INL/EXT-05-00935

# Amchitka Island Environmental Analysis – Phase 4 Actinide Analysis at Idaho National Laboratory

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November 2005


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operated by Battelle Energy Alliance

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**November 2005**

**Idaho National Laboratory**
**Idaho Falls, Idaho 83415**

**Prepared for the**
**U.S. Department of Energy**
**Assistant Secretary for Environmental Management**
**Under DOE Idaho Operations Office**
**Contract DE-AC07-05ID14517**

# Amchitka Island Environmental Analysis- Phase 4 Actinide Analysis at Idaho National Laboratory


## Summary

Idaho National Laboratory (INL) provided support to Vanderbilt University and Consortium for Risk Evaluation with Stakeholder Participation (CRESP) in their activities, supported by the Department of Energy (DOE), to assess the impact of past nuclear testing at Amchitka Island on the ecosystem of the island and surrounding ocean. INL participated in this project in four phases. INL support in the first three phases is documented in Report # INL/EXT-05-00361. The details of INL participation in Phase 4 (sample results, Quality Control (QC) results, and other related quality assurance documents) are included in this report.

## CONTENTS

# Amchitka Island Environmental Analysis - Phase 4 Actinide Analysis at Idaho National Laboratory

## 1. INTRODUCTION

The Idaho National Laboratory (INL) operated by Battelle Energy Alliance (BEA) was tasked by Consortium for Risk Evaluation with Stakeholder Participation (CRESP) via CRESP/Department of Energy Idaho Operations Office (DOE-ID) interagency agreements to perform several radioisotope measurements to assess the impact of past nuclear testing at Amchitka Island on the ecosystem of the island and surrounding ocean. INL supported CRESP in four phases. INL support in phases 1 through 3 are documented in Report # INL/EXT-05-00361.

At INL, the Science and Technology organization has the gamma, alpha, and Inductively Coupled Plasma Mass Spectrometry (ICP-MS) capabilities available to measure the activity of these radioisotopes. The target list for INL in **phase 4** consisted of Am-241, Pu-238, Pu-239/240, U-234, U-235, U-236, and U-238 nuclides. The data collected for these radioisotopes in different biological matrices (soft tissue and kelp) from Amchitka and the internal and external QC information are documented in this report.

## 2. EXPERIMENTAL

The procedures and documents used for the project are in the Method Manual[1]. In radiochemistry, the analytes in samples were separated by complete ashing and dissolution of the samples using procedure ACMM-3816[2] in the Method Manual.

## 3. RESULTS AND DISCUSSION

Details of the phase 4 alpha analyses, which include data package for the batches and quality assurance/quality control summary (Internal and External QA/QC documentation), are found in this report. All QA/QC checks were performed in accordance with the QA plan[3-4].

### Radiochemistry
### Alpha analysis

In phase 4, there were four batches (batch 13-16) of samples for radiochemical analysis. The samples were analyzed for Am-241, Pu-238, Pu-239/240, U-234, U-235, U-236 and U-238. Complete ashing and dissolution of the samples were achieved and no unusual steps were taken in performing the alpha analyses. The results in this report are the same as those reported as preliminary results to CRESP during October 2005 – November 2005.

The actinide procedure for small solid sample sizes in ACMM-3816[2] was used for alpha analysis. Batch 13 and 16 were soft tissue and batch 14 and 15 were kelp samples. Batch 13 (soft tissue) and batches 14 and 15 (kelp) discolored the platinum dishes during fusion. The reason for this phenomenon is unknown. Since this was observed only in the marine samples, there is reason to think that the high chloride content with the other acids added for digesting the samples can had an effect. Several other batches of kelp and soft tissues did not cause this problem. Therefore, this can be specific to certain species or certain locations where these samples were collected. In batch 14, low tracer yield for all analytes was observed in K-AA-618 due to sample loss during the process, and relatively lower yield of Pu was observed in K-AA-611, K-AA-616, K-BB-600, K-BB-602, and K-BB-609, possibly due to the loss of some Pu fraction to Thorium fraction.

Internal and external quality control (QC) results, and the internal QC checks for the detectors used to count these samples are also included in this report. Results show that all relevant parameters were "in control" during the sample counting time frame. Results from the external QC intercomparison program are also documented here.

## 4. REFERENCES

(1) INEEL Method Manual for the Amchitka Environmental Sample Analysis, Revision 1, December 2004.

(2) ACMM 3816 - Determination of Selected Actinide Nuclides and Strontium-90 in Filters and Solids.

(3) PLN-1719, "Quality Assurance Project Plan for the Analysis of Amchitka Island Samples," Revision 1, January 2005.

(4) PLN-153, "Quality Assurance Project Plan for Analytical Laboratories Department Radioanalytical Activities," Revision 2, May 2004.

# COVER PAGE
# RADIOANALYTICAL ANALYSES DATA PACKAGE

Project Title: Amchitka Island Alpha Analysis Report (Batch 13)

Lab Name: RTC | Case No: NA

Report No.: AmchitBatchF13 | Method Type: A/B

Approved SAP No.: NA | SDG No.: S-R-283

## SAMPLE NUMBERS

| Customer Sample ID | Lab Sample ID |
|---|---|
| S-R-283 | 02WH-01-A |
| S-R-284 | 02WH-02-A |
| S-R-285 | 02WH-03-A |
| S-R-286 | 02WH-04-A |
| S-R-287 | 02WH-05-A |
| S-R-288 | 02WH-06-A |
| S-R-289 | 02WH-07-A |
| S-R-290 | 02WH-08-A |
| S-R-291 | 02WH-09-A |
| S-R-292 | 02WH-10-A |
| S-R-293 | 02WH-11-A |
| S-R-294 | 02WH-12-A |
| S-R-295 | 02WH-13-A |
| S-R-296 | 02WH-14-A |
| S-R-297 | 02WH-15-A |
| S-R-298 | 02WH-16-A |
| S-R-299 | 02WH-17-A |
| S-R-300 | 02WH-18-A |
| S-R-301 | 02WH-19-A |
| S-R-302 | 02WH-20-A |

Comments:

Release of the data contained in this data package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature:

Signature: B.K. Schuett for J.G.E. | Name: J. G. Eisenmenger

Title: Technical Leader | Date: 11/22/2005

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF13

SDG No.: S-R-283

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-R-283 | 02WH-01-A | SoftTiss | U234 | +3.34E-04 | +9.83E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.3 | 02 | +3.10E-05 | |
| S-R-283 | 02WH-01-A | SoftTiss | U235 | +5.98E-06 | +9.86E-06 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.3 | 02 | +4.81E-05 | |
| S-R-283 | 02WH-01-A | SoftTiss | U238 | +2.99E-04 | +1.03E-04 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.3 | 02 | +2.60E-05 | |
| S-R-283 | 02WH-01-A | SoftTiss | PU238 | -1.91E-05 | +3.34E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 86.1 | 09 | +2.66E-05 | |
| S-R-283 | 02WH-01-A | SoftTiss | PU239/240 | +2.66E-05 | +2.63E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 86.1 | 09 | +3.19E-05 | |
| S-R-283 | 02WH-01-A | SoftTiss | AM241 | +3.07E-05 | +2.56E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 100.4 | 09 | +2.30E-05 | |
| S-R-283 | 02WH-01-A | SoftTiss | U236 | -1.08E-05 | +3.05E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.3 | 02 | +3.10E-05 | |
| S-R-284 | 02WH-02-A | SoftTiss | U234 | +3.27E-04 | +9.64E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 102.2 | 03 | +2.96E-05 | |
| S-R-284 | 02WH-02-A | SoftTiss | U235 | +1.95E-05 | +2.88E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 102.2 | 03 | +4.20E-05 | |
| S-R-284 | 02WH-02-A | SoftTiss | U238 | +2.50E-04 | +9.51E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 102.2 | 03 | +2.96E-05 | |
| S-R-284 | 02WH-02-A | SoftTiss | PU238 | -7.88E-06 | +3.43E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 88.1 | 10 | +1.36E-05 | |
| S-R-284 | 02WH-02-A | SoftTiss | PU239/240 | +1.89E-05 | +4.30E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 88.1 | 10 | +3.46E-05 | |
| S-R-284 | 02WH-02-A | SoftTiss | AM241 | -1.19E-06 | +2.54E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.8 | 10 | +2.22E-05 | |
| S-R-284 | 02WH-02-A | SoftTiss | U236 | -1.72E-05 | +2.83E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 102.2 | 03 | +3.33E-05 | |
| S-R-285 | 02WH-03-A | SoftTiss | U234 | +3.43E-04 | +9.99E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.9 | 04 | +3.18E-05 | |
| S-R-285 | 02WH-03-A | SoftTiss | U235 | +3.23E-05 | +4.51E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.9 | 04 | +4.93E-05 | |
| S-R-285 | 02WH-03-A | SoftTiss | U238 | +3.07E-04 | +1.05E-04 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.9 | 04 | +3.18E-05 | |
| S-R-285 | 02WH-03-A | SoftTiss | PU238 | -2.05E-05 | +3.31E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 86.1 | 11 | +3.19E-05 | |
| S-R-285 | 02WH-03-A | SoftTiss | PU239/240 | +4.63E-05 | +3.00E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 86.1 | 11 | +3.60E-05 | |
| S-R-285 | 02WH-03-A | SoftTiss | AM241 | +1.86E-05 | +2.43E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 103.1 | 11 | +3.02E-05 | |
| S-R-285 | 02WH-03-A | SoftTiss | U236 | -2.52E-05 | +3.05E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.9 | 04 | +4.20E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC Case No: NA

Report No.: AmchitBatchF13 SDG No.: S-R-283

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-R-286 | 02WH-04-A | SoftTiss | U234 | +5.83E-04 | +1.33E-04 | Bq/g | 09/28/05 | 08/31/05 | 15 | 106.0 | 05 | +4.07E-05 | |
| S-R-286 | 02WH-04-A | SoftTiss | U235 | +3.04E-05 | +4.15E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 106.0 | 05 | +4.16E-05 | |
| S-R-286 | 02WH-04-A | SoftTiss | U238 | +4.51E-04 | +1.29E-04 | Bq/g | 09/28/05 | 08/31/05 | 15 | 106.0 | 05 | +4.07E-05 | |
| S-R-286 | 02WH-04-A | SoftTiss | PU238 | -2.06E-05 | +3.31E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 89.7 | 12 | +3.10E-05 | |
| S-R-286 | 02WH-04-A | SoftTiss | PU239/240 | +2.43E-05 | +2.60E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 89.7 | 12 | +3.50E-05 | |
| S-R-286 | 02WH-04-A | SoftTiss | AM241 | +2.93E-05 | +2.59E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 112.6 | 12 | +3.50E-05 | |
| S-R-286 | 02WH-04-A | SoftTiss | U236 | -1.97E-05 | +2.83E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 106.0 | 05 | +2.77E-05 | |
| S-R-287 | 02WH-05-A | SoftTiss | U234 | +4.93E-04 | +1.21E-04 | Bq/g | 09/28/05 | 08/31/05 | 15 | 104.5 | 06 | +2.81E-05 | |
| S-R-287 | 02WH-05-A | SoftTiss | U235 | +1.52E-05 | +2.32E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 104.5 | 06 | +4.75E-05 | |
| S-R-287 | 02WH-05-A | SoftTiss | U238 | +4.16E-04 | +1.24E-04 | Bq/g | 09/28/05 | 08/31/05 | 15 | 104.5 | 06 | +4.13E-05 | |
| S-R-287 | 02WH-05-A | SoftTiss | PU238 | -1.94E-05 | +3.33E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 92.4 | 13 | +2.44E-05 | |
| S-R-287 | 02WH-05-A | SoftTiss | PU239/240 | +3.04E-05 | +2.69E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 92.4 | 13 | +3.60E-05 | |
| S-R-287 | 02WH-05-A | SoftTiss | AM241 | +1.98E-05 | +2.44E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 107.1 | 13 | +3.12E-05 | |
| S-R-287 | 02WH-05-A | SoftTiss | U236 | -1.97E-05 | +2.83E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 104.5 | 06 | +2.81E-05 | |
| S-R-288 | 02WH-06-A | SoftTiss | U234 | +4.69E-04 | +1.05E-04 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.9 | 07 | +9.78E-06 | |
| S-R-288 | 02WH-06-A | SoftTiss | U235 | +2.15E-05 | +2.66E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.9 | 07 | +2.32E-05 | |
| S-R-288 | 02WH-06-A | SoftTiss | U238 | +2.92E-04 | +9.41E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.9 | 07 | +9.78E-06 | |
| S-R-288 | 02WH-06-A | SoftTiss | PU238 | -1.79E-05 | +3.37E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 86.4 | 14 | +1.37E-05 | |
| S-R-288 | 02WH-06-A | SoftTiss | PU239/240 | +2.17E-05 | +2.49E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 86.4 | 14 | +2.59E-05 | |
| S-R-288 | 02WH-06-A | SoftTiss | AM241 | +4.27E-05 | +2.71E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 100.4 | 14 | +2.24E-05 | |
| S-R-288 | 02WH-06-A | SoftTiss | U236 | -9.36E-06 | +3.12E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 110.9 | 07 | +2.20E-05 | |

See Key for Form I.

