



## Project Summary:

# Nuclear Regulatory Commission Reactors

### Locations:

Rancho Seco Nuclear Generating Station (Herald, CA)

Connecticut Yankee Haddam Neck Plant (Haddam, CT)

Yankee Nuclear Power Station (Rowe, MA)

### Government Agency:

U.S. Nuclear Regulatory Commission

### Project Timetable:

June 2003 to December 2006

Beginning in 2003, Oak Ridge Associated Universities (ORAU) responded to a request by the U.S. Nuclear Regulatory Commission (NRC) to support decommissioning plans at three shuttered reactor sites once used to generate nuclear power. As the sole verification contractor for the NRC, ORAU responded to the commission's request and assigned teams of health physicists and technicians to conduct survey projects at Rancho Seco Nuclear Generating Station, Connecticut Yankee Haddam Neck Plant and Yankee Nuclear Power Station.

At each location, ORAU performed confirmatory surveys in facilities and open land areas in accordance with a site-specific survey plan that was submitted to and approved by the NRC. The primary contaminants of concern were beta-gamma emitters Cesium-137 (Cs-137) and Cobalt-60 (Co-60). The objectives of the surveys were to provide independent contractor field data reviews and to generate independent radiological data for use by the NRC in evaluating the adequacy and accuracy of the licensee's procedures and final status survey results. Throughout each project, ORAU's survey team identified opportunities to improve the survey process and implemented those "lessons learned" at other reactor decontamination and decommissioning projects. Specifically related to the projects, ORAU personnel:

- Reviewed the licensee's final status survey documentation and data to confirm that elevated areas had undergone decontamination and that residual activity levels satisfied the established guidelines.
- Conducted observations of licensee technicians performing routine surveys and provided recommendations to improve surface scanning techniques and procedures.
- Performed beta and gamma surface scans, direct measurements for total net beta activity, and limited gross alpha and beta removable activity measurements.
- Collected soil samples in areas of known radiological releases; along major transport, shoreline and trafficked locations; and in the vicinity of an independent spent fuel storage installation.
- Conducted surface scans paying particular attention to cracks, ground fissures, rock surfaces and other locations where material was likely to accumulate.
- Analyzed soil samples using gamma spectroscopy at the ORAU/ORISE laboratory in Oak Ridge, TN. Smear samples were tested for gross alpha and beta activity using a low-background gas proportional counter.
- Performed an interlaboratory comparison of soil samples analyzed by a contracted, off-site laboratory to ensure accuracy and consistency.
- Reported several locations of elevated direct radiation to the licensee and NRC for further investigation.

Partnerships for Innovation



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