

Radioisotope and Analytical Chemistry Laboratory

BWX Technologies, Inc. (BWXT) has been providing comprehensive chemical and radiochemical, monitoring, sampling, and analytical services for over 50 years. Founded in the early 1960s as a research facility, the Radioisotope and Analytical Chemistry Laboratories (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 Virginia Environmental Laboratory Accreditation Program (VELAP) accredited by Virginia Division of Consolidated Laboratory Services (VELAP ID #460127) and the Utah Department of Health (ELCP #BWNNU).

Radiochemistry laboratory

The radioisotope laboratory performs both environmental level and high activity analyses on a wide range of matrices, such as soil, water, decommissioning debris, waste, and mixed waste samples. The laboratory also performs research and development experiments and has secure facilities to accommodate classified samples (DOE-CRD).



Radiochemistry laboratory



Radiochemistry laboratory

Radiochemical analyses are performed for alpha, beta, gamma, and X-ray emitting isotopes. Project examples 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

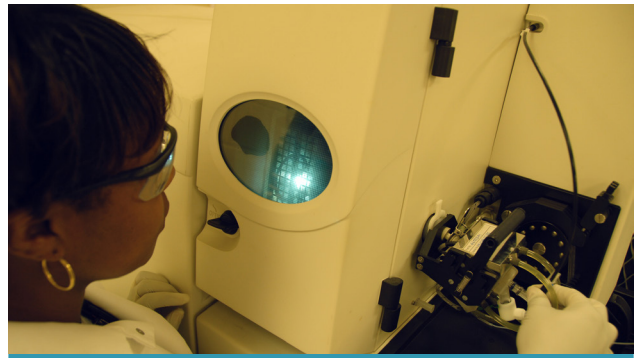
The analytical chemistry laboratory offers a variety of techniques to characterize radioactive and non-radioactive inorganic materials. These techniques include quantitation of elemental species by quadrupole inductively coupled plasma – mass spectroscopy (ICP-MS), laser ablation magnetic sector ICP-MS, mercury analysis by cold vapor atomic absorption, ion chromatography, LECO carbon, total carbon in liquids, thermal gravimetric analysis, particle size analysis, surface area, gas pycnometry, and UV-VIS.

Laboratory capabilities

- 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, and U-238
- Gamma spectroscopy for the analysis of various gamma emitters
- Gas flow proportional counting for the analysis of: gross alpha/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
- Laser ablation magnetic sector ICP-MS for surface and depth profile elemental analysis of solid materials
- Quadrupole ICP-MS for elemental analysis of aqueous specimens



X-ray diffraction



Inductively coupled plasma / mass spectroscopy

- Ion Chromatography (IC) for the analysis of: chloride, fluoride, nitrate, nitrite, phosphate, and sulfate
- X-ray Diffraction (XRD) for the identification of crystalline phases in powder samples
- Scanning Electron Microscopy (SEM) for high magnification visual inspections
- Energy Dispersive Spectroscopy (EDS) and X-ray Fluorescence (XRF) for microchemical analysis of solids
- Electron Microprobe for microchemical analysis of solids
- Total carbon analysis of liquids
- LECO carbon analysis of solids
- Thermal gravimetric analysis (TGA)
- Ultraviolet-visible spectrophotometry (UV-VIS)
- Particle size analysis
- Surface area analysis
- Gas pycnometry for volume and density measurements
- Analysis of volatile, semi-volatile organics, and PCB's are offered through coordination with a qualified sub-contractor

People Strong

INNOVATION DRIVEN >

At BWX Technologies, Inc. (NYSE: BWXT), we are People Strong, Innovation Driven. Headquartered in Lynchburg, Virginia, BWXT is a Defense News Top 100 manufacturing and engineering innovator that provides safe and effective nuclear solutions for global security, clean energy, environmental restoration, nuclear medicine and space exploration. With more than 7,000 employees, BWXT has 14 major operating sites in the U.S., Canada and the U.K. In addition, BWXT joint ventures provide management and operations at a dozen U.S. Department of Energy and NASA facilities. For more information, visit www.bwxt.com. Follow us on LinkedIn, X, Facebook and Instagram.

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BWX Technologies, Inc.

Nuclear Materials & Inspection Systems
2016 Mt. Athos Road
Lynchburg, VA 24504
1.434.522.5165

www.bwxt.com

