

Radioisotope and Analytical Chemistry Laboratory

BWXT Nuclear Energy, Inc. (BWXT) has been providing comprehensive chemical and radiochemical monitoring, sampling, and analytical services for over 40 years. Founded in the early 1960s as a research facility, the Radioisotope and Analytical Chemistry Laboratory (RACL) is a key provider of specialty services associated with commercial and government decommissioning and site remediation efforts. Our laboratories operate under NRC and State of Virginia licenses and EPA permits. These qualifications allow RACL to receive virtually all types and quantities of radioactive materials. RACL is a DOE/CAP qualified supplier to the U.S. Department of Energy and has successfully completed a nuclear utility audit of RACL's compliance with Nuclear Utilities Procurement Issues Committee requirements. RACL is also National Environmental Laboratory Accreditation Program accredited by Virginia Division of Consolidated Laboratory Services (VELAP ID # 460127) and the Utah Department of Health (ELCP ID# BWNU).

Radiochemistry laboratory

The radiochemistry laboratory performs analyses on a wide range of matrices, such as soil, water, decommissioning debris, waste, and mixed waste samples. The laboratory also has secure facilities to accommodate classified samples (DOE-CRD).



Counting laboratory



Radiochemistry laboratory

Radiochemical analyses are performed for alpha, beta, gamma, and X-ray emitting isotopes. Examples of recent projects include characterization of: Battelle Columbus TRU waste, Savannah River Site tank waste, and TRU-bearing filter media from Los Alamos National Laboratory.

Analytical chemistry laboratory

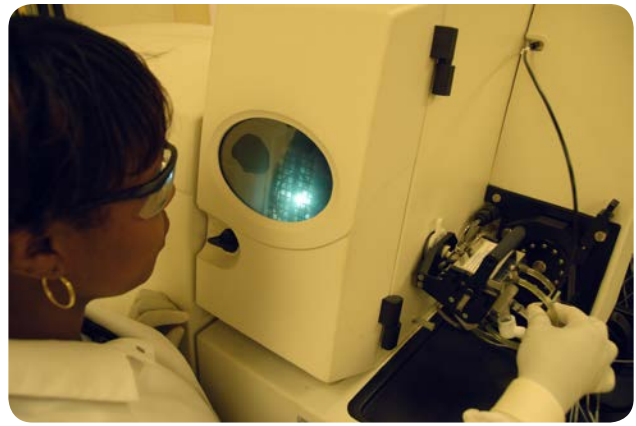
The analytical chemistry laboratory offers a variety of techniques to characterize radioactive inorganic materials. These techniques include quantitation of elemental species by inductively coupled plasma/mass spectroscopy, mercury analysis by cold vapor atomic absorption, ion chromatography for the analysis of samples and Total Carbon as well as a variety of wet chemistry techniques are offered. Additionally, volatile, semi-volatile organics and PCB's are offered through coordination with a qualified sub-contractor. X-ray diffraction is used to identify crystalline phases in compounds.

Laboratory capabilities

Analytical instrumentation techniques offered by the RACL include:

- Alpha spectroscopy for the analysis of:
Am-241, Am-243, Cm-242, Cm-244, Np-237,
Pu-238, Pu-239/240, Pu-242, Th-228, Th-230,
Th-232, U-232, U-234, U-235, U-238

- Gamma spectroscopy for the analysis of various gamma emitters
- Gas flow proportional counting for the analysis of: gross alpha, gross beta, Sr-89, and Sr-90
- Liquid scintillation counting for the analysis of: C-14, H-3, Ni-63, Pu-241, Sr-89, Sr-90, and Tc-99
- Low energy photon spectroscopy for the analysis of: Fe-55, I-129, and Ni-59
- Cold vapor atomic absorption for the analysis of mercury



Inductively coupled plasma / mass spectroscopy



X-ray diffraction

- Inductively coupled plasma / mass spectroscopy for the analysis of various metal species
- Ion chromatography for the analysis of: chloride, fluoride, nitrate, nitrite, phosphate, and sulfate
- X-ray diffraction for the identification of crystalline phases in samples
- Scanning electron microscopy for high magnification visual inspections
- Energy dispersive spectroscopy and x-ray fluorescence for microchemical analysis of solids
- Electron microprobe for microchemical analysis of solids
- Total Carbon analysis as well as various wet chemistry techniques
- Volatile, semi-volatile organics and PCB's are offered through coordination with a qualified sub-contractor

NUCLEAR ENERGY

GOVERNMENT SERVICES

ADVANCED TECHNOLOGIES

Headquartered in Lynchburg, Va., BWX Technologies, Inc. (BWXT) is a leading supplier of nuclear components and fuel to the U.S. government; provides technical, management and site services to support governments in the operation of complex facilities and environmental remediation activities; and supplies precision manufactured components and services for the commercial nuclear power industry. BWXT has more than 5100 employees and significant operations in Lynchburg, Va.; Erwin, Tenn.; Mount Vernon, Ind.; Euclid, Ohio; Barberton, Ohio; and Cambridge, Ontario, as well as more than a dozen U.S. Department of Energy sites around the country. Follow us on Twitter @BWXTech and learn more at www.bwxt.com.

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