

JAN 26 1984

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VLTharpeMEMORANDUM FOR: W. T. Crow, Section Leader
Uranium Process Licensing Section
Uranium Fuel Licensing BranchFROM: Stephen D. Wyngarden
Uranium Process Licensing SectionSUBJECT: DECOMMISSIONING STATUS OF UNITED NUCLEAR
CORPORATION, WOOD RIVER JUNCTION, RHODE
ISLAND, DOCKET 70-820

On December 7, 1983, J. Roth, Region I, A. Soong, S. Wyngarden, and G. H. Bidinger, FCUP, reviewed the decommissioning status of the United Nuclear Corporation (UNC) at Wood River Junction, Rhode Island.

The following building areas were known to require further decontamination:

1. Columns Room - Under concrete on 1st floor.
2. Ceiling on 3rd floor.
3. NW corner of warehouse - under concrete.
4. W center of warehouse - under concrete.
5. E center of conduit pit in warehouse.
6. N-gas building - drain at entrance.

Region I will continue following UNC's decontamination efforts. One additional problem which is being followed by Region I is the suspected weeping of contamination through concrete block walls. NMSS has requested more information from UNC on their effort to decontaminate the tower ceiling.

The evaluation of remaining soil and groundwater contamination is continuing. A final determination of the environmental conditions at the site cannot be made until additional information is obtained from the U.S. Geological Survey (USGS), UNC, and the NRC and its contractors. The following is a brief status report on each of these ongoing evaluations and followup on items discussed in the meeting identified above.

I. USGS

The USGS is conducting an extensive study of the contaminant plume and groundwater hydrology at the UNC site. Routine sampling has included analyses for chemical parameters and for gross alpha, gross beta, and Sr-90 concentrations. Occasional samples have been analyzed for

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Tc-99. According to Barbara Ryan of the USGS (phone conversation with S. Wynyarden on December 21, 1983), recent results indicate a decrease in conductivity measures, and therefore, probable movement in the area once thought to have low groundwater flow. The USGS is currently planning to terminate the project by September 1984. Depending on results of sampling in the swamp conducted by ORAU, this termination date may be extended. Until that time, the USGS will sample again in January and possibly one more time in July or August 1984. Split samples from the remaining samples can be made available to the NRC Region I Office for isotopic analyses if necessary. A report defining the plume location and groundwater flow patterns has been approved by the USGS for publication; however, a publishing outlet has not yet been identified. A second final report including results of USGS's modeling of the affected aquifer is scheduled to be completed by September 1984.

II. UNC

In accordance with conditions of their license, UNC currently samples the groundwater and analyzes for gross alpha and beta on a monthly basis. If concentrations exceed 15 pCi/L gross alpha or 50 pCi/L gross beta, the samples are analyzed for specific isotopes. Recent results (from approximately June 1982 to August 1983) indicate that all but 3 wells yield samples that are consistently below the EPA's drinking water limit for gross alpha. Several wells, however, continue to show gross beta concentrations exceeding the drinking water limit with the principle nuclides being Ra-228 and Sr-90.

The reported Ra-228 concentrations occasionally exceed the limit in 10 CFR 20, Appendix B, Table II, Column 2, but the presence of Sr-90 in the sample is known to potentially increase the Ra-228 results. The Sr-90 concentrations are well below the appropriate 10 CFR 20 limits. Several wells also continue to show nitrate concentrations above the EPA's drinking water standard. The long term trend (since 1977) for all parameters is generally decreasing. Oscillations in the data make it almost impossible to interpret more recent trends, but those are generally constant or decreasing slightly. UNC's sampling will be continued in accordance with the license.

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III. NRCA. Region I

For the past few years, the region has obtained a split groundwater sample with UNC on an annual basis. The NRC results are in general agreement with the UNC data. Samples from all wells in August 1983 had gross alpha concentrations below the EPA's drinking water limit. Seven out of 21 wells sampled in 1983 contained gross beta in excess of the drinking water limit of 50 pCi/L (these 7 samples ranged from 72-502 pCi/L gross beta). Comparison of 1982 and 1983 data from the NRC shows a significant decrease in both gross alpha and beta.

B. ORAU

Under contract with the NRC, ORAU is conducting a confirmatory radiological survey. At the completion of this survey, the NRC will analyze ORAU's results to determine if there is any remaining contamination that exceeds criteria for release of the buildings and grounds for unrestricted use.

C. Dr. Don L. Warner

Dr. Warner, consulting geohydrologist, is contracted by the Uranium Fuel Licensing Branch to assess how long it will take for the aquifer to purge itself, what procedures can be recommended to enhance purging of the aquifer, and whether or not the future reuse of the site and groundwater should be limited, if at all. Dr. Warner has partially completed a computer model that simulates the flow pattern of the affected aquifer. By imposing a source of contamination in this calculated flow field, the model can predict the movement of contaminants through the groundwater. Once completed, the model will be used to determine how long it will take for the last of the contaminants to naturally purge from the aquifer once they have entered the saturated zone. The model can also be used to investigate the effectiveness of pumping the aquifer to enhance the clearing of contaminants. Dr. Warner has indicated that the model development will be completed within 2 months and a final report is expected by June 1984.

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