# The NIST Radiochemistry Intercomparison Program NRIP: Laboratory Performance for Two Years of Traceability Testing

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A traceability-testing program, termed the NIST Radiochemistry Intercomparison Program NRIP has been established for low-level radiochemistry laboratories. The program was initiated by a consortium of laboratories associated with the Waste Isolation Pilot Plant operations in Carlsbad, NM. The goal of this group of laboratories is to develop an historical record of direct traceability to the National Institute of Standards and Technology (NIST). Two years of testing have been completed. The matrices and activity concentrations of the test samples reflect radioanalytical analyses commonly performed by the participating laboratories. Test materials are glass-fiber filters, nitric acid solutions, synthetic urine, synthetic feces and natural-matrix soil. Radionuclides used for testing are $^{241}$Am, $^{238}$Pu, $^{239/240}$Pu, $^{90}$Sr, $^{238}$U, and $^{232}$Th. Test activity levels were 30 mBq to 300 mBq (2 dpm to 20 dpm) per sample. Following each test, laboratories were issued Reports of Traceability for the matrices and nuclides of the tests. We report the average performance of participating laboratories for year's one and two. Particular attention is paid to areas of improvement in accuracy and precision of reported results. For example, for year one the average bias for all reported results was < 10% and the average standard deviation was 11%. On average, laboratories improved precision in $^{238}$Pu and $^{239/240}$Pu measurements by a factor of 2. Results for the second year of testing are also to be presented.