Comments: _____

# RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF13

SDG No.: S-R-283

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-R-289 | 02WH-07-A | SoftTiss | U234 | +4.85E-04 | +1.22E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 98.5 | 01 | +1.61E-05 | |
| S-R-289 | 02WH-07-A | SoftTiss | U235 | +6.35E-05 | +2.97E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 98.5 | 01 | +4.58E-05 | |
| S-R-289 | 02WH-07-A | SoftTiss | U238 | +3.15E-04 | +1.11E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 98.5 | 01 | +4.81E-05 | |
| S-R-289 | 02WH-07-A | SoftTiss | PU238 | -1.35E-05 | +3.57E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 79.6 | 15 | +2.77E-05 | |
| S-R-289 | 02WH-07-A | SoftTiss | PU239/240 | +2.68E-05 | +2.69E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 79.6 | 15 | +3.73E-05 | |
| S-R-289 | 02WH-07-A | SoftTiss | AM241 | +1.97E-05 | +2.38E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.5 | 15 | +2.17E-05 | |
| S-R-289 | 02WH-07-A | SoftTiss | U236 | -1.98E-05 | +2.83E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 98.5 | 01 | +3.04E-05 | |
| S-R-290 | 02WH-08-A | SoftTiss | U234 | +3.83E-04 | +1.08E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 97.2 | 02 | +3.96E-05 | |
| S-R-290 | 02WH-08-A | SoftTiss | U235 | +2.32E-05 | +3.42E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 97.2 | 02 | +4.99E-05 | |
| S-R-290 | 02WH-08-A | SoftTiss | U238 | +2.34E-04 | +9.65E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 97.2 | 02 | +1.56E-05 | |
| S-R-290 | 02WH-08-A | SoftTiss | PU238 | -2.59E-05 | +3.32E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 83.4 | 16 | +3.34E-05 | |
| S-R-290 | 02WH-08-A | SoftTiss | PU239/240 | +2.15E-05 | +4.60E-05 | Bq/g | 09/28/05 | 08/31/05 | 15 | 83.4 | 16 | +3.76E-05 | |
| S-R-290 | 02WH-08-A | SoftTiss | AM241 | +1.07E-05 | +3.75E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 94.9 | 16 | +3.63E-05 | |
| S-R-290 | 02WH-08-A | SoftTiss | U236 | -2.13E-05 | +2.87E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 97.2 | 02 | +3.52E-05 | |
| S-R-291 | 02WH-09-A | SoftTiss | U234 | +4.86E-04 | +1.18E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 96.2 | 03 | +2.64E-05 | |
| S-R-291 | 02WH-09-A | SoftTiss | U235 | +2.08E-05 | +3.06E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 96.2 | 03 | +4.46E-05 | |
| S-R-291 | 02WH-09-A | SoftTiss | U238 | +3.71E-04 | +1.15E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 96.2 | 03 | +3.15E-05 | |
| S-R-291 | 02WH-09-A | SoftTiss | PU238 | -1.38E-05 | +3.56E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 85.2 | 09 | +2.69E-05 | |
| S-R-291 | 02WH-09-A | SoftTiss | PU239/240 | +3.76E-05 | +2.83E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 85.2 | 09 | +3.22E-05 | |
| S-R-291 | 02WH-09-A | SoftTiss | AM241 | +7.58E-06 | +3.38E-05 | Bq/g | 10/18/05 | 08/31/05 | 15 | 108.0 | 09 | +3.14E-05 | |
| S-R-291 | 02WH-09-A | SoftTiss | U236 | -1.96E-05 | +2.83E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 96.2 | 03 | +2.64E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC Case No: NA

Report No.: AmchitBatchF13 SDG No.: S-R-283

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-R-292 | 02WH-10-A | SoftTiss | U234 | +5.14E-04 | +1.25E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 102.7 | 04 | +3.43E-05 | |
| S-R-292 | 02WH-10-A | SoftTiss | U235 | +4.20E-05 | +5.59E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 102.7 | 04 | +5.32E-05 | |
| S-R-292 | 02WH-10-A | SoftTiss | U238 | +2.79E-04 | +1.03E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 102.7 | 04 | +3.43E-05 | |
| S-R-292 | 02WH-10-A | SoftTiss | PU238 | -1.91E-05 | +3.34E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 84.1 | 10 | +2.70E-05 | |
| S-R-292 | 02WH-10-A | SoftTiss | PU239/240 | +3.62E-05 | +2.84E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 84.1 | 10 | +3.63E-05 | |
| S-R-292 | 02WH-10-A | SoftTiss | AM241 | +7.14E-06 | +3.28E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 98.8 | 10 | +2.76E-05 | |
| S-R-292 | 02WH-10-A | SoftTiss | U236 | -2.57E-05 | +3.08E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 102.7 | 04 | +4.54E-05 | |
| S-R-293 | 02WH-11-A | SoftTiss | U234 | +4.78E-04 | +1.19E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 106.6 | 05 | +4.05E-05 | |
| S-R-293 | 02WH-11-A | SoftTiss | U235 | +4.75E-05 | +2.29E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 106.6 | 05 | +1.84E-05 | |
| S-R-293 | 02WH-11-A | SoftTiss | U238 | +3.70E-04 | +1.17E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 106.6 | 05 | +4.63E-05 | |
| S-R-293 | 02WH-11-A | SoftTiss | PU238 | -3.74E-06 | +4.31E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 86.9 | 12 | +4.24E-05 | |
| S-R-293 | 02WH-11-A | SoftTiss | PU239/240 | +5.98E-05 | +3.18E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 86.9 | 12 | +2.68E-05 | |
| S-R-293 | 02WH-11-A | SoftTiss | AM241 | +4.74E-05 | +2.86E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 99.0 | 11 | +3.15E-05 | |
| S-R-293 | 02WH-11-A | SoftTiss | U236 | -1.97E-05 | +2.83E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 106.6 | 05 | +2.75E-05 | |
| S-R-294 | 02WH-12-A | SoftTiss | U234 | +3.81E-04 | +1.04E-04 | Bq/g | 09/29/05 | 08/31/05 | 15 | 111.8 | 06 | +2.62E-05 | |
| S-R-294 | 02WH-12-A | SoftTiss | U235 | +4.01E-05 | +5.04E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 111.8 | 06 | +4.44E-05 | |
| S-R-294 | 02WH-12-A | SoftTiss | U238 | +2.60E-04 | +9.88E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 111.8 | 06 | +4.41E-05 | |
| S-R-294 | 02WH-12-A | SoftTiss | PU238 | -1.49E-05 | +3.50E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 83.6 | 12 | +3.33E-05 | |
| S-R-294 | 02WH-12-A | SoftTiss | PU239/240 | +5.13E-06 | +3.15E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 83.6 | 12 | +3.75E-05 | |
| S-R-294 | 02WH-12-A | SoftTiss | AM241 | +6.65E-06 | +3.37E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.4 | 12 | +3.85E-05 | |
| S-R-294 | 02WH-12-A | SoftTiss | U236 | -1.31E-05 | +2.93E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 111.8 | 06 | +1.39E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF13

SDG No.: S-R-283

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-R-295 | 02WH-13-A | SoftTiss | U234 | +3.85E-04 | +1.05E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 106.1 | 02 | +3.63E-05 | |
| S-R-295 | 02WH-13-A | SoftTiss | U235 | +3.46E-05 | +4.67E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 106.1 | 02 | +4.57E-05 | |
| S-R-295 | 02WH-13-A | SoftTiss | U238 | +2.55E-04 | +9.81E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 106.1 | 02 | +3.22E-05 | |
| S-R-295 | 02WH-13-A | SoftTiss | PU238 | -1.91E-05 | +3.34E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 84.5 | 13 | +2.67E-05 | |
| S-R-295 | 02WH-13-A | SoftTiss | PU239/240 | +2.92E-05 | +2.74E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 84.5 | 13 | +3.93E-05 | |
| S-R-295 | 02WH-13-A | SoftTiss | AM241 | +7.36E-06 | +3.36E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 107.4 | 13 | +3.11E-05 | |
| S-R-295 | 02WH-13-A | SoftTiss | U236 | -2.39E-05 | +2.97E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 106.1 | 02 | +3.97E-05 | |
| S-R-296 | 02WH-14-A | SoftTiss | U234 | +4.84E-04 | +1.16E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 99.4 | 03 | +2.55E-05 | |
| S-R-296 | 02WH-14-A | SoftTiss | U235 | -8.39E-06 | +1.40E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 99.4 | 03 | +5.08E-05 | |
| S-R-296 | 02WH-14-A | SoftTiss | U238 | +3.98E-04 | +1.18E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 99.4 | 03 | +1.35E-05 | |
| S-R-296 | 02WH-14-A | SoftTiss | PU238 | -1.76E-05 | +3.38E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 82.5 | 14 | +1.43E-05 | |
| S-R-296 | 02WH-14-A | SoftTiss | PU239/240 | +2.87E-05 | +2.64E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 82.5 | 14 | +2.71E-05 | |
| S-R-296 | 02WH-14-A | SoftTiss | AM241 | +2.88E-05 | +2.51E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.3 | 14 | +2.20E-05 | |
| S-R-296 | 02WH-14-A | SoftTiss | U236 | -2.22E-05 | +2.90E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 99.4 | 03 | +3.43E-05 | |
| S-R-297 | 02WH-15-A | SoftTiss | U234 | +5.27E-04 | +1.26E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.2 | 04 | +3.88E-05 | |
| S-R-297 | 02WH-15-A | SoftTiss | U235 | +2.94E-05 | +4.33E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.2 | 04 | +6.45E-05 | |
| S-R-297 | 02WH-15-A | SoftTiss | U238 | +3.96E-04 | +1.22E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.2 | 04 | +4.24E-05 | |
| S-R-297 | 02WH-15-A | SoftTiss | PU238 | -2.43E-05 | +3.29E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 87.9 | 15 | +2.51E-05 | |
| S-R-297 | 02WH-15-A | SoftTiss | PU239/240 | +2.80E-05 | +2.64E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 87.9 | 15 | +3.38E-05 | |
| S-R-297 | 02WH-15-A | SoftTiss | AM241 | +1.11E-05 | +2.26E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 103.2 | 15 | +2.15E-05 | |
| S-R-297 | 02WH-15-A | SoftTiss | U236 | -8.84E-06 | +3.18E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.2 | 04 | +4.56E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF13

SDG No.: S-R-283

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-R-298 | 02WH-16-A | SoftTiss | U234 | +3.42E-04 | +1.01E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 107.3 | 05 | +4.85E-05 | |
| S-R-298 | 02WH-16-A | SoftTiss | U235 | +2.33E-05 | +3.35E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 107.3 | 05 | +4.12E-05 | |
| S-R-298 | 02WH-16-A | SoftTiss | U238 | +3.15E-04 | +1.07E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 107.3 | 05 | +2.73E-05 | |
| S-R-298 | 02WH-16-A | SoftTiss | PU238 | -2.44E-05 | +3.30E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 84.1 | 16 | +2.77E-05 | |
| S-R-298 | 02WH-16-A | SoftTiss | PU239/240 | +4.00E-05 | +2.99E-05 | Bq/g | 09/29/05 | 08/31/05 | 15 | 84.1 | 16 | +4.38E-05 | |
| S-R-298 | 02WH-16-A | SoftTiss | AM241 | +4.14E-05 | +2.75E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.6 | 16 | +3.07E-05 | |
| S-R-298 | 02WH-16-A | SoftTiss | U236 | -1.04E-05 | +3.07E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 107.3 | 05 | +3.27E-05 | |
| S-R-299 | 02WH-17-A | SoftTiss | U234 | +3.39E-04 | +9.89E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 114.0 | 06 | +3.46E-05 | |
| S-R-299 | 02WH-17-A | SoftTiss | U235 | +2.36E-05 | +3.23E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 114.0 | 06 | +3.24E-05 | |
| S-R-299 | 02WH-17-A | SoftTiss | U238 | +3.39E-04 | +1.09E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 114.0 | 06 | +3.07E-05 | |
| S-R-299 | 02WH-17-A | SoftTiss | PU238 | -2.56E-05 | +3.31E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 88.9 | 10 | +3.05E-05 | |
| S-R-299 | 02WH-17-A | SoftTiss | PU239/240 | +1.36E-05 | +3.92E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 88.9 | 10 | +3.43E-05 | |
| S-R-299 | 02WH-17-A | SoftTiss | AM241 | -9.90E-07 | +2.56E-05 | Bq/g | 10/18/05 | 08/31/05 | 15 | 101.0 | 10 | +2.26E-05 | |
| S-R-299 | 02WH-17-A | SoftTiss | U236 | -1.45E-05 | +2.88E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 114.0 | 06 | +2.57E-05 | |
| S-R-300 | 02WH-18-A | SoftTiss | U234 | +5.32E-04 | +1.16E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 98.9 | 07 | +2.78E-05 | |
| S-R-300 | 02WH-18-A | SoftTiss | U235 | +1.39E-05 | +2.02E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 98.9 | 07 | +2.60E-05 | |
| S-R-300 | 02WH-18-A | SoftTiss | U238 | +3.99E-04 | +1.12E-04 | Bq/g | 10/17/05 | 08/31/05 | 15 | 98.9 | 07 | +2.78E-05 | |
| S-R-300 | 02WH-18-A | SoftTiss | PU238 | -2.05E-05 | +3.31E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 85.4 | 11 | +3.22E-05 | |
| S-R-300 | 02WH-18-A | SoftTiss | PU239/240 | +3.63E-05 | +2.84E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 85.4 | 11 | +3.63E-05 | |
| S-R-300 | 02WH-18-A | SoftTiss | AM241 | +1.95E-05 | +2.41E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 102.4 | 10 | +2.66E-05 | |
| S-R-300 | 02WH-18-A | SoftTiss | U236 | -1.01E-05 | +3.03E-05 | Bq/g | 10/17/05 | 08/31/05 | 15 | 98.9 | 07 | +1.09E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF13

