

UNITED STATES TRANSURANIUM AND URANIUM REGISTRIES
ANALYTICAL PROCEDURE MANUAL

USTUR 800: QUALITY ASSURANCE PLAN

Purpose	Quality assurance plan	Method Number	USTUR 800
Original Date	10/10/95	Author	USUTR Radiochemistry Staff
Revision Number	2	Approved By	Jim Elliston
Effective Date	8/1/00	Approval Date	1/31/01

1. Organizational Structure

- 1.1. The organization structure for the USTUR program as a whole is defined in the USTUR Operating Procedures Manual.
- 1.2. The organizational structure of the USTUR Radiochemistry Section is shown in Figure 1 of this procedure.
- 1.3. The duties of the radiochemistry personnel are roughly divided as follows.
- 1.4. James T. Elliston (1.0 FTE): Assist in overall direction of project. Primary responsibility for oversight of the analytical process from electrodeposition through sample counting, data tabulation and analysis, database maintenance, data reporting, QA/QC and document retention; budget review; supervision of graduate students when assigned to routine tasks. Responsible to Ron Filipy.
- 1.5. Dot Stuit (1.0 FTE): Assist in overall direction of the project. Primarily responsible for scheduling and chemical analysis of samples from the initial preparation through chemical separation prior to electrodeposition. Responsible to Jim Elliston.
- 1.6. Gail Deckert (1.0 FTE): Assist in overall direction of the project. Primary responsibility is sample preparation, decomposition, and separation chemistry. Responsible to Jim Elliston.
- 1.7. Cathy Grimm (0.25 FTE): Primary responsibilities include sample custodianship, sample analysis data entry, maintenance of standard certificates; maintain sample freezer. Reports to Jim Elliston.

Time card employees: Assist in cleaning glassware, maintaining clean laboratory environment, and other duties as needed.

2. Instructions and Procedures and Procedure Validation

- 2.1. Procedures for the radiochemical assessment of USTUR samples are presented in the United States Transuranium and Uranium Registries Radiochemical Analysis Procedures Manual.
- 2.2. Procedures which are to be used for analysis will be validated using intercomparison data and the analysis of available Standard Reference Materials

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(SRM's) prior to implementation by the USTUR program.

3. Qualifications and Training of USTUR Personnel
 - 3.1. Training and documentation of training for USTUR personnel is discussed in USTUR060.
4. Document Control
 - 4.1. Document control and record storage is discussed in USTUR030, Document Control and Record Storage.
5. Chain of Custody
 - 5.1. Chain of custody procedures for USTUR samples is discussed in USTUR010, Chain of Custody, Sample Number Assignment, and Sample Storage.
6. Control and Maintenance of Calibration Standards
 - 6.1. All radioactive calibration standards for the USTUR are kept locked in Room 119 of the Nuclear Radiation Center.
 - 6.2. All calibration standards certificates are maintained in Room 115 Of the WSU NRC.
7. Review of Procedures, Specifications, and Operating Logs
 - 7.1. Procedures and specifications shall be reviewed annually to insure that no modifications have occurred since the previous review. This review shall be conducted jointly with the technicians who actually perform the tasks associated with that procedure.
 - 7.2. Operating logs are reviewed on an as needed basis in order to assess potential problems and develop corrective action plans.
8. Observation of Operations and Evaluation of Quality Control Data
 - 8.1. A number of indicators are available to insure that the radiochemical process is in control. These include the blank which is run with each chemical batch, the QC spike, and the evaluation of the spectra for resolution and contamination.
 - 8.2. Radiochemical techniques are further evaluated by annually analyzing available NIST SRMs for actinides in human tissues (NIST liver and lung SRMs).
 - 8.3. The alpha spectrometry equipment kept in control by running weekly backgrounds, weekly energy calibrations, and monthly efficiency calibrations.
 - 8.4. Each analysis is checked to insure that it meets the data quality objectives

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outlined in USTUR600, Alpha Spectrometric Measurements for Radionuclides of Americium, Plutonium, Uranium, and Thorium.

- 8.5. All data are checked for accurate data entry into the Radiochemical Analysis Form.
9. Corrective Action
 - 9.1. Upon discovery of an out of control process, the USTUR radiochemistry personnel shall evaluate potential sources of the problem, and upon identification correct the situation.
 - 9.2. If a process is determined to be out of control, procedures are modified to prevent or minimize the potential for reoccurrence.
10. Quality Assurance Records
 - 10.1. Quality assurance records are maintained according to USTUR030, Document Control and Record Storage.
11. Documentation of MDA, Relative Bias, Relative Precision, and Methods of Calculating Results for Periodic Quality Control Determinations
 - 11.1. Documentation of the calculations for MDA are included in USTUR600, Alpha Spectrometry Measurement for Radionuclides of Americium, Plutonium, Uranium, and Thorium.
 - 11.2. The assessment of relative bias, relative precision, and are based on the methods described in ANSI N13.30. These evaluations are assessed for intercomparisons, evaluation of SRM's, and participation in other quality assurance programs.
12. Source Materials
 - 12.1. ANSI N13.30. Performance Criteria for Radiobioassay. 1996 Health Physics Society.

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FIGURE 1

