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URFO:RFB

Docket No. 40-1341

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MEMORANDUM FOR: Docket File No. 40-1341

FROM: Randall F. Brich, Project Manager
Licensing Branch 1
Uranium Recovery Field Office, Region IV

SUBJECT: REVIEW OF 10 CFR 40.65 ENVIRONMENTAL MONITORING
REPORT FOR THE TENNESSEE VALLEY AUTHORITY'S
EDGEMONT MILL - NOVEMBER 1, 1984 THROUGH
APRIL 30, 1985

By letter dated July 29, 1985, the Tennessee Valley Authority (TVA) submitted an environmental monitoring report for the period November 1, 1984 through April 30, 1985, in compliance with 10 CFR 40.65 and License Condition Nos. 14 and 23 (SUA-316 revised July 17, 1985). This memorandum presents the URFO staff review of this data with respect to past data and applicable standards.

Land Use and Audits

In accordance with License Condition No. 23, TVA reported that no audits or inspections were conducted nor were there any significant changes in land or water use during this semiannual reporting period.

Radiological Air Monitoring

Review of the radiological air particulate data indicates that the locations, parameters, frequencies and sensitivities were as required by License Condition No. 14. Four samples were not collected due to equipment malfunction. The highest individual gross alpha value (ED-1, 300 m south of the mill) was 82 percent of the MPC limit. This concentration was measured after a period of blowing dust from strong southeasterly winds toward the millsite and the town of Edgemont. The

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highest individual gross beta value was 5.7 percent of MPC at EG-04, about 500 m east of the haul road. Average gross alpha and beta values were about 50 and 3 percent of MPC, respectively. Total uranium, Th-230, Ra-226 and Pb-210, were less than 1 percent of their respective MPC. Radon progeny samples were collected at the lo-vol radiological monitoring stations in accordance with License Condition No. 14 at the required frequency and sensitivity. Three samples were not collected due to equipment malfunction. The maximum individual radon progeny value (0.0175 WL) for the period was measured at station EG-02, located about 500 m east of the millsite in the town of Edgemont. This is approximately 53 percent of MPC. The average radon progeny value for all stations combined is 0.004 WL (13 percent of MPC).

Radiological Water Monitoring

In accordance with License Condition No. 14, radiological surface water monitoring was performed at the required frequency and sensitivity. Three samples were not collected during January, due to frozen conditions. One other sample could not be processed due to excessive dirt. The average and maximum gross beta values were measured at the control location upstream of the mill, approximately 2657 and 3183 percent MPC, respectively. The average and maximum gross beta concentrations downstream of the mill were 2427 and 2957 percent MPC. Isotopic (natural uranium, Th-230, Ra-226) analyses of surface water samples indicated that the maximum values were 2 percent MPC or less. Average ground-water concentrations for Ra-226 and natural uranium are 2.5 and less than 1 percent MPC, respectively.

Radiological Vegetation Monitoring

In compliance with License Condition No. 14, TVA performed vegetation surveillance at the required frequency and sensitivity. The Ra-226 and Pb-210 values are consistent with previous data, and no significant upward trend is noted.

Radiological Soil Monitoring

As required by License Condition No. 14, TVA collected soil samples at the required frequency and analyzed them for Ra-226 and Pb-210. Natural uranium results are also provided although not specifically required by SUA-816. The highest values for Ra-226 occurs at ED-1 and is about 50 times the control location. This can be due to the nonuniform windblown deposits downwind of the millsite. All values are fairly

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consistent with previous data, and no significant upward trend is apparent.

Radiological Sediment

In compliance with License Condition No. 14, TVA performed radiological sediment monitoring at the required frequency and sensitivity. In the millsite vicinity, all parameters exceed the upstream control location. No significant upward trend is apparent, based on my review of the data.

Indirect Radiation (TLDs)

Environmental radiation levels were monitored in accordance with License Condition No. 14. The maximum exposure is about 5 times background and 72 percent of MPC, when background is subtracted. These levels exhibit no significant upward trend and confirm that no significant contaminated dirt movement has occurred.

Nonradiological Air Quality

Total suspended particulate (TSP) monitoring was performed at the required frequency, in accordance with License Condition No. 14. The Edgemont and Cottonwood Community samplers, EG-02 and EG-03, respectively exhibited the highest TSP concentrations and are indicative of urban conditions. All sites possessed a greater geometric mean than the same 6-month period during 1983-1984, except for the background (EG-01) location. This increase ranged from 13 to 150 percent at EG-05. The EG-05 had a geometric mean of 25 ug/m³, which is very low. The increase at EG-05 is probably due to disposal site construction activities.

Nonradiological Surface Water Quality

During the November 1, 1984 to April 30, 1985 reporting period, no non-radiological water quality samples were collected due to severe weather. In April 1985, the USGS installed a gauge height recorder at the Cheyenne River bridge on U.S. 85. USGS has allowed TVA access to the recorder. This should provide reliable flow measurements at the CRC station. TVA states that CRE flows will be calculated by summing CRC and CCC flows.

Ground-Water Level Monitoring

TVA routinely monitors ground-water levels at 37 onsite wells. Of the original 45 wells, eight have been destroyed by decommissioning

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activities. As long as the wells remain, TVA will continue monitoring water levels. No trends appear that could alter or change the ground-water flow of the 37 wells. One well showed an increase in 0.5 foot, 12 wells showed a decline of 0.5 foot, 24 showed no marked change from the beginning to the end of the monitoring period. M-3 showed the maximum increase, 0.7 foot, while G-27 showed the maximum decrease of 1.5 feet. The decreased water levels were probably due to reduced precipitation amount for the monitoring period.

Nonradiological Sediment

In accordance with License Condition No. 14, nonradiological sediment samples were collected on November 15, 1984, and analyzed for the required parameters. Based on the analyses, all trace metal concentrations were higher than the May 1984 samples at the Cottonwood Creek control station than at CRC. The three downstream Cheyenne River stations (below Cottonwood Creek) were lower in chlorides and sulfates than the upstream Cheyenne River station. Variable trends were present for the remaining parameters.

Terrestrial

Visual monitoring of wind and water erosion was performed on all disturbed land surfaces. Watering on the haul roads and disturbed areas was implemented to control dust.

Aquatic

Fish and benthic macroinvertebrates were collected at four locations during December 1984 and March 1985. Total number of organisms and species diversity (taxa) decreased from December to March at Stations 3, 4 and 5, and increased slightly at 6. The Cottonwood Creek showed the greatest decrease in numbers and taxa, although numbers of individual are equal to or greater than Cheyenne River. A substance of undetermined origin and exhibiting petroleum-like qualities existed several kilometers upstream of the station CCC. A test for oil and gas was negative. This material may have contributed to the decline in species diversity and numbers.

Fish were collected only in March 1985. Nine species were collected; all had been collected previously. Normal variability was exhibited with largest numbers of organisms and taxa occurring at the Cottonwood Creek, which is probably due to the more diverse habitat.

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Conclusions

My review of the data indicates that normal variability is exhibited for most parameters. No significant contaminated dirt movement has occurred, and this data represents pre-decommissioning conditions. My review does not note any upward significant trends, thus no further action is warranted.

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Original Signed By
Edward F. Hawkins

Approved by:

Edward F. Hawkins, Chief
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