SDG No.: S-R-283

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-R-301 | 02WH-19-A | SoftTiss | U234 | +1.26E-02 | +1.59E-03 | Bq/g | 10/17/05 | 08/31/05 | 12.4 | 94.3 | 08 | +3.76E-05 | |
| S-R-301 | 02WH-19-A | SoftTiss | U235 | +5.90E-04 | +1.35E-04 | Bq/g | 10/17/05 | 08/31/05 | 12.4 | 94.3 | 08 | +7.49E-05 | |
| S-R-301 | 02WH-19-A | SoftTiss | U238 | +1.34E-02 | +1.92E-03 | Bq/g | 10/17/05 | 08/31/05 | 12.4 | 94.3 | 08 | +4.49E-05 | |
| S-R-301 | 02WH-19-A | SoftTiss | PU238 | -3.09E-05 | +4.01E-05 | Bq/g | 10/17/05 | 08/31/05 | 12.4 | 96.1 | 12 | +3.51E-05 | |
| S-R-301 | 02WH-19-A | SoftTiss | PU239/240 | -8.03E-06 | +2.51E-05 | Bq/g | 10/17/05 | 08/31/05 | 12.4 | 96.1 | 12 | +3.96E-05 | |
| S-R-301 | 02WH-19-A | SoftTiss | AM241 | -1.99E-05 | +2.42E-05 | Bq/g | 10/17/05 | 08/31/05 | 12.4 | 113.9 | 06 | +6.34E-05 | |
| S-R-301 | 02WH-19-A | SoftTiss | U236 | -3.93E-06 | +4.37E-05 | Bq/g | 10/17/05 | 08/31/05 | 12.4 | 94.3 | 08 | +4.49E-05 | |
| S-R-302 | 02WH-20-A | SoftTiss | U234 | +8.41E-03 | +9.65E-04 | Bq/g | 10/18/05 | 08/31/05 | 13.4 | 112.3 | 07 | +2.74E-05 | |
| S-R-302 | 02WH-20-A | SoftTiss | U235 | +4.87E-04 | +9.45E-05 | Bq/g | 10/18/05 | 08/31/05 | 13.4 | 112.3 | 07 | +2.57E-05 | |
| S-R-302 | 02WH-20-A | SoftTiss | U238 | +8.14E-03 | +1.09E-03 | Bq/g | 10/18/05 | 08/31/05 | 13.4 | 112.3 | 07 | +2.74E-05 | |
| S-R-302 | 02WH-20-A | SoftTiss | PU238 | +6.47E-03 | +7.35E-04 | Bq/g | 10/18/05 | 08/31/05 | 13.4 | 99.1 | 08 | +6.90E-05 | |
| S-R-302 | 02WH-20-A | SoftTiss | PU239/240 | +5.20E-03 | +6.10E-04 | Bq/g | 10/18/05 | 08/31/05 | 13.4 | 99.1 | 08 | +8.17E-05 | |
| S-R-302 | 02WH-20-A | SoftTiss | AM241 | +3.11E-05 | +2.87E-05 | Bq/g | 10/18/05 | 08/31/05 | 13.4 | 102.3 | 11 | +3.41E-05 | |
| S-R-302 | 02WH-20-A | SoftTiss | U236 | -4.45E-06 | +3.31E-05 | Bq/g | 10/18/05 | 08/31/05 | 13.4 | 112.3 | 07 | +1.08E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF13

SDG No.: S-R-283

| QC Sample ID | Sample Type | Anal Type | Sample Value | Sample Uncer +/- | Known Value | Known Uncer+/- | Units | LCS Recov | Anal Date | Chem Yield | Det ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REAGENT | BLK | U234 | +5.86E-04 | +8.41E-04 | NA | NA | Bq/spl | NA% | 10/17/2005 | 77.1% | 01 | +1.03E-03 | |
| REAGENT | BLK | U235 | -2.87E-05 | -4.63E-05 | NA | NA | Bq/spl | NA% | 10/17/2005 | 77.1% | 01 | +1.58E-03 | |
| REAGENT | BLK | U238 | +1.67E-03 | +6.80E-04 | NA | NA | Bq/spl | NA% | 10/17/2005 | 77.1% | 01 | +9.22E-04 | |
| REAGENT | BLK | PU238 | +3.45E-04 | +4.93E-04 | NA | NA | Bq/spl | NA% | 09/28/2005 | 69.7% | 01 | +6.45E-04 | |
| REAGENT | BLK | PU239/240 | +1.85E-04 | +2.82E-04 | NA | NA | Bq/spl | NA% | 09/28/2005 | 69.7% | 01 | +7.71E-04 | |
| REAGENT | BLK | AM241 | +1.96E-04 | +2.89E-04 | NA | NA | Bq/spl | NA% | 10/17/2005 | 76.3% | 11 | +6.12E-04 | |
| REAGENT | BLK | U236 | +2.74E-04 | +4.23E-04 | NA | NA | Bq/spl | NA% | 10/17/2005 | 77.1% | 01 | +9.81E-04 | |
| REAGENT | LCS | U238 | +2.04E-01 | +3.06E-02 | +1.99E-01 | NA | Bq/mL | 102.1% | 09/28/2005 | 88.8% | 08 | +9.88E-04 | |
| REAGENT | LCS | PU239/240 | +1.46E-01 | +1.53E-02 | +1.50E-01 | NA | Bq/mL | 97.3% | 10/18/2005 | 93.3% | 07 | +9.67E-04 | |
| REAGENT | LCS | AM241 | +1.52E-01 | +1.50E-02 | +1.55E-01 | NA | Bq/mL | 98.0% | 10/17/2005 | 91.5% | 08 | +2.14E-03 | |

See Key for Form II.

Comments: _____

Project: **Alpha Analysis for Amchitka Island (Batch 13)**
Laboratory: RTC
Report #: AmchitBatchF13
SDG#: S-R-283

## Summary of 2 and 3 sigma activities

Below are the results for U234, U235, U236, U238, Pu238, Pu239/240, and Am241 for Batch 13 from the Amchitka Island Project that had a result/uncertainty ratio of 2 or more (uncertainty @ one sigma).

| Customer ID | Lab ID | Isotope | Result Bq/g | Uncertainty Bq/g | MDA | Result/ Uncertainty |
|---|---|---|---|---|---|---|
| S-R-283 | 02WH-01-A | U234 | 3.34E-04 | 9.83E-05 | 3.10E-05 | 3.4 |
| S-R-283 | 02WH-01-A | U238 | 2.99E-04 | 1.03E-04 | 2.60E-05 | 2.9 |
| S-R-284 | 02WH-02-A | U234 | 3.27E-04 | 9.64E-05 | 2.96E-05 | 3.4 |
| S-R-284 | 02WH-02-A | U238 | 2.50E-04 | 9.51E-05 | 2.96E-05 | 2.6 |
| S-R-285 | 02WH-03-A | U234 | 3.43E-04 | 9.99E-05 | 3.18E-05 | 3.4 |
| S-R-285 | 02WH-03-A | U238 | 3.07E-04 | 1.05E-04 | 3.18E-05 | 2.9 |
| S-R-286 | 02WH-04-A | U234 | 5.83E-04 | 1.33E-04 | 4.07E-05 | 4.4 |
| S-R-286 | 02WH-04-A | U238 | 4.51E-04 | 1.29E-04 | 4.07E-05 | 3.5 |
| S-R-287 | 02WH-05-A | U234 | 4.93E-04 | 1.21E-04 | 2.81E-05 | 4.1 |
| S-R-287 | 02WH-05-A | U238 | 4.16E-04 | 1.24E-04 | 4.13E-05 | 3.4 |
| S-R-288 | 02WH-06-A | U234 | 4.69E-04 | 1.05E-04 | 9.78E-06 | 4.5 |
| S-R-288 | 02WH-06-A | U238 | 2.92E-04 | 9.41E-05 | 9.78E-06 | 3.1 |
| S-R-289 | 02WH-07-A | U234 | 4.85E-04 | 1.22E-04 | 1.61E-05 | 4.0 |
| S-R-289 | 02WH-07-A | U235 | 6.35E-05 | 2.97E-05 | 4.58E-05 | 2.1 |
| S-R-289 | 02WH-07-A | U238 | 3.15E-04 | 1.11E-04 | 4.81E-05 | 2.8 |
| S-R-290 | 02WH-08-A | U234 | 3.83E-04 | 1.08E-04 | 3.96E-05 | 3.5 |
| S-R-290 | 02WH-08-A | U238 | 2.34E-04 | 9.65E-05 | 1.56E-05 | 2.4 |
| S-R-291 | 02WH-09-A | U234 | 4.86E-04 | 1.18E-04 | 2.64E-05 | 4.1 |
| S-R-291 | 02WH-09-A | U238 | 3.71E-04 | 1.15E-04 | 3.15E-05 | 3.2 |
| S-R-292 | 02WH-10-A | U234 | 5.14E-04 | 1.25E-04 | 3.43E-05 | 4.1 |
| S-R-292 | 02WH-10-A | U238 | 2.79E-04 | 1.03E-04 | 3.43E-05 | 2.7 |
| S-R-293 | 02WH-11-A | U234 | 4.78E-04 | 1.19E-04 | 4.05E-05 | 4.0 |
| S-R-293 | 02WH-11-A | U235 | 4.75E-05 | 2.29E-05 | 1.84E-05 | 2.1 |
| S-R-293 | 02WH-11-A | U238 | 3.70E-04 | 1.17E-04 | 4.63E-05 | 3.2 |

**Alpha Analysis for Amchitka Island (Batch 13)**
**Summary of 2 and 3 sigma activities**
**page 2**

| Customer ID | Lab ID | Isotope | Result Bq/g | Uncertainty Bq/g | MDA | Result/ Uncertainty |
|---|---|---|---|---|---|---|
| S-R-294 | 02WH-12-A | U234 | 3.81E-04 | 1.04E-04 | 2.62E-05 | 3.7 |
| S-R-294 | 02WH-12-A | U238 | 2.60E-04 | 9.88E-05 | 4.41E-05 | 2.6 |
| S-R-295 | 02WH-13-A | U234 | 3.85E-04 | 1.05E-04 | 3.63E-05 | 3.7 |
| S-R-295 | 02WH-13-A | U238 | 2.55E-04 | 9.81E-05 | 3.22E-05 | 2.6 |
| S-R-296 | 02WH-14-A | U234 | 4.84E-04 | 1.16E-04 | 2.55E-05 | 4.2 |
| S-R-296 | 02WH-14-A | U238 | 3.98E-04 | 1.18E-04 | 1.35E-05 | 3.4 |
| S-R-297 | 02WH-15-A | U234 | 5.27E-04 | 1.26E-04 | 3.88E-05 | 4.2 |
| S-R-297 | 02WH-15-A | U238 | 3.96E-04 | 1.22E-04 | 4.24E-05 | 3.2 |
| S-R-298 | 02WH-16-A | U234 | 3.42E-04 | 1.01E-04 | 4.85E-05 | 3.4 |
| S-R-298 | 02WH-16-A | U238 | 3.15E-04 | 1.07E-04 | 2.73E-05 | 2.9 |
| S-R-299 | 02WH-17-A | U234 | 3.39E-04 | 9.89E-05 | 3.46E-05 | 3.4 |
| S-R-299 | 02WH-17-A | U238 | 3.39E-04 | 1.09E-04 | 3.07E-05 | 3.1 |
| S-R-300 | 02WH-18-A | U234 | 5.32E-04 | 1.16E-04 | 2.78E-05 | 4.6 |
| S-R-300 | 02WH-18-A | U238 | 3.99E-04 | 1.12E-04 | 2.78E-05 | 3.6 |
| S-R-301 | 02WH-19-A | U234 | 1.26E-02 | 1.59E-03 | 3.76E-05 | 7.9 |
| S-R-301 | 02WH-19-A | U235 | 5.90E-04 | 1.35E-04 | 7.49E-05 | 4.4 |
| S-R-301 | 02WH-19-A | U238 | 1.34E-02 | 1.92E-03 | 4.49E-05 | 7.0 |
| S-R-302 | 02WH-20-A | PU238 | 6.47E-03 | 7.35E-04 | 6.90E-05 | 8.8 |
| S-R-302 | 02WH-20-A | PU239/240 | 5.20E-03 | 6.10E-04 | 8.17E-05 | 8.5 |
| S-R-302 | 02WH-20-A | U234 | 8.41E-03 | 9.65E-04 | 2.74E-05 | 8.7 |
| S-R-302 | 02WH-20-A | U235 | 4.87E-04 | 9.45E-05 | 2.57E-05 | 5.2 |
| S-R-302 | 02WH-20-A | U238 | 8.14E-03 | 1.09E-03 | 2.74E-05 | 7.5 |

