

OVERVIEW AND CAPABILITES OF RADIOBIOASSAY PROGRAM AT ORNL

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The Radiobioassay Program at the Oak Ridge National Laboratory (ORNL) has been in operation since the Manhattan Project. The primary operational objective of the Radiobioassay Laboratory (RBL) is to provide support to ORNL's radiological protection program to monitor workers against the intake of radioactive materials in accordance with 10 CFR 835. As a secondary role the ORNL RBL also provides bioassay services to other Department of Energy Facilities and subcontractors.

ORNL is a multifaceted research facility handling a wide array of radioactive materials. In support of research activities the ORNL RBL has developed and implemented *in vitro* analytical procedures for transuranics (for example, Pu, Am, Np, Cu, Cf), fission and activation products (for example, ¹³⁴Cs, ¹³⁷Cs, and ⁶⁰Co), and biological markers (for example, ³⁶Cl, ¹⁴C, ³H, ⁶³Ni, and ³⁵S). Uranium analysis (for example, ²³²U, ²³³U, ²³⁴U, ²³⁵U, and ²³⁸U) by both alpha spectroscopy and ICPMS is provided to customers operating uranium processing facilities.

The ORNL RBL has obtained and maintains MAPEP accreditation for urinalysis and DOELAP accreditation for urine and fecal analyses. Annually, about 7,000 routine samples are processed by the ORNL RBL. In addition to routine processing, the ORNL RBL provides incident response capabilities including nasal smear analysis, ³²P in hair, and ²⁴Na in blood. To further expand incident response capabilities the ORNL RBL is developing new methods to rapidly assess transuranic exposures through the use of TRU columns.

This presentation will provide an overview of routine capabilities and highlights special services provided by the ORNL RBL in response to a recent contamination event.

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