



**US Army Corps
of Engineers®**
St. Louis District

St. Louis Sites Fact Sheet

LABORATORY ANALYSIS



Cleanup activities at the St. Louis Sites are part of a nationwide U.S. Army Corps of Engineers (USACE) environmental program known as the Formerly Utilized Sites Remedial Action Program (FUSRAP). These sites contain soils contaminated with radium, thorium and uranium as a result of activities associated with the Manhattan Engineer District/Atomic Energy Commission during the nation's atomic program in the 1940s and '50s.

USACE uses scientific knowledge and skilled investigators to identify places along Coldwater Creek that may need cleanup. The work requires deliberate sample-site selection and then precise laboratory analysis in order to prioritize cleanup actions.

To learn more about FUSRAP, contact the FUSRAP Area Office at (314) 260-3905 or write to the U.S. Army Corps of Engineers, St. Louis District, FUSRAP Area Office, 114 James S. McDonnell Blvd., Hazelwood, MO 63042

Soil, sediment, water and air samples from St. Louis Formerly Utilized Sites Remedial Action Program (FUSRAP) sites go to an on-site laboratory where scientists have a strict protocol to assess the samples for levels of radiological contamination.

LABORATORY ANALYSIS OF SOIL SAMPLES

After collecting soil samples, workers deliver them to a dedicated FUSRAP Laboratory, central to the St. Louis Sites. The lab is run by an independent contractor who meets the exacting requirements of the U.S. Army Corps of Engineers (USACE) and the Department of Defense (DOD). Because USACE requires quick analysis of site samples, this lab runs two shifts, employing 11 specially trained technicians and scientists. All laboratory instruments meet National Institute of Standards and Technology calibration standards.

PROCESSING SOIL SAMPLES IN THE LABORATORY

The FUSRAP Lab tests soil (and other media) in a precise process that begins at the front door. Workers log and track field samples' movements through the lab from entry to analysis to disposal with careful documentation.

Soil is first dried overnight in an oven and then ground into a powder. After thoroughly mixing the sample, laboratory workers begin the steps to isolate any radium, thorium, or uranium isotopes.

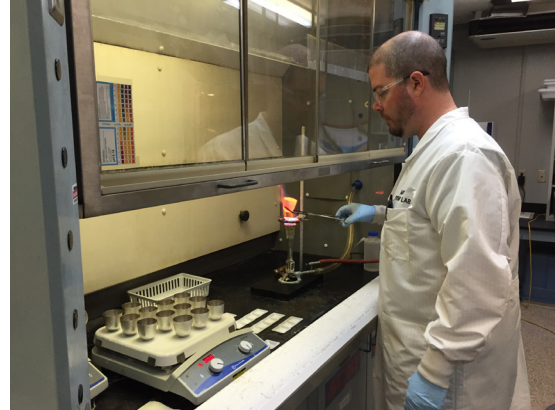
On each site sample, separate but identical processes are run to isolate these three isotopes. Lab workers then measure levels of ionizing radiation in the sample for each radium, thorium, or uranium isotope. The laboratory equipment is specialized to detect ionizing radiation, which includes alpha and beta particles and gamma rays emitted from radioactive materials.

Reports from lab analysis guide USACE in meeting the remediation goals set by each site's Record of Decision.

SOIL ANALYSIS STEP BY STEP



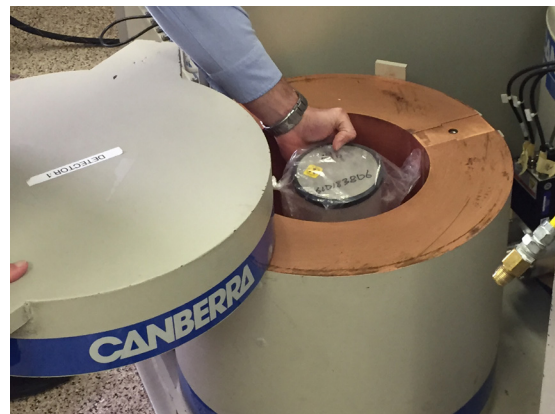
After soil and sediments are dried and ground into a powder, specially trained laboratory technicians begin the steps to isolate any radium, thorium or uranium from a sample.



Here, a specially trained laboratory technician separates thorium from other isotopes in a sample so that thorium alone can be measured by alpha spectroscopy.



Technicians mount isolated thorium on a filter and insert it into the alpha spectrometer. This step tests for radium, thorium or uranium alpha particles in samples.



Here, a technician loads a soil sample into a gamma spectrometer. The instrument detects gamma rays emitted from the sample, identifies the isotopes within the sample and measures them.