UNITED STATES

NUCLEAR REGULATORY COMMISSION

REGION IV

URANIUM RECOVERY FIELD OFFICE
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DENVER, COLORADO 80225

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URFO:DCW
Docket No. 40-8907
04008907470E

MEMORANDUM FOR: Docket File No. 40-8907

FROM: Dana C. Ward, Project Manager

SUBJECT: WINDBLOWN CLEANUP OF NAVAJO TRUST LAND

By letter dated November 21, 1990, United Nuclear Corporation (UNC) submitted the results of a partial windblown tailings cleanup program conducted adjacent to the Church Rock Mill. The cleanup and documentation were performed in accordance with License Condition No. 33 of Source Material License SUA-1475 for the Church Rock Mill.

This report contains information pertaining to the cleanup of approximately 7 acres of land, delineated as Section 1, T16N, R16W, which is also known as Navajo trust lands. Navajo trust lands need approval by Navajo EPA prior to cleanup work. The approval by Navajo EPA was given too late in the 1989 construction season for UNC to act. UNC, during the construction season of 1990, removed windblown tailings from Section 1. The staff review of the licensee's submittal is discussed below.

Discussion

The cleanup action for Section 1 was completed during the Fall of 1990. Prior to removal of contaminated soil, all shrubs and some trees were removed from the cleanup area and placed in Borrow Pit No. 2. The cleanup consisted of removal of a minimum of 6 inches of soil from the area. Additional soils were excavated as determined by instrument readings over the area. The contaminated material was placed in Borrow Pit No. 2. The total area cleaned was 6.7 acres in Section 1 and an additional 0.7 acres in adjacent Section 36, which was recleaned due to its proximity to Section 1.

The licensee performed gamma surveys and soil sample analysis prior to and during cleanup operations to determine the extent of cleanup required and the adequacy of the cleanup performed. UNC provided information in both their December 21, 1989, and November 21, 1990, submittals showing that the background shielded gamma level for the project area is 8-10 uR/hr.

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In UNC's Reclamation Plan report, submitted in June 1987, a background radium concentration in soil of 1 pCi/g was determined. This information was previously reviewed in a memorandum by the staff to Docket File No. 40-8907 dated May 23, 1990. The staff review of the data at that time verified the 1 pCi/g background value to be reasonable and representative of the environment of the Church Rock Mill. This value continues to be acceptable to the staff.

A correlation relationship was established between the readings obtained from a lead shielded micro-R-meter and the Radium-226 content of the soil in the vicinity of the meter. A total of 30 soil samples were analyzed and correlated with the shielded micro-R-meter readings. A correlation formula was developed where it was determined with good accuracy that 6 pCi/g Ra-226 in the soil corresponded well with a shielded gamma reading of 16 uR/hr. This information agrees well with the licensee's submittal of December 21, 1989, and is acceptable to the staff.

The results of UNC's windblown tailings cleanup program are shown on Tables 1 through 8 accompanying their November 21, 1990, submittal. The results indicate that concentrations of radium averaged over areas of 100 square meters do not exceed 6 pCi/g (5 pCi/g plus 1 pCi/g background) for the windblown cleanup area. Review of the data indicates a predominance of shielded readings at or below 13 uR/hr, with a few isolated readings at 14 uR/hr, well below the 16 uR/hr correlation with the maximum allowable of 6 pCi/g radium. The staff concludes from the information presented that the micro-R-meter data indicates the area to be cleaned to an average no greater than 6 pCi/g.

Soil samples collected over the windblown area by UNC and analyzed for radium content were used both for the correlation relationship with shielded gamma readings and for verification results. A total of 30 soil samples were secured during the operation. No soil samples exceeded the 6 pCi/g (5 pCi/g + 1 pCi/g background) established limit. Therefore, the staff review of the data presented in the licensee's submittal of November 21, 1990, indicates that the concentrations of radium averaged over areas of 100 square meters does not exceed 6 pCi/g for the windblown tailings cleanup area.

Conclusion

The staff review of the licensee's November 21, 1990, submittal, indicates that UNC has performed soil cleanup and documentation in accordance with License Condition No. 33 of Source Material License SUA-1475. No further action is necessary at this time.

Dana C. Ward

Dana C. Ward
Project Manager

Case Closed: 04008907470E

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