All known sources of uncertainty are included in the uncertainty term. There may be unknown sources of uncertainty that are not accounted for. If the result/uncertainty ratio is more than 3, we have a degree of confidence that the result is positive (i.e. the result is statistically different than zero). A result with the result/uncertainty ratio between 2 and 3 is the first indication that an isotope may be present and further investigation may be warranted.

As with any good science no single data point is used in important decisions (results need to be reproducible).

# COVER PAGE
# RADIOANALYTICAL ANALYSES DATA PACKAGE

| | | | |
|---|---|---|---|
| Project Title: | Amchitka Island Alpha Analysis Report (Batch 14) | | |
| Lab Name: | RTC | Case No: | NA |
| Report No.: | AmchitBatchF14 | Method Type: | A/B |
| Approved SAP No.: | NA | SDG No.: | K-AA-610 |

## SAMPLE NUMBERS

| Customer Sample ID | Lab Sample ID |
|---|---|
| K-AA-610 | 02X7-11-A |
| K-AA-611 | 02X7-12-A |
| K-AA-612 | 02X7-13-A |
| K-AA-613 | 02X7-14-A |
| K-AA-614 | 02X7-15-A |
| K-AA-615 | 02X7-16-A |
| K-AA-616 | 02X7-17-A |
| K-AA-617 | 02X7-18-A |
| K-AA-618 | 02X7-19-A |
| K-AA-619 | 02X7-20-A |
| K-BB-600 | 02X7-01-A |
| K-BB-601 | 02X7-02-A |
| K-BB-602 | 02X7-03-A |
| K-BB-603 | 02X7-04-A |
| K-BB-604 | 02X7-05-A |
| K-BB-605 | 02X7-06-A |
| K-BB-606 | 02X7-07-A |
| K-BB-607 | 02X7-08-A |
| K-BB-608 | 02X7-09-A |
| K-BB-609 | 02X7-10-A |

Comments: _____

Release of the data contained in this data package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature:

| | | | |
|---|---|---|---|
| Signature: | B.K. Schuetz for J.G.E. | Name: | J. G. Eisenmenger |
| Title: | Technical Leader | Date: | 11/22/2005 |

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF14

SDG No.: K-AA-610

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-AA-610 | 02X7-11-A | Kelp | U234 | +1.95E-03 | +3.36E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 98.9 | 06 | +3.99E-05 | |
| K-AA-610 | 02X7-11-A | Kelp | U235 | +5.12E-05 | +3.43E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 98.9 | 06 | +1.98E-05 | |
| K-AA-610 | 02X7-11-A | Kelp | U238 | +1.89E-03 | +3.46E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 98.9 | 06 | +4.99E-05 | |
| K-AA-610 | 02X7-11-A | Kelp | PU238 | +9.68E-06 | +1.90E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 91.7 | 10 | +1.31E-05 | |
| K-AA-610 | 02X7-11-A | Kelp | PU239/240 | -6.36E-06 | +3.27E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 91.7 | 10 | +4.16E-05 | |
| K-AA-610 | 02X7-11-A | Kelp | AM241 | -1.15E-05 | +5.25E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 94.0 | 11 | +3.31E-05 | |
| K-AA-610 | 02X7-11-A | Kelp | U236 | +4.26E-06 | +2.04E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 98.9 | 06 | +2.97E-05 | |
| K-AA-611 | 02X7-12-A | Kelp | U234 | +9.72E-04 | +2.12E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.7 | 01 | +4.42E-05 | |
| K-AA-611 | 02X7-12-A | Kelp | U235 | +4.94E-06 | +2.53E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.7 | 01 | +5.99E-05 | |
| K-AA-611 | 02X7-12-A | Kelp | U238 | +6.10E-04 | +1.55E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.7 | 01 | +5.05E-05 | |
| K-AA-611 | 02X7-12-A | Kelp | PU238 | -8.34E-06 | +1.94E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 43.2 | 11 | +7.16E-05 | |
| K-AA-611 | 02X7-12-A | Kelp | PU239/240 | +4.28E-06 | +4.40E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 43.2 | 11 | +9.46E-05 | |
| K-AA-611 | 02X7-12-A | Kelp | AM241 | -2.91E-06 | +5.68E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 98.3 | 12 | +3.20E-05 | |
| K-AA-611 | 02X7-12-A | Kelp | U236 | -3.13E-06 | +1.99E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.7 | 01 | +3.59E-05 | |
| K-AA-612 | 02X7-13-A | Kelp | U234 | +9.21E-04 | +2.06E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.1 | 01 | +4.45E-05 | |
| K-AA-612 | 02X7-13-A | Kelp | U235 | +6.46E-05 | +3.98E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.1 | 01 | +6.02E-05 | |
| K-AA-612 | 02X7-13-A | Kelp | U238 | +1.09E-03 | +2.29E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.1 | 01 | +5.09E-05 | |
| K-AA-612 | 02X7-13-A | Kelp | PU238 | -4.43E-06 | +1.57E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 82.4 | 12 | +3.80E-05 | |
| K-AA-612 | 02X7-13-A | Kelp | PU239/240 | -1.13E-05 | +2.95E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 82.4 | 12 | +3.81E-05 | |
| K-AA-612 | 02X7-13-A | Kelp | AM241 | -1.88E-05 | +4.84E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 100.0 | 13 | +3.34E-05 | |
| K-AA-612 | 02X7-13-A | Kelp | U236 | +1.02E-05 | +2.48E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.1 | 01 | +3.02E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF14

SDG No.: K-AA-610

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-AA-613 | 02X7-14-A | Kelp | U234 | +1.17E-04 | +9.80E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 113.4 | 02 | +2.53E-05 | |
| K-AA-613 | 02X7-14-A | Kelp | U235 | +8.72E-06 | +2.76E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 113.4 | 02 | +5.35E-05 | |
| K-AA-613 | 02X7-14-A | Kelp | U238 | +1.40E-04 | +7.70E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 113.4 | 02 | +3.40E-05 | |
| K-AA-613 | 02X7-14-A | Kelp | PU238 | -5.86E-06 | +1.69E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 80.5 | 13 | +4.13E-05 | |
| K-AA-613 | 02X7-14-A | Kelp | PU239/240 | +1.17E-05 | +4.96E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 80.5 | 13 | +4.72E-05 | |
| K-AA-613 | 02X7-14-A | Kelp | AM241 | -1.93E-05 | +4.79E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 96.3 | 14 | +2.33E-05 | |
| K-AA-613 | 02X7-14-A | Kelp | U236 | -2.64E-06 | +1.97E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 113.4 | 02 | +3.02E-05 | |
| K-AA-614 | 02X7-15-A | Kelp | U234 | +1.47E-03 | +2.69E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 93.1 | 03 | +4.58E-05 | |
| K-AA-614 | 02X7-15-A | Kelp | U235 | +6.85E-05 | +3.84E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 93.1 | 03 | +4.61E-05 | |
| K-AA-614 | 02X7-15-A | Kelp | U238 | +1.43E-03 | +2.72E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 93.1 | 03 | +5.07E-05 | |
| K-AA-614 | 02X7-15-A | Kelp | PU238 | +1.00E-05 | +1.94E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 86.8 | 14 | +1.36E-05 | |
| K-AA-614 | 02X7-15-A | Kelp | PU239/240 | -1.19E-05 | +2.92E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 86.8 | 14 | +3.46E-05 | |
| K-AA-614 | 02X7-15-A | Kelp | AM241 | -1.12E-05 | +5.09E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.9 | 15 | +2.22E-05 | |
| K-AA-614 | 02X7-15-A | Kelp | U236 | +9.25E-06 | +2.38E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 93.1 | 03 | +2.72E-05 | |
| K-AA-615 | 02X7-16-A | Kelp | U234 | +1.04E-03 | +2.22E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 94.4 | 02 | +3.04E-05 | |
| K-AA-615 | 02X7-16-A | Kelp | U235 | +3.69E-05 | +5.69E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 94.4 | 02 | +5.62E-05 | |
| K-AA-615 | 02X7-16-A | Kelp | U238 | +7.67E-04 | +1.79E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 94.4 | 02 | +3.63E-05 | |
| K-AA-615 | 02X7-16-A | Kelp | PU238 | -3.29E-06 | +1.49E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 70.1 | 15 | +3.77E-05 | |
| K-AA-615 | 02X7-16-A | Kelp | PU239/240 | +1.80E-06 | +3.98E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 70.1 | 15 | +4.25E-05 | |
| K-AA-615 | 02X7-16-A | Kelp | AM241 | -2.51E-05 | +4.57E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 100.4 | 16 | +2.78E-05 | |
| K-AA-615 | 02X7-16-A | Kelp | U236 | +2.77E-06 | +1.98E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 94.4 | 02 | +3.63E-05 | |

See Key for Form I.

Comments:

# RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF14

SDG No.: K-AA-610

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-AA-616 | 02X7-17-A | Kelp | U234 | +1.25E-03 | +2.43E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 108.1 | 04 | +4.84E-05 | |
| K-AA-616 | 02X7-17-A | Kelp | U235 | +9.38E-05 | +4.35E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 108.1 | 04 | +5.05E-05 | |
| K-AA-616 | 02X7-17-A | Kelp | U238 | +9.79E-04 | +2.06E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 108.1 | 04 | +3.26E-05 | |
| K-AA-616 | 02X7-17-A | Kelp | PU238 | +4.63E-06 | +1.57E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 45.9 | 16 | +6.06E-05 | |
| K-AA-616 | 02X7-17-A | Kelp | PU239/240 | -1.13E-05 | +2.96E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 45.9 | 16 | +8.03E-05 | |
| K-AA-616 | 02X7-17-A | Kelp | AM241 | -2.54E-05 | +4.56E-05 | Bq/g | 11/01/05 | 09/13/05 | 15 | 102.3 | 13 | +2.65E-05 | |
| K-AA-616 | 02X7-17-A | Kelp | U236 | -4.27E-06 | +2.05E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 108.1 | 04 | +3.67E-05 | |
| K-AA-617 | 02X7-18-A | Kelp | U234 | +1.53E-03 | +2.69E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 117.0 | 05 | +3.68E-05 | |
| K-AA-617 | 02X7-18-A | Kelp | U235 | +7.09E-05 | +3.76E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 117.0 | 05 | +3.77E-05 | |
| K-AA-617 | 02X7-18-A | Kelp | U238 | +1.36E-03 | +2.57E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 117.0 | 05 | +3.37E-05 | |
| K-AA-617 | 02X7-18-A | Kelp | PU238 | +1.45E-05 | +2.49E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 85.7 | 16 | +2.71E-05 | |
| K-AA-617 | 02X7-18-A | Kelp | PU239/240 | +1.46E-05 | +5.25E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 85.7 | 16 | +4.82E-05 | |
| K-AA-617 | 02X7-18-A | Kelp | AM241 | -1.42E-05 | +5.02E-05 | Bq/g | 11/01/05 | 09/13/05 | 15 | 93.4 | 14 | +2.41E-05 | |
| K-AA-617 | 02X7-18-A | Kelp | U236 | +8.51E-06 | +2.32E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 117.0 | 05 | +2.51E-05 | |
| K-AA-618 | 02X7-19-A | Kelp | U234 | +2.19E-03 | +5.71E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 25.7 | 06 | +1.36E-04 | |
| K-AA-618 | 02X7-19-A | Kelp | U235 | +4.88E-05 | +7.93E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 25.7 | 06 | +1.44E-04 | |
| K-AA-618 | 02X7-19-A | Kelp | U238 | +1.29E-03 | +3.97E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 25.7 | 06 | +2.02E-04 | |
| K-AA-618 | 02X7-19-A | Kelp | PU238 | +1.95E-05 | +3.26E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 22.7 | 10 | +5.29E-05 | |
| K-AA-618 | 02X7-19-A | Kelp | PU239/240 | +4.84E-05 | +1.03E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 22.7 | 10 | +1.68E-04 | |
| K-AA-618 | 02X7-19-A | Kelp | AM241 | +1.04E-05 | +7.58E-05 | Bq/g | 11/01/05 | 09/13/05 | 15 | 37.7 | 15 | +9.32E-05 | |
| K-AA-618 | 02X7-19-A | Kelp | U236 | -1.19E-05 | +2.77E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 25.7 | 06 | +1.36E-04 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC Case No: NA

