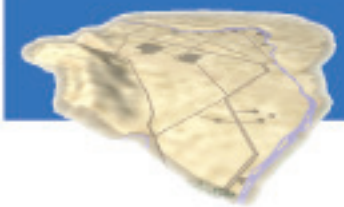
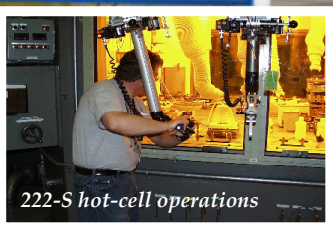
Overview



222-S Laboratory Complex

222-S Laboratory


222-S hot-cell operations

The 222-S Laboratory complex in the 200 West Area of the Hanford Site is the primary on-site lab for analysis of highly radioactive samples in support of all Hanford projects.

Washington River Protection Solutions (WRPS), under the direction of DOE's Office of River Protection (ORP), provides the laboratory's support functions, maintenance, waste services and analytical work. WRPS also develops process technology and analytical methods. In 2005, ORP awarded a new contract for all other analytical services work to a small business with ties to Hanford projects.

The 222-S Laboratory originally began operations in 1951 as the process control laboratory for the REDOX plutonium separations plant. The laboratory has undergone a series of upgrades and expansions, including a hot-cell addition in 1994 and reconstruction of the exhaust ventilation system in 2004.

The 222-S Laboratory complex includes the 70,000-square-foot laboratory plus several support buildings. The lab has 11 hot cells for remotely handling and analyzing radioactive samples such as tank waste. Inorganic, organic and radiochemical analyses are performed on a wide variety of air, liquid, soil, sludge and biota samples.

Laboratory instrumentation for inorganic analysis includes an inductively coupled plasma/mass spectrometer system (ICP/MS), two ICP/AES (atomic emission spectrometers), carbon analyzers, thermal scanning calorimeters, differential scanning calorimeters, ion chromatographs and thermal gravimetric analyzers. For organic analyses, the laboratory has gas chromatograph mass spectrometers (GC/MS) and liquid/liquid extractors. For radiochemical analyses, the lab is equipped with liquid scintillation counters, alpha/beta proportional counters, and gamma and alpha energy analyzers.

The laboratory is expected to operate until 2030 in support of the Hanford cleanup mission. The major customer is the River Protection Project for tank waste characterization and support of retrieval, feed preparation and waste treatment. The laboratory also supports other Hanford contractors and projects such as the Spent Nuclear Fuel Project and the Central Plateau Closure Project.


Inductively coupled plasma mass spectrometer

Purpose:

Provide process control and characterization analyses of intermediate-to-high-level radioactive samples.

Capabilities:

The laboratory provides a full range of inorganic, organic and radiochemical analyses, plus development of analytical and process technology.

Facilities:

The complex consists of the 70,000 square-foot main laboratory building, 11 hot cells, plus additional office and support buildings.

Sample preparation area

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