

Science.

Technology.

Innovation.

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Pacific Northwest National Laboratory

Operated by Battelle for the
U.S. Department of Energy



Analytical Support Operations

When you need reliable, quick-turnaround analytical services, the Analytical Support Operations team within the Radiochemical Processing Laboratory provides you with the high-quality radiochemical and chemical analyses you need. ASO's highly trained staff use specialized facilities and instrumentation to identify and quantify chemical species and radioactive isotopes in simple and complex media. The staff can work with highly radioactive, highly dispersible isotopes, ultra-trace levels, and anything in between. Recent projects included analyses for the development of a geologic repository for disposal of high-level nuclear waste and development of interim storage strategies for U.S. Department of Energy site-specific materials. In addition, the staff characterize and quantify complex organic and inorganic compounds in a variety of media, including Hanford Site tank waste samples, environmental media (such as contaminated groundwater), metallic alloys, glass, and nuclear materials.

Reliable Analyses On Time and Within Budget

With experienced staff and state-of-the-art instrumentation, ASO takes on routine, as well as difficult, scientifically challenging, analytical tasks that a production laboratory cannot. The staff perform first-time procedures as well as routine characterizations using an array of sample preparation techniques and analytical instrumentation. The ASO also has hard-to-find capabilities for sample preparation and testing using hot cells and remote-handling equipment.



Analytical Support Operations provides primary and secondary radiochemical standards for Pacific Northwest National Laboratory and other laboratories to use in calibrating instrumentation.



Analytes	Instrumentation
Cations, anions, inorganic compounds, and isotopic compositions	Inductively Coupled Argon Plasma - Mass Spectrometry (ICP-MS), Ion Chromatography (IC), Inductively Coupled Argon Plasma/Atomic Emission Spectrometry (ICP/AES), Thermal Ionization Mass Spectrometry (TIMS)
Radioisotopes	Gamma Energy Analyzers (GEAs) for low-level and high-activity samples, Alpha Energy Analyzers (AEAs), Liquid Scintillation Counters (LSCs), gas proportional counters (GPCs), and Low Energy Photon Spectrometers (LEPS)
Organic compounds	Volatile Organic Compounds (VOA/VOC), Semi Volatile Organic Compounds (SVOA), Gas Chromatography/Mass Spectrometry (GC/MS), Ion Chromatography (IC)
Physical properties	X-ray Diffractometers (XRD), RAMAN/Fourier Transform Infrared Spectrometers (FTIR) Thermal Gravimetric Analysis (TGA) rheometers, viscometers, and particle sizers

The staff at ASO understand you need to get information quickly. They meet short and over-the-weekend deadlines. For example, when the K-Basin engineers responsible for the spent fuel removal equipment needed a rapid analysis on a new bronze component, the engineers sent the component to ASO on Friday afternoon. Over the weekend, an ASO team prepared and analyzed the component and had the results in the engineers' hands on Monday morning. The analyses enabled the engineers to place the component into service with minimal interruption.

In addition, ASO staff can provide quick estimates of costs based on pricing sheets established for each analytical technique. By simply contacting Karl Pool or Karla Smith at the ASO main office at 509-376-2131, Pacific Northwest National Laboratory's researchers and managers can determine the cost of the analyses you need. This simplifies your budgeting process and avoids unpleasant surprises on the final cost runs.

Fine-Tune Analytical Processes for Better Results

The growing complexity of analytical technologies and methodologies can make it difficult to determine the appropriate analyses at the start of the project. ASO's staff can recommend the most effective way to get the information you need. With their experience in radioisotopes and chemical analyses, they can fine-tune sampling plans, recommend the most effective analyses schema, and

develop and test new analyses. By involving ASO's staff in the initial planning meeting, you can get the information that will directly answer your research questions.

Array of Quality Assurance Requirements

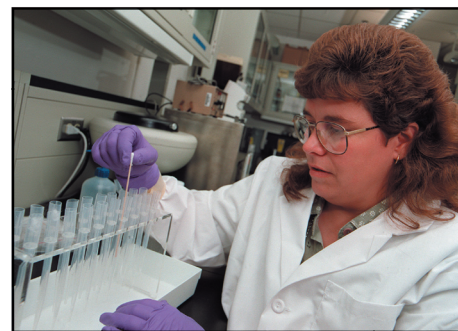
Because different projects often have different quality assurance requirements, ASO's staff can support research analyses that comply with the following QA requirements:

- Hanford's Analytical Services Quality Assurance Requirements Document (HASQARD)
- Office of Civilian Radioactive Waste Management (0333P)
- NQA-1 and related standards

In addition, ASO management is currently pursuing accreditation by the Washington State Department of Ecology and certification from the American Industrial Hygiene Association for conducting beryllium and lead analysis needed to support Occupation Safety and Health decisions.

Simple Work Arrangements for Complex Analyses

With ASO's extensive onsite infrastructure, asking for recommendations on an upcoming project is as simple as picking up the phone or completing an Analytical Service Request, <http://www.pnl.gov/rpl/pdfs/rplasr>.



ASO performs a wide array of radiological and chemical analyses using highly trained staff and specialized instrumentation.

pdf. There is no need for the often time-consuming work of establishing subcontracts and the associated paperwork. In addition, ASO's onsite location reduces the time and money spent in delivering samples and receiving data.

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