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PRELIMINARY SURVEY OF WINCHESTER ENGINEERING AND ANALYTICAL CENTER Winchester, Massachusetts

Work performed
by the
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March 1980

OAK RIDGE NATIONAL LABORATORY
operated by
UNION CARBIDE CORPORATION
for the
DEPARTMENT OF ENERGY
as part of the
Formerly Utilized Sites--
Remedial Action Program

THE FORMER WINCHESTER ENGINEERING AND ANALYTICAL CENTER
Winchester, Massachusetts

At the request of the Department of Energy (DOE, then ERDA), a preliminary survey was performed at the former Winchester Engineering and Analytical Center, Winchester, Massachusetts (see Fig. 1), on January 25, 1977, to assess the radiological status of this facility utilized under MED/AEC contract during the period about 1946 through 1960. John Taylor, Director of the Center, provided historical information about the site. Additionally, Neil Gaeta, the health physicist at the Center, was helpful in providing radiological information related to past and present operations. Contract work at this facility was the result of developmental work in the concentration of uranium from ores, begun at MIT in Cambridge, Massachusetts, about 1946. The American Cyanamid Company took over the work at the site in 1949. In the early 1950s, a contract was made with the National Lead Company which continued development work in the preparation of metal grade UF_4 until about 1960. In 1961, the Public Health Service of Department of Health, Education and Welfare (DHEW) took over operation of the facility. The facility then became the Northeastern Radiological Health Laboratory.

Present Use of Facilities

Presently, the facility is engaged in low-level radioanalytical work under the Food and Drug Administration, Executive Director of Regional Operations. Radioactive materials are currently handled under the provisions of Nuclear Regulatory Commission Licenses 20-08361-01 for by-product materials and SNM-688 for special nuclear materials. The Lab has done low-level radium-in-food analysis and is currently operating an in-vivo whole-body counter.

Prior to the takeover of this facility by DHEW, during the contract period, a small deposit of residues from pitchblende ("a few wheelbarrow loads") was placed at the rear of the laboratory building and covered with soil and grass. Currently, this location is the site of an Environmental Protection Agency regional air-monitoring station.

In 1961, prior to takeover of the facility, a radiological survey was conducted by Caleb Kincaid from the Bureau of Radiological Health.[1] Discussions with Kincaid revealed that the only radioactivity found at that time was limited to certain lab hoods. No record of that survey was available.

A comprehensive radiation safety program is currently conducted by Neil Gaeta. He indicated that no problems exist that affect low background requirements of present activities resulting from former contract work or from the pitchblende residues located at the rear of the laboratory. Additionally, he stated that the hoods referred to by Kincaid have been removed.

Results of Preliminary Survey

The preliminary survey was conducted by M. T. Ryan and H. W. Dickson of the Oak Ridge National Laboratory and W. T. Thornton of the Department of Energy-Oak Ridge Operations Office (then ERDA). The survey consisted of direct measurements of beta-gamma dose rate at 1 cm from surfaces and direct alpha measurements made at contact with surfaces using a portable alpha scintillation survey meter.

The following maximum values were observed during the survey. Open-window Geiger-Mueller (G-M) survey meter (beta-gamma dose rate) was 0.2 mrad/hr at 1 cm from the surface; closed-window G-M survey meter (gamma exposure rate) was 0.05 mR/hr at 1 cm from the surface; alpha radiation at contact to the surface was 500 dpm/100 cm^2.

It was concluded that no present or potential radiation-related health hazard exists due to past MED/AEC operations inside buildings at this facility, and that no further DOE survey is required inside buildings at the Northeast Radiological Laboratory (the former Winchester Engineering and Analytical Center) in Winchester, Massachusetts. In the event that future plans at this facility involve the area where a minor quantity of pitchblende residues are believed to exist, some additional measurements in that area may be required.

References

1. Letter, "ERDA Resurvey Program," W. T. Thornton, Department of Energy-Oak Ridge Operations to R. H. Kennedy, Department of Energy Headquarters (DSSC), March 23, 1977.

Fig. 1. The location of the former Winchester Engineering and Analytical Center in Winchester, Massachusetts.