants included Shawn Ghose from EPA, Kent Bostic from Jacobs Engineering (consultant to EPA), David Trujillo from the State of New Mexico's Environmental Department, and Julie Curtiss from the Navajo Nation's Environmental Protection Agency. UNC was represented by Juan R. Velasquez, President and Manager, Environmental Affairs, site staff, and Frank Filias from Canonic Environmental Services as consultants to UNC.

UNC's Church Rock uranium mill tailings site is also a Superfund site. The site is currently undergoing surface and groundwater remediation, under jurisdiction of both EPA and NRC, who have signed a memorandum of understanding to streamline their responsibilities. According to the MOU, NRC is responsible mainly for the tailings impoundment site, and EPA is mainly responsible for the area outside the impoundment. However, in that groundwater contamination outside the impoundment site may be due to contaminant seepage from the tailings, NRC is responsible, along with EPA, for groundwater remediation outside the tailings impoundment.

This visit was arranged by EPA. The purpose of the visit was to discuss a currently outstanding issue pertaining to background groundwater quality for the site. Since around 1988 and until recently, UNC has used three "600-series" wells to establish background groundwater quality for the site, with EPA and NRC agreeing but with the understanding that revisions may be made if warranted by newly collected data. During this time, the State of New Mexico and the Navajo Nation were silent on the selection of background wells (i.e., apparently there was no objection by the State or the Navajo Nation to the background wells selected by UNC, and agreed to by EPA and NRC). The background groundwater quality is important in that it was established as the groundwater cleanup standard by both NRC and EPA.

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Mainly because of uncertainties about the effectiveness of the ongoing remedial action activities and meeting the groundwater cleanup standards in the uppermost alluvial aquifer in the area to the north of the tailings pile, identified as Zone 3 Remedial Action Target Area, UNC has proposed to increase the number of background wells from three to six, and to use the data from all six wells to re-establish background for the site, and thereby relax the groundwater reclamation standard. UNC claims that the available data obtained since the initial selection of the background wells justify adding new wells to re-establish background.

The "600-series" wells are located north of, and upgradient from, the tailings pile. But one of the wells that UNC proposes to add to the background wells, also a "600-series" well, has nitrate and total dissolved solids concentrations (800 mg/l and 9343 mg/l, respectively) that are higher than the corresponding concentrations in the background wells originally selected (nitrates 4.4-401 mg/l and total dissolved solids 4093-4899 mg/l).

There are apparently differences between EPA and UNC on one side, and the State and the Navajo Nation on the other, about the use of water quality data from "600-series" wells to establish background groundwater quality. At issue is whether the elevated nitrates in some of the "600" series wells were generated naturally through leaching of evaporite deposits into the groundwater (which is largely the position of UNC and EPA), or that the high nitrate concentrations in the groundwater are due to contamination that has already taken place from the tailings pile (which is largely the position of the State and the Navajo Nation).

The issue is more technical than regulatory, and could not have been resolved in this site visit. Clearly, there is a need to thoroughly review and analyze the available data before a determination can be made as to whether or not the "600" series wells should be used to re-establish background groundwater quality. EPA is in the process of signing a contract with Jacobs Engineering to undertake this task. In the meanwhile, I will review the information and data for the site in NRC files when I receive the files from URFO (presently en-route), to establish a NRC position on the issue. We may have to give a high priority for this work, since UNC is expected to submit an application for a license amendment to revise the background in a short time.

It appears that there may not be a disagreement concerning the restoration of the alluvial aquifer in Zone 1 to the east of the tailings pile, or in the area southwest of the pile. Furthermore, there is reportedly no evidence that the alluvium was saturated to any extent before the mining activities were started in the area. In other words, ground water in the alluvium is reportedly not "natural," but is the result of recharge from

the stream in the arroyo, that was produced by large mine dewatering upgradient over many years, and, obviously from the tailings pile in certain areas. However, I am not sure at this time that re-establishing background groundwater quality is going to be the only issue requiring resolution at this site.

The visit to UNC Church Rock site was useful. It gave me the opportunity to understand the outstanding issue concerning re-establishing background groundwater quality, and become familiar with the site conditions and the ongoing remedial action. I also met with the individuals involved, from UNC, EPA, State of New Mexico, Navajo Nation, and the consultants.

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