Report No.: AmchitBatchF14 SDG No.: K-AA-610

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-AA-619 | 02X7-20-A | Kelp | U234 | +6.37E-03 | +9.12E-04 | Bq/g | 10/31/05 | 09/13/05 | 10 | 101.5 | 08 | +7.49E-05 | |
| K-AA-619 | 02X7-20-A | Kelp | U235 | +2.96E-04 | +9.38E-05 | Bq/g | 10/31/05 | 09/13/05 | 10 | 101.5 | 08 | +6.35E-05 | |
| K-AA-619 | 02X7-20-A | Kelp | U238 | +6.64E-03 | +1.03E-03 | Bq/g | 10/31/05 | 09/13/05 | 10 | 101.5 | 08 | +6.21E-05 | |
| K-AA-619 | 02X7-20-A | Kelp | PU238 | +1.04E-02 | +1.17E-03 | Bq/g | 10/31/05 | 09/13/05 | 10 | 64.3 | 07 | +7.38E-05 | |
| K-AA-619 | 02X7-20-A | Kelp | PU239/240 | +9.10E-03 | +1.04E-03 | Bq/g | 10/31/05 | 09/13/05 | 10 | 64.3 | 07 | +6.87E-05 | |
| K-AA-619 | 02X7-20-A | Kelp | AM241 | +1.41E-05 | +1.01E-04 | Bq/g | 10/31/05 | 09/13/05 | 10 | 118.2 | 04 | +7.14E-05 | |
| K-AA-619 | 02X7-20-A | Kelp | U236 | +1.65E-05 | +3.67E-05 | Bq/g | 10/31/05 | 09/13/05 | 10 | 101.5 | 08 | +2.24E-05 | |
| K-BB-600 | 02X7-01-A | Kelp | U234 | +3.95E-04 | +1.36E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.8 | 01 | +4.29E-05 | |
| K-BB-600 | 02X7-01-A | Kelp | U235 | +1.39E-05 | +3.21E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.8 | 01 | +5.40E-05 | |
| K-BB-600 | 02X7-01-A | Kelp | U238 | +3.05E-04 | +1.06E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.8 | 01 | +4.61E-05 | |
| K-BB-600 | 02X7-01-A | Kelp | PU238 | -1.27E-05 | +2.50E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 28.3 | 09 | +1.09E-04 | |
| K-BB-600 | 02X7-01-A | Kelp | PU239/240 | -2.01E-05 | +2.79E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 28.3 | 09 | +1.51E-04 | |
| K-BB-600 | 02X7-01-A | Kelp | AM241 | -1.76E-05 | +4.91E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 92.9 | 09 | +3.65E-05 | |
| K-BB-600 | 02X7-01-A | Kelp | U236 | -3.04E-06 | +1.99E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.8 | 01 | +3.48E-05 | |
| K-BB-601 | 02X7-02-A | Kelp | U234 | +1.09E-03 | +2.23E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 91.1 | 03 | +3.32E-05 | |
| K-BB-601 | 02X7-02-A | Kelp | U235 | +3.38E-05 | +5.29E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 91.1 | 03 | +5.15E-05 | |
| K-BB-601 | 02X7-02-A | Kelp | U238 | +9.99E-04 | +2.10E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 91.1 | 03 | +3.74E-05 | |
| K-BB-601 | 02X7-02-A | Kelp | PU238 | +6.35E-06 | +1.68E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 70.0 | 10 | +1.72E-05 | |
| K-BB-601 | 02X7-02-A | Kelp | PU239/240 | +4.00E-05 | +3.91E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 70.0 | 10 | +5.76E-05 | |
| K-BB-601 | 02X7-02-A | Kelp | AM241 | -2.64E-05 | +4.53E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 81.9 | 10 | +1.48E-05 | |
| K-BB-601 | 02X7-02-A | Kelp | U236 | +7.63E-06 | +2.27E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 91.1 | 03 | +4.68E-05 | |

See Key for Form I.

Comments:

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF14

SDG No.: K-AA-610

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-BB-602 | 02X7-03-A | Kelp | U234 | +1.17E-03 | +2.35E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 103.8 | 04 | +5.28E-05 | |
| K-BB-602 | 02X7-03-A | Kelp | U235 | +5.74E-05 | +3.67E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 103.8 | 04 | +4.81E-05 | |
| K-BB-602 | 02X7-03-A | Kelp | U238 | +1.25E-03 | +2.48E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 103.8 | 04 | +4.18E-05 | |
| K-BB-602 | 02X7-03-A | Kelp | PU238 | +1.14E-05 | +2.24E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 57.7 | 11 | +4.77E-05 | |
| K-BB-602 | 02X7-03-A | Kelp | PU239/240 | +8.85E-05 | +5.11E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 57.7 | 11 | +7.76E-05 | |
| K-BB-602 | 02X7-03-A | Kelp | AM241 | -2.63E-05 | +4.53E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 98.8 | 11 | +3.15E-05 | |
| K-BB-602 | 02X7-03-A | Kelp | U236 | -4.45E-06 | +2.06E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 103.8 | 04 | +3.82E-05 | |
| K-BB-603 | 02X7-04-A | Kelp | U234 | +4.23E-04 | +1.40E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.7 | 05 | +4.33E-05 | |
| K-BB-603 | 02X7-04-A | Kelp | U235 | +2.71E-05 | +4.40E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.7 | 05 | +3.71E-05 | |
| K-BB-603 | 02X7-04-A | Kelp | U238 | +4.50E-04 | +1.29E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.7 | 05 | +3.95E-05 | |
| K-BB-603 | 02X7-04-A | Kelp | PU238 | +7.78E-06 | +1.84E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 70.4 | 12 | +4.45E-05 | |
| K-BB-603 | 02X7-04-A | Kelp | PU239/240 | +7.53E-06 | +4.58E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 70.4 | 12 | +4.87E-05 | |
| K-BB-603 | 02X7-04-A | Kelp | AM241 | -6.47E-06 | +4.63E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 103.7 | 12 | +2.26E-05 | |
| K-BB-603 | 02X7-04-A | Kelp | U236 | +4.22E-06 | +2.04E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 99.7 | 05 | +2.94E-05 | |
| K-BB-604 | 02X7-05-A | Kelp | U234 | +1.12E-03 | +2.29E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.8 | 06 | +3.41E-05 | |
| K-BB-604 | 02X7-05-A | Kelp | U235 | +5.96E-05 | +3.67E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.8 | 06 | +4.29E-05 | |
| K-BB-604 | 02X7-05-A | Kelp | U238 | +9.33E-04 | +2.02E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.8 | 06 | +4.80E-05 | |
| K-BB-604 | 02X7-05-A | Kelp | PU238 | -4.55E-07 | +1.40E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 64.8 | 13 | +5.13E-05 | |
| K-BB-604 | 02X7-05-A | Kelp | PU239/240 | +2.57E-05 | +6.47E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 64.8 | 13 | +5.87E-05 | |
| K-BB-604 | 02X7-05-A | Kelp | AM241 | -9.20E-06 | +5.35E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.1 | 13 | +2.99E-05 | |
| K-BB-604 | 02X7-05-A | Kelp | U236 | +8.19E-06 | +2.31E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.8 | 06 | +3.41E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF14

SDG No.: K-AA-610

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-BB-605 | 02X7-06-A | Kelp | U234 | +1.08E-03 | +2.24E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 104.2 | 01 | +4.55E-05 | |
| K-BB-605 | 02X7-06-A | Kelp | U235 | +8.98E-05 | +4.40E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 104.2 | 01 | +5.73E-05 | |
| K-BB-605 | 02X7-06-A | Kelp | U238 | +9.69E-04 | +2.07E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 104.2 | 01 | +4.83E-05 | |
| K-BB-605 | 02X7-06-A | Kelp | PU238 | +5.73E-06 | +1.63E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 76.3 | 14 | +1.55E-05 | |
| K-BB-605 | 02X7-06-A | Kelp | PU239/240 | +1.76E-05 | +5.20E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 76.3 | 14 | +3.94E-05 | |
| K-BB-605 | 02X7-06-A | Kelp | AM241 | -1.55E-05 | +4.95E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 100.8 | 14 | +2.23E-05 | |
| K-BB-605 | 02X7-06-A | Kelp | U236 | +4.13E-06 | +2.03E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 104.2 | 01 | +2.87E-05 | |
| K-BB-606 | 02X7-07-A | Kelp | U234 | +2.06E-03 | +3.51E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 95.3 | 02 | +3.01E-05 | |
| K-BB-606 | 02X7-07-A | Kelp | U235 | +1.60E-04 | +5.81E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 95.3 | 02 | +5.99E-05 | |
| K-BB-606 | 02X7-07-A | Kelp | U238 | +2.11E-03 | +3.77E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 95.3 | 02 | +3.59E-05 | |
| K-BB-606 | 02X7-07-A | Kelp | PU238 | -3.14E-06 | +1.48E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 73.5 | 15 | +3.59E-05 | |
| K-BB-606 | 02X7-07-A | Kelp | PU239/240 | +3.62E-05 | +3.65E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 73.5 | 15 | +4.05E-05 | |
| K-BB-606 | 02X7-07-A | Kelp | AM241 | -2.99E-05 | +4.47E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 103.8 | 15 | +2.56E-05 | |
| K-BB-606 | 02X7-07-A | Kelp | U236 | +1.17E-06 | +1.93E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 95.3 | 02 | +4.04E-05 | |
| K-BB-607 | 02X7-08-A | Kelp | U234 | +9.89E-04 | +2.11E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 90.6 | 03 | +4.71E-05 | |
| K-BB-607 | 02X7-08-A | Kelp | U235 | +3.59E-05 | +5.40E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 90.6 | 03 | +4.74E-05 | |
| K-BB-607 | 02X7-08-A | Kelp | U238 | +8.67E-04 | +1.91E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 90.6 | 03 | +5.21E-05 | |
| K-BB-607 | 02X7-08-A | Kelp | PU238 | +1.31E-05 | +2.38E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 85.3 | 16 | +3.26E-05 | |
| K-BB-607 | 02X7-08-A | Kelp | PU239/240 | +3.90E-05 | +3.67E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 85.3 | 16 | +4.32E-05 | |
| K-BB-607 | 02X7-08-A | Kelp | AM241 | -1.49E-05 | +5.05E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 105.4 | 09 | +3.22E-05 | |
| K-BB-607 | 02X7-08-A | Kelp | U236 | +1.64E-05 | +2.24E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 90.6 | 03 | +1.48E-05 | |

See Key for Form I.

