

Project Summary:

Oak Ridge National Laboratory ARRA 34–Building Characterization

Location:

Oak Ridge National Laboratory
(Oak Ridge, TN)

Sponsoring Organization:

U.S. Department of Energy–Oak Ridge Operations

Project Timetable:

July 2009 to
September 2011

In an effort to assist the U.S. Department of Energy (DOE) in dramatically reducing the number of high-risk facilities located throughout the Oak Ridge Reservation, Oak Ridge Associated Universities (ORAU) performed radiological and chemical characterization surveys and sampling of 34 structures at Oak Ridge National Laboratory (ORNL). The facilities—many of which dated back to the Manhattan Project—were deteriorating and deemed non-essential to the future mission of ORNL.

The historical use of the 34 structures included storage tanks, laboratory research facilities, hot cells, nuclear reactor coolant water systems, offices and maintenance shops. The potential radiological contaminants involved mixed fission/activation products, uranium and associated radionuclides, and transuranics. Chemical constituents involved beryllium, asbestos, lead, PCBs, as well as other heavy metals and organic compounds. ORAU began survey and sampling activities in August 2009 with completion of field work in June 2010.

In conjunction with the characterization, ORAU and its team partner, Alliant Corporation:

- Performed historical and exposure assessments, and developed the process knowledge for each structure.
- Prepared sampling and analysis plans using a graded approach for each structure based on the expected disposition pathway.
- Prepared structure-specific safety documentation and scoping and characterization survey work packages.
- Performed extensive field radiological and chemical investigations and sampling of structural material matrices, in many cases requiring unique methods for sample collection and worker protection.
- Analyzed most samples for radiological contaminants at the ORAU radiochemistry laboratory. Also managed samples for disposition to contract chemical analysis laboratories.
- Prepared waste profiles and waste handling plans for each structure.

Partnerships for Innovation



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Oak Ridge Associated Universities (ORAU) is a university consortium leveraging the scientific strength of major research institutions to advance science and education by partnering with national laboratories, government agencies, and private industry. ORAU manages the Oak Ridge Institute for Science and Education for the U.S. Department of Energy.