Comments:

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF14

SDG No.: K-AA-610

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-BB-608 | 02X7-09-A | Kelp | U234 | +7.71E-04 | +1.84E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.3 | 04 | +5.36E-05 | |
| K-BB-608 | 02X7-09-A | Kelp | U235 | +5.45E-05 | +7.04E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.3 | 04 | +5.74E-05 | |
| K-BB-608 | 02X7-09-A | Kelp | U238 | +7.71E-04 | +1.77E-04 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.3 | 04 | +4.24E-05 | |
| K-BB-608 | 02X7-09-A | Kelp | PU238 | -5.75E-06 | +1.68E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 62.5 | 09 | +4.94E-05 | |
| K-BB-608 | 02X7-09-A | Kelp | PU239/240 | +1.03E-04 | +5.16E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 62.5 | 09 | +6.84E-05 | |
| K-BB-608 | 02X7-09-A | Kelp | AM241 | -4.63E-06 | +4.63E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 98.5 | 10 | +1.23E-05 | |
| K-BB-608 | 02X7-09-A | Kelp | U236 | -4.51E-06 | +2.06E-05 | Bq/g | 10/31/05 | 09/13/05 | 15 | 102.3 | 04 | +3.87E-05 | |
| K-BB-609 | 02X7-10-A | Kelp | U234 | +7.64E-03 | +1.00E-03 | Bq/g | 10/31/05 | 09/13/05 | 14 | 105.4 | 05 | +4.73E-05 | |
| K-BB-609 | 02X7-10-A | Kelp | U235 | +4.47E-04 | +1.06E-04 | Bq/g | 10/31/05 | 09/13/05 | 14 | 105.4 | 05 | +5.96E-05 | |
| K-BB-609 | 02X7-10-A | Kelp | U238 | +7.49E-03 | +1.09E-03 | Bq/g | 10/31/05 | 09/13/05 | 14 | 105.4 | 05 | +3.57E-05 | |
| K-BB-609 | 02X7-10-A | Kelp | PU238 | -1.40E-05 | +2.73E-05 | Bq/g | 10/31/05 | 09/13/05 | 14 | 40.8 | 08 | +1.60E-04 | |
| K-BB-609 | 02X7-10-A | Kelp | PU239/240 | -2.32E-05 | +3.04E-05 | Bq/g | 10/31/05 | 09/13/05 | 14 | 40.8 | 08 | +1.85E-04 | |
| K-BB-609 | 02X7-10-A | Kelp | AM241 | +1.59E-05 | +8.01E-05 | Bq/g | 10/31/05 | 09/13/05 | 14 | 108.7 | 08 | +6.27E-05 | |
| K-BB-609 | 02X7-10-A | Kelp | U236 | +1.60E-05 | +3.11E-05 | Bq/g | 10/31/05 | 09/13/05 | 14 | 105.4 | 05 | +2.99E-05 | |

See Key for Form I.

Comments: _____

# RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF14

SDG No.: K-AA-610

| QC Sample ID | Sample Type | Anal Type | Sample Value | Sample Uncer +/- | Known Value | Known Uncer+/- | Units | LCS Recov | Anal Date | Chem Yield | Det ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REAGENT | BLK | U234 | +2.89E-03 | +1.03E-03 | NA | NA | Bq/spl | NA% | 10/31/2005 | 51.6% | 02 | +8.33E-04 | |
| REAGENT | BLK | U235 | -2.19E-04 | -3.61E-04 | NA | NA | Bq/spl | NA% | 10/31/2005 | 51.6% | 02 | +1.54E-03 | |
| REAGENT | BLK | U238 | +1.46E-03 | +6.80E-04 | NA | NA | Bq/spl | NA% | 10/31/2005 | 51.6% | 02 | +4.41E-04 | |
| REAGENT | BLK | PU238 | -1.29E-04 | -2.10E-04 | NA | NA | Bq/spl | NA% | 10/31/2005 | 41.8% | 11 | +1.11E-03 | |
| REAGENT | BLK | PU239/240 | +2.69E-04 | +4.16E-04 | NA | NA | Bq/spl | NA% | 10/31/2005 | 41.8% | 11 | +1.30E-03 | |
| REAGENT | BLK | AM241 | +4.78E-04 | +6.69E-04 | NA | NA | Bq/spl | NA% | 11/01/2005 | 49.9% | 16 | +8.42E-04 | |
| REAGENT | BLK | U236 | -1.73E-04 | -2.89E-04 | NA | NA | Bq/spl | NA% | 10/31/2005 | 51.6% | 02 | +1.22E-03 | |
| REAGENT | LCS | U238 | +1.95E-01 | +3.39E-02 | +1.99E-01 | NA | Bq/mL | 97.9% | 10/31/2005 | 50.3% | 08 | +1.74E-03 | |
| REAGENT | LCS | PU239/240 | +1.44E-01 | +2.01E-02 | +1.50E-01 | NA | Bq/mL | 96.0% | 10/31/2005 | 39.3% | 07 | +2.29E-03 | |
| REAGENT | LCS | AM241 | +1.40E-01 | +1.63E-02 | +1.55E-01 | NA | Bq/mL | 90.3% | 11/02/2005 | 63.5% | 08 | +4.00E-03 | |

See Key for Form II.

Comments: _____

Project: **Alpha Analysis for Amchitka Island (Batch 14)**
Laboratory: RTC
Report #: AmchitBatchF14
SDG#: K-AA-610

## Summary of 2 and 3 sigma activities

Below are the results for U234, U235, U236, U238, Pu238, Pu239/240, and Am241 for Batch 13 from the Amchitka Island Project that had a result/uncertainty ratio of 2 or more (uncertainty @ one sigma).

| Customer ID | Lab ID | Isotope | Result Bq/g | Uncertainty Bq/g | MDA | Result/ Uncertainty |
|---|---|---|---|---|---|---|
| K-AA-610 | 02X7-11-A | U234 | 1.95E-03 | 3.36E-04 | 3.99E-05 | 5.8 |
| K-AA-610 | 02X7-11-A | U238 | 1.89E-03 | 3.46E-04 | 4.99E-05 | 5.5 |
| K-AA-611 | 02X7-12-A | U234 | 9.72E-04 | 2.12E-04 | 4.42E-05 | 4.6 |
| K-AA-611 | 02X7-12-A | U238 | 6.10E-04 | 1.55E-04 | 5.05E-05 | 3.9 |
| K-AA-612 | 02X7-13-A | U234 | 9.21E-04 | 2.06E-04 | 4.45E-05 | 4.5 |
| K-AA-612 | 02X7-13-A | U238 | 1.09E-03 | 2.29E-04 | 5.09E-05 | 4.8 |
| K-AA-614 | 02X7-15-A | U234 | 1.47E-03 | 2.69E-04 | 4.58E-05 | 5.5 |
| K-AA-614 | 02X7-15-A | U238 | 1.43E-03 | 2.72E-04 | 5.07E-05 | 5.3 |
| K-AA-615 | 02X7-16-A | U234 | 1.04E-03 | 2.22E-04 | 3.04E-05 | 4.7 |
| K-AA-615 | 02X7-16-A | U238 | 7.67E-04 | 1.79E-04 | 3.63E-05 | 4.3 |
| K-AA-616 | 02X7-17-A | U234 | 1.25E-03 | 2.43E-04 | 4.84E-05 | 5.1 |
| K-AA-616 | 02X7-17-A | U235 | 9.38E-05 | 4.35E-05 | 5.05E-05 | 2.2 |
| K-AA-616 | 02X7-17-A | U238 | 9.79E-04 | 2.06E-04 | 3.26E-05 | 4.8 |
| K-AA-617 | 02X7-18-A | U234 | 1.53E-03 | 2.69E-04 | 3.68E-05 | 5.7 |
| K-AA-617 | 02X7-18-A | U238 | 1.36E-03 | 2.57E-04 | 3.37E-05 | 5.3 |
| K-AA-618 | 02X7-19-A | U234 | 2.19E-03 | 5.71E-04 | 1.36E-04 | 3.8 |
| K-AA-618 | 02X7-19-A | U238 | 1.29E-03 | 3.97E-04 | 2.02E-04 | 3.2 |
| K-AA-619 | 02X7-20-A | PU238 | 1.04E-02 | 1.17E-03 | 7.38E-05 | 8.9 |
| K-AA-619 | 02X7-20-A | PU239/240 | 9.10E-03 | 1.04E-03 | 6.87E-05 | 8.8 |
| K-AA-619 | 02X7-20-A | U234 | 6.37E-03 | 9.12E-04 | 7.49E-05 | 7.0 |
| K-AA-619 | 02X7-20-A | U235 | 2.96E-04 | 9.38E-05 | 6.35E-05 | 3.2 |
| K-AA-619 | 02X7-20-A | U238 | 6.64E-03 | 1.03E-03 | 6.21E-05 | 6.4 |
| K-BB-600 | 02X7-01-A | U234 | 3.95E-04 | 1.36E-04 | 4.29E-05 | 2.9 |
| K-BB-600 | 02X7-01-A | U238 | 3.05E-04 | 1.06E-04 | 4.61E-05 | 2.9 |

**Alpha Analysis for Amchitka Island (Batch 14)**
**Summary of 2 and 3 sigma activities**
page 2

| Customer ID | Lab ID | Isotope | Result Bq/g | Uncertainty Bq/g | MDA | Result/ Uncertainty |
|---|---|---|---|---|---|---|
| K-BB-601 | 02X7-02-A | U234 | 1.09E-03 | 2.23E-04 | 3.32E-05 | 4.9 |
| K-BB-601 | 02X7-02-A | U238 | 9.99E-04 | 2.10E-04 | 3.74E-05 | 4.8 |
| K-BB-602 | 02X7-03-A | U234 | 1.17E-03 | 2.35E-04 | 5.28E-05 | 5.0 |
| K-BB-602 | 02X7-03-A | U238 | 1.25E-03 | 2.48E-04 | 4.18E-05 | 5.0 |
| K-BB-603 | 02X7-04-A | U234 | 4.23E-04 | 1.40E-04 | 4.33E-05 | 3.0 |
| K-BB-603 | 02X7-04-A | U238 | 4.50E-04 | 1.29E-04 | 3.95E-05 | 3.5 |
| K-BB-604 | 02X7-05-A | U234 | 1.12E-03 | 2.29E-04 | 3.41E-05 | 4.9 |
| K-BB-604 | 02X7-05-A | U238 | 9.33E-04 | 2.02E-04 | 4.80E-05 | 4.6 |
| K-BB-605 | 02X7-06-A | U234 | 1.08E-03 | 2.24E-04 | 4.55E-05 | 4.8 |
| K-BB-605 | 02X7-06-A | U235 | 8.98E-05 | 4.40E-05 | 5.73E-05 | 2.0 |
| K-BB-605 | 02X7-06-A | U238 | 9.69E-04 | 2.07E-04 | 4.83E-05 | 4.7 |
| K-BB-606 | 02X7-07-A | U234 | 2.06E-03 | 3.51E-04 | 3.01E-05 | 5.9 |
| K-BB-606 | 02X7-07-A | U235 | 1.60E-04 | 5.81E-05 | 5.99E-05 | 2.8 |
| K-BB-606 | 02X7-07-A | U238 | 2.11E-03 | 3.77E-04 | 3.59E-05 | 5.6 |
| K-BB-607 | 02X7-08-A | U234 | 9.89E-04 | 2.11E-04 | 4.71E-05 | 4.7 |
| K-BB-607 | 02X7-08-A | U238 | 8.67E-04 | 1.91E-04 | 5.21E-05 | 4.5 |
| K-BB-608 | 02X7-09-A | PU239/240 | 1.03E-04 | 5.16E-05 | 6.84E-05 | 2.0 |
| K-BB-608 | 02X7-09-A | U234 | 7.71E-04 | 1.84E-04 | 5.36E-05 | 4.2 |
| K-BB-608 | 02X7-09-A | U238 | 7.71E-04 | 1.77E-04 | 4.24E-05 | 4.4 |
| K-BB-609 | 02X7-10-A | U234 | 7.64E-03 | 1.00E-03 | 4.73E-05 | 7.6 |
| K-BB-609 | 02X7-10-A | U235 | 4.47E-04 | 1.06E-04 | 5.96E-05 | 4.2 |
| K-BB-609 | 02X7-10-A | U238 | 7.49E-03 | 1.09E-03 | 3.57E-05 | 6.9 |

All known sources of uncertainty are included in the uncertainty term. There may be unknown sources of uncertainty that are not accounted for. If the result/uncertainty ratio is more than 3, we have a degree of confidence that the result is positive (i.e. the result is statistically different than zero). A result with the result/uncertainty ratio between 2 and 3 is the first indication that an isotope may be present and further investigation may be warranted.

As with any good science no single data point is used in important decisions (results need to be reproducible).

# COVER PAGE
## RADIOANALYTICAL ANALYSES DATA PACKAGE

| | | | |
|---|---|---|---|
| Project Title: | Amchitka Island Alpha Analysis Report (Batch 15) | | |
| Lab Name: | RTC | Case No: | NA |
| Report No.: | AmchitBatchF15 | Method Type: | A/B |
| Approved SAP No.: | NA | SDG No.: | K-EE-620 |

## SAMPLE NUMBERS

| Customer Sample ID | Lab Sample ID |
|---|---|
| K-EE-620 | 02XP-01-A |
| K-EE-621 | 02XP-02-A |
| K-EE-622 | 02XP-03-A |
| K-EE-623 | 02XP-04-A |
| K-EE-624 | 02XP-05-A |
| K-EE-625 | 02XP-06-A |
| K-EE-626 | 02XP-07-A |
| K-EE-627 | 02XP-08-A |
| K-EE-628 | 02XP-09-A |
| K-EE-638 | 02XP-19-A |
| K-FF-629 | 02XP-10-A |
| K-GG-630 | 02XP-11-A |
| K-GG-631 | 02XP-12-A |
| K-GG-632 | 02XP-13-A |
| K-GG-633 | 02XP-14-A |
| K-GG-634 | 02XP-15-A |
| K-HH-635 | 02XP-16-A |
| K-HH-636 | 02XP-17-A |
| K-HH-637 | 02XP-18-A |
| K-HH-639 | 02XP-20-A |

Comments:

Release of the data contained in this data package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature:

| | | | |
|---|---|---|---|
| Signature: | B.K. Schuft for J.G.E. | Name: | J. G. Eisenmenger |
| Title: | Technical Leader | Date: | 11/22/2005 |

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF15

SDG No.: K-EE-620

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-EE-620 | 02XP-01-A | Kelp | U234 | +3.55E-04 | +1.44E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 104.9 | 02 | +3.67E-05 | |
| K-EE-620 | 02XP-01-A | Kelp | U235 | +1.07E-05 | +3.59E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 104.9 | 02 | +4.63E-05 | |
| K-EE-620 | 02XP-01-A | Kelp | U238 | +2.94E-04 | +1.02E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 104.9 | 02 | +4.85E-05 | |
| K-EE-620 | 02XP-01-A | Kelp | PU238 | -6.47E-06 | +7.26E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 78.4 | 09 | +3.50E-05 | |
| K-EE-620 | 02XP-01-A | Kelp | PU239/240 | +4.05E-05 | +2.84E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 78.4 | 09 | +4.31E-05 | |
| K-EE-620 | 02XP-01-A | Kelp | AM241 | -6.86E-06 | +1.15E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 97.1 | 09 | +3.20E-05 | |
| K-EE-620 | 02XP-01-A | Kelp | U236 | +2.49E-06 | +8.49E-06 | Bq/g | 11/09/05 | 09/20/05 | 15 | 104.9 | 02 | +3.26E-05 | |
| K-EE-621 | 02XP-02-A | Kelp | U234 | +3.16E-04 | +1.35E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.6 | 03 | +3.73E-05 | |
| K-EE-621 | 02XP-02-A | Kelp | U235 | +1.19E-05 | +3.71E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.6 | 03 | +4.36E-05 | |
| K-EE-621 | 02XP-02-A | Kelp | U238 | +2.98E-04 | +9.83E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.6 | 03 | +3.46E-05 | |
| K-EE-621 | 02XP-02-A | Kelp | PU238 | -2.36E-06 | +5.60E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 84.8 | 10 | +3.60E-05 | |
| K-EE-621 | 02XP-02-A | Kelp | PU239/240 | +8.84E-06 | +3.09E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 84.8 | 10 | +2.68E-05 | |
| K-EE-621 | 02XP-02-A | Kelp | AM241 | +9.66E-06 | +2.64E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.6 | 10 | +2.85E-05 | |
| K-EE-621 | 02XP-02-A | Kelp | U236 | +3.07E-06 | +8.95E-06 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.6 | 03 | +3.73E-05 | |
| K-EE-622 | 02XP-03-A | Kelp | U234 | +5.01E-04 | +1.62E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.7 | 04 | +3.68E-05 | |
| K-EE-622 | 02XP-03-A | Kelp | U235 | -2.77E-06 | +2.12E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.7 | 04 | +4.64E-05 | |
| K-EE-622 | 02XP-03-A | Kelp | U238 | +5.39E-04 | +1.39E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.7 | 04 | +2.74E-05 | |
| K-EE-622 | 02XP-03-A | Kelp | PU238 | +7.42E-06 | +1.54E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 83.2 | 11 | +1.46E-05 | |
| K-EE-622 | 02XP-03-A | Kelp | PU239/240 | +7.31E-05 | +3.31E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 83.2 | 11 | +3.31E-05 | |
| K-EE-622 | 02XP-03-A | Kelp | AM241 | +5.80E-06 | +1.43E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 100.1 | 11 | +1.22E-05 | |
| K-EE-622 | 02XP-03-A | Kelp | U236 | +1.18E-05 | +1.95E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 107.7 | 04 | +3.68E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF15

SDG No.: K-EE-620

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-EE-623 | 02XP-04-A | Kelp | U234 | +7.52E-04 | +1.91E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 112.1 | 05 | +3.85E-05 | |
| K-EE-623 | 02XP-04-A | Kelp | U235 | +3.26E-05 | +2.76E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 112.1 | 05 | +3.30E-05 | |
| K-EE-623 | 02XP-04-A | Kelp | U238 | +6.57E-04 | +1.56E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 112.1 | 05 | +3.52E-05 | |
| K-EE-623 | 02XP-04-A | Kelp | PU238 | -6.27E-06 | +7.03E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 95.7 | 12 | +4.09E-05 | |
| K-EE-623 | 02XP-04-A | Kelp | PU239/240 | -5.01E-06 | +1.85E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 95.7 | 12 | +3.27E-05 | |
| K-EE-623 | 02XP-04-A | Kelp | AM241 | -6.11E-06 | +1.17E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 109.0 | 12 | +3.62E-05 | |
| K-EE-623 | 02XP-04-A | Kelp | U236 | +3.76E-06 | +9.56E-06 | Bq/g | 11/09/05 | 09/20/05 | 15 | 112.1 | 05 | +2.62E-05 | |
| K-EE-624 | 02XP-05-A | Kelp | U234 | +5.47E-04 | +1.69E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 104.5 | 06 | +4.13E-05 | |
| K-EE-624 | 02XP-05-A | Kelp | U235 | +3.57E-05 | +2.89E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 104.5 | 06 | +3.54E-05 | |
| K-EE-624 | 02XP-05-A | Kelp | U238 | +3.81E-04 | +1.16E-04 | Bq/g | 11/09/05 | 09/20/05 | 15 | 104.5 | 06 | +4.13E-05 | |
| K-EE-624 | 02XP-05-A | Kelp | PU238 | +3.85E-06 | +1.22E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 89.2 | 13 | +3.02E-05 | |
| K-EE-624 | 02XP-05-A | Kelp | PU239/240 | -2.47E-06 | +2.06E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 89.2 | 13 | +4.01E-05 | |
| K-EE-624 | 02XP-05-A | Kelp | AM241 | +3.40E-06 | +1.93E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 108.6 | 13 | +2.09E-05 | |
| K-EE-624 | 02XP-05-A | Kelp | U236 | +4.03E-06 | +9.83E-06 | Bq/g | 11/09/05 | 09/20/05 | 15 | 104.5 | 06 | +2.81E-05 | |
| K-EE-625 | 02XP-06-A | Kelp | U234 | +4.39E-04 | +1.56E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 103.7 | 01 | +4.57E-05 | |
| K-EE-625 | 02XP-06-A | Kelp | U235 | +3.47E-05 | +6.40E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 103.7 | 01 | +6.12E-05 | |
| K-EE-625 | 02XP-06-A | Kelp | U238 | +4.37E-04 | +1.25E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 103.7 | 01 | +3.45E-05 | |
| K-EE-625 | 02XP-06-A | Kelp | PU238 | +2.22E-07 | +7.75E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 88.2 | 14 | +2.53E-05 | |
| K-EE-625 | 02XP-06-A | Kelp | PU239/240 | -3.46E-06 | +1.97E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 88.2 | 14 | +3.03E-05 | |
| K-EE-625 | 02XP-06-A | Kelp | AM241 | +1.82E-05 | +1.71E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 97.1 | 14 | +2.32E-05 | |
| K-EE-625 | 02XP-06-A | Kelp | U236 | -1.20E-05 | +2.15E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 103.7 | 01 | +5.37E-05 | |

See Key for Form I.

Comments:

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF15

SDG No.: K-EE-620

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-EE-626 | 02XP-07-A | Kelp | U234 | +8.11E-04 | +2.04E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 97.4 | 02 | +4.33E-05 | |
| K-EE-626 | 02XP-07-A | Kelp | U235 | +5.09E-06 | +2.96E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 97.4 | 02 | +4.98E-05 | |
| K-EE-626 | 02XP-07-A | Kelp | U238 | +7.09E-04 | +1.70E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 97.4 | 02 | +5.47E-05 | |
| K-EE-626 | 02XP-07-A | Kelp | PU238 | +1.28E-06 | +9.03E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 85.9 | 15 | +3.78E-05 | |
| K-EE-626 | 02XP-07-A | Kelp | PU239/240 | -2.33E-06 | +2.07E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 85.9 | 15 | +4.07E-05 | |
| K-EE-626 | 02XP-07-A | Kelp | AM241 | -3.19E-08 | +1.62E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 108.4 | 15 | +3.01E-05 | |
| K-EE-626 | 02XP-07-A | Kelp | U236 | -3.07E-06 | +9.03E-06 | Bq/g | 11/12/05 | 09/20/05 | 15 | 97.4 | 02 | +3.52E-05 | |
| K-EE-627 | 02XP-08-A | Kelp | U234 | +6.48E-04 | +1.77E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 99.5 | 03 | +4.29E-05 | |
| K-EE-627 | 02XP-08-A | Kelp | U235 | +1.29E-06 | +2.52E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 99.5 | 03 | +4.72E-05 | |
| K-EE-627 | 02XP-08-A | Kelp | U238 | +6.71E-04 | +1.57E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 99.5 | 03 | +3.75E-05 | |
| K-EE-627 | 02XP-08-A | Kelp | PU238 | -6.43E-06 | +7.20E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 80.7 | 16 | +3.45E-05 | |
| K-EE-627 | 02XP-08-A | Kelp | PU239/240 | +1.45E-05 | +3.76E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 80.7 | 16 | +3.45E-05 | |
| K-EE-627 | 02XP-08-A | Kelp | AM241 | +1.00E-05 | +2.73E-05 | Bq/g | 11/09/05 | 09/20/05 | 15 | 88.9 | 16 | +3.14E-05 | |
| K-EE-627 | 02XP-08-A | Kelp | U236 | -6.66E-06 | +1.33E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 99.5 | 03 | +4.03E-05 | |
| K-EE-628 | 02XP-09-A | Kelp | U234 | +3.86E-04 | +1.48E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 107.5 | 04 | +4.34E-05 | |
| K-EE-628 | 02XP-09-A | Kelp | U235 | +1.75E-05 | +4.35E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 107.5 | 04 | +4.64E-05 | |
| K-EE-628 | 02XP-09-A | Kelp | U238 | +3.60E-04 | +1.12E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 107.5 | 04 | +3.69E-05 | |
| K-EE-628 | 02XP-09-A | Kelp | PU238 | -7.17E-06 | +8.07E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 95.6 | 09 | +3.23E-05 | |
| K-EE-628 | 02XP-09-A | Kelp | PU239/240 | +2.65E-05 | +2.42E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 95.6 | 09 | +3.53E-05 | |
| K-EE-628 | 02XP-09-A | Kelp | AM241 | +2.99E-06 | +1.95E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 92.2 | 09 | +3.36E-05 | |
| K-EE-628 | 02XP-09-A | Kelp | U236 | -5.73E-06 | +1.20E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 107.5 | 04 | +4.03E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF15

SDG No.: K-EE-620

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-EE-638 | 02XP-19-A | Kelp | U234 | +7.00E-04 | +2.05E-04 | Bq/g | 11/12/05 | 09/20/05 | 13.8 | 89.8 | 06 | +5.22E-05 | |
| K-EE-638 | 02XP-19-A | Kelp | U235 | +1.21E-05 | +3.92E-05 | Bq/g | 11/12/05 | 09/20/05 | 13.8 | 89.8 | 06 | +4.48E-05 | |
| K-EE-638 | 02XP-19-A | Kelp | U238 | +6.81E-04 | +1.75E-04 | Bq/g | 11/12/05 | 09/20/05 | 13.8 | 89.8 | 06 | +5.22E-05 | |
| K-EE-638 | 02XP-19-A | Kelp | PU238 | +5.75E-03 | +6.27E-04 | Bq/g | 11/12/05 | 09/20/05 | 13.8 | 80.0 | 07 | +3.73E-05 | |
| K-EE-638 | 02XP-19-A | Kelp | PU239/240 | +6.41E-03 | +6.88E-04 | Bq/g | 11/12/05 | 09/20/05 | 13.8 | 80.0 | 07 | +1.47E-05 | |
| K-EE-638 | 02XP-19-A | Kelp | AM241 | +3.47E-03 | +3.13E-04 | Bq/g | 11/12/05 | 09/20/05 | 13.8 | 98.9 | 07 | +3.32E-05 | |
| K-EE-638 | 02XP-19-A | Kelp | U236 | +5.10E-06 | +1.14E-05 | Bq/g | 11/12/05 | 09/20/05 | 13.8 | 89.8 | 06 | +3.55E-05 | |
| K-FF-629 | 02XP-10-A | Kelp | U234 | +2.79E-04 | +1.34E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 108.2 | 05 | +3.99E-05 | |
| K-FF-629 | 02XP-10-A | Kelp | U235 | +1.40E-05 | +3.80E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 108.2 | 05 | +3.41E-05 | |
| K-FF-629 | 02XP-10-A | Kelp | U238 | +2.64E-04 | +9.68E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 108.2 | 05 | +3.64E-05 | |
| K-FF-629 | 02XP-10-A | Kelp | PU238 | +8.04E-06 | +1.79E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 85.3 | 10 | +3.58E-05 | |
| K-FF-629 | 02XP-10-A | Kelp | PU239/240 | +2.43E-05 | +2.34E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 85.3 | 10 | +2.66E-05 | |
| K-FF-629 | 02XP-10-A | Kelp | AM241 | +2.15E-05 | +3.74E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 94.4 | 10 | +3.25E-05 | |
| K-FF-629 | 02XP-10-A | Kelp | U236 | +6.37E-06 | +1.25E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 108.2 | 05 | +3.64E-05 | |
| K-GG-630 | 02XP-11-A | Kelp | U234 | +4.85E-04 | +1.65E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 96.3 | 06 | +4.48E-05 | |
| K-GG-630 | 02XP-11-A | Kelp | U235 | +1.71E-05 | +4.18E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 96.3 | 06 | +3.84E-05 | |
| K-GG-630 | 02XP-11-A | Kelp | U238 | +4.75E-04 | +1.34E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 96.3 | 06 | +4.48E-05 | |
| K-GG-630 | 02XP-11-A | Kelp | PU238 | -6.55E-06 | +7.34E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 76.6 | 11 | +3.59E-05 | |
| K-GG-630 | 02XP-11-A | Kelp | PU239/240 | +3.79E-06 | +2.68E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 76.6 | 11 | +3.59E-05 | |
| K-GG-630 | 02XP-11-A | Kelp | AM241 | +1.87E-06 | +1.70E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 93.8 | 11 | +1.31E-05 | |
| K-GG-630 | 02XP-11-A | Kelp | U236 | +4.37E-06 | +1.02E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 96.3 | 06 | +3.04E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF15

SDG No.: K-EE-620

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-GG-631 | 02XP-12-A | Kelp | U234 | +2.50E-04 | +1.24E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 94.8 | 07 | +3.17E-05 | |
| K-GG-631 | 02XP-12-A | Kelp | U235 | +1.57E-05 | +2.23E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 94.8 | 07 | +1.44E-05 | |
| K-GG-631 | 02XP-12-A | Kelp | U238 | +3.41E-04 | +1.02E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 94.8 | 07 | +2.90E-05 | |
| K-GG-631 | 02XP-12-A | Kelp | PU238 | -6.61E-06 | +7.40E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 85.6 | 12 | +4.58E-05 | |
| K-GG-631 | 02XP-12-A | Kelp | PU239/240 | +2.77E-05 | +2.50E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 85.6 | 12 | +3.66E-05 | |
| K-GG-631 | 02XP-12-A | Kelp | AM241 | -1.42E-06 | +1.49E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 100.8 | 12 | +3.91E-05 | |
| K-GG-631 | 02XP-12-A | Kelp | U236 | +4.22E-06 | +9.84E-06 | Bq/g | 11/12/05 | 09/20/05 | 15 | 94.8 | 07 | +1.14E-05 | |
| K-GG-632 | 02XP-13-A | Kelp | U234 | +7.95E-05 | +1.15E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 90.8 | 08 | +5.08E-05 | |
| K-GG-632 | 02XP-13-A | Kelp | U235 | -9.29E-06 | +1.73E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 90.8 | 08 | +5.44E-05 | |
| K-GG-632 | 02XP-13-A | Kelp | U238 | +8.76E-05 | +7.15E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 90.8 | 08 | +4.32E-05 | |
| K-GG-632 | 02XP-13-A | Kelp | PU238 | +9.62E-06 | +1.98E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 83.7 | 13 | +3.22E-05 | |
| K-GG-632 | 02XP-13-A | Kelp | PU239/240 | -1.00E-05 | +1.64E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 83.7 | 13 | +4.79E-05 | |
| K-GG-632 | 02XP-13-A | Kelp | AM241 | +1.53E-05 | +3.03E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 105.3 | 13 | +2.58E-05 | |
| K-GG-632 | 02XP-13-A | Kelp | U236 | +6.29E-06 | +1.21E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 90.8 | 08 | +1.70E-05 | |
| K-GG-633 | 02XP-14-A | Kelp | U234 | +3.30E-04 | +1.41E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 109.7 | 01 | +4.32E-05 | |
| K-GG-633 | 02XP-14-A | Kelp | U235 | -8.18E-06 | +1.76E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 109.7 | 01 | +5.79E-05 | |
| K-GG-633 | 02XP-14-A | Kelp | U238 | +3.60E-04 | +1.11E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 109.7 | 01 | +3.26E-05 | |
| K-GG-633 | 02XP-14-A | Kelp | PU238 | +8.78E-06 | +1.80E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 98.1 | 14 | +2.28E-05 | |
| K-GG-633 | 02XP-14-A | Kelp | PU239/240 | +4.74E-06 | +2.72E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 98.1 | 14 | +2.72E-05 | |
| K-GG-633 | 02XP-14-A | Kelp | AM241 | +1.26E-05 | +2.68E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 102.1 | 14 | +2.20E-05 | |
| K-GG-633 | 02XP-14-A | Kelp | U236 | -7.13E-06 | +1.39E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 109.7 | 01 | +4.32E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF15

SDG No.: K-EE-620

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-GG-634 | 02XP-15-A | Kelp | U234 | +1.59E-04 | +1.22E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 98.8 | 02 | +4.26E-05 | |
| K-GG-634 | 02XP-15-A | Kelp | U235 | +1.20E-05 | +3.76E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 98.8 | 02 | +4.91E-05 | |
| K-GG-634 | 02XP-15-A | Kelp | U238 | +2.50E-04 | +9.69E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 98.8 | 02 | +5.15E-05 | |
| K-GG-634 | 02XP-15-A | Kelp | PU238 | -3.75E-06 | +5.38E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 86.1 | 15 | +3.77E-05 | |
| K-GG-634 | 02XP-15-A | Kelp | PU239/240 | +2.78E-05 | +4.88E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 86.1 | 15 | +4.06E-05 | |
| K-GG-634 | 02XP-15-A | Kelp | AM241 | +9.20E-06 | +2.64E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 100.8 | 15 | +3.24E-05 | |
| K-GG-634 | 02XP-15-A | Kelp | U236 | +8.33E-06 | +1.49E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 98.8 | 02 | +3.47E-05 | |
| K-HH-635 | 02XP-16-A | Kelp | U234 | +8.12E-04 | +1.94E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 104.7 | 03 | +3.83E-05 | |
| K-HH-635 | 02XP-16-A | Kelp | U235 | +3.05E-05 | +5.40E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 104.7 | 03 | +4.49E-05 | |
| K-HH-635 | 02XP-16-A | Kelp | U238 | +5.80E-04 | +1.41E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 104.7 | 03 | +3.56E-05 | |
| K-HH-635 | 02XP-16-A | Kelp | PU238 | -7.18E-06 | +8.07E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 95.5 | 09 | +3.23E-05 | |
| K-HH-635 | 02XP-16-A | Kelp | PU239/240 | +3.60E-05 | +2.58E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 95.5 | 09 | +3.54E-05 | |
| K-HH-635 | 02XP-16-A | Kelp | AM241 | -5.68E-06 | +1.18E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 101.2 | 16 | +2.76E-05 | |
| K-HH-635 | 02XP-16-A | Kelp | U236 | -6.32E-06 | +1.28E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 104.7 | 03 | +3.83E-05 | |
| K-HH-636 | 02XP-17-A | Kelp | U234 | +4.82E-04 | +1.60E-04 | Bq/g | 11/08/05 | 09/20/05 | 15 | 106.9 | 04 | +4.36E-05 | |
| K-HH-636 | 02XP-17-A | Kelp | U235 | +1.58E-05 | +4.22E-05 | Bq/g | 11/08/05 | 09/20/05 | 15 | 106.9 | 04 | +5.11E-05 | |
| K-HH-636 | 02XP-17-A | Kelp | U238 | +5.25E-04 | +1.38E-04 | Bq/g | 11/08/05 | 09/20/05 | 15 | 106.9 | 04 | +3.71E-05 | |
| K-HH-636 | 02XP-17-A | Kelp | PU238 | -2.41E-06 | +5.58E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 88.5 | 10 | +3.44E-05 | |
| K-HH-636 | 02XP-17-A | Kelp | PU239/240 | +6.32E-05 | +3.02E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 88.5 | 10 | +2.56E-05 | |
| K-HH-636 | 02XP-17-A | Kelp | AM241 | +1.07E-05 | +2.78E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 102.4 | 09 | +3.03E-05 | |
| K-HH-636 | 02XP-17-A | Kelp | U236 | -3.60E-07 | +7.52E-06 | Bq/g | 11/08/05 | 09/20/05 | 15 | 106.9 | 04 | +4.05E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Report No.: AmchitBatchF15

Case No: NA

SDG No.: K-EE-620

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K-HH-637 | 02XP-18-A | Kelp | U234 | +4.02E-04 | +1.51E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 103.9 | 05 | +4.15E-05 | |
| K-HH-637 | 02XP-18-A | Kelp | U235 | +3.60E-05 | +2.90E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 103.9 | 05 | +3.56E-05 | |
| K-HH-637 | 02XP-18-A | Kelp | U238 | +5.23E-04 | +1.38E-04 | Bq/g | 11/12/05 | 09/20/05 | 15 | 103.9 | 05 | +3.79E-05 | |
| K-HH-637 | 02XP-18-A | Kelp | PU238 | +1.83E-06 | +9.42E-06 | Bq/g | 11/14/05 | 09/20/05 | 15 | 85.9 | 11 | +1.42E-05 | |
| K-HH-637 | 02XP-18-A | Kelp | PU239/240 | +2.85E-05 | +2.46E-05 | Bq/g | 11/14/05 | 09/20/05 | 15 | 85.9 | 11 | +3.21E-05 | |
| K-HH-637 | 02XP-18-A | Kelp | AM241 | +1.30E-05 | +3.07E-05 | Bq/g | 11/12/05 | 09/20/05 | 15 | 90.1 | 10 | +3.40E-05 | |
| K-HH-637 | 02XP-18-A | Kelp | U236 | +1.10E-06 | +7.70E-06 | Bq/g | 11/12/05 | 09/20/05 | 15 | 103.9 | 05 | +3.79E-05 | |
| K-HH-639 | 02XP-20-A | Kelp | U234 | +8.77E-04 | +2.34E-04 | Bq/g | 11/12/05 | 09/20/05 | 12.6 | 98.1 | 06 | +5.21E-05 | |
| K-HH-639 | 02XP-20-A | Kelp | U235 | +2.84E-05 | +5.51E-05 | Bq/g | 11/12/05 | 09/20/05 | 12.6 | 98.1 | 06 | +4.47E-05 | |
| K-HH-639 | 02XP-20-A | Kelp | U238 | +6.55E-04 | +1.72E-04 | Bq/g | 11/12/05 | 09/20/05 | 12.6 | 98.1 | 06 | +5.21E-05 | |
| K-HH-639 | 02XP-20-A | Kelp | PU238 | +6.78E-03 | +8.42E-04 | Bq/g | 11/14/05 | 09/20/05 | 12.6 | 74.7 | 08 | +1.27E-04 | |
| K-HH-639 | 02XP-20-A | Kelp | PU239/240 | +3.98E-03 | +5.44E-04 | Bq/g | 11/14/05 | 09/20/05 | 12.6 | 74.7 | 08 | +1.14E-04 | |
| K-HH-639 | 02XP-20-A | Kelp | AM241 | +4.78E-03 | +5.03E-04 | Bq/g | 11/12/05 | 09/20/05 | 12.6 | 86.6 | 08 | +1.10E-04 | |
| K-HH-639 | 02XP-20-A | Kelp | U236 | +1.20E-05 | +2.04E-05 | Bq/g | 11/12/05 | 09/20/05 | 12.6 | 98.1 | 06 | +3.54E-05 | |

See Key for Form I.

Comments: _____

# RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF15

SDG No.: K-EE-620

| QC Sample ID | Sample Type | Anal Type | Sample Value | Sample Uncer +/- | Known Value | Known Uncer+/- | Units | LCS Recov | Anal Date | Chem Yield | Det ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REAGENT | BLK | U234 | +4.16E-03 | +1.16E-03 | NA | NA | Bq/spl | NA% | 11/09/2005 | 77.0% | 01 | +9.82E-04 | |
| REAGENT | BLK | U235 | +1.63E-04 | +2.57E-04 | NA | NA | Bq/spl | NA% | 11/09/2005 | 77.0% | 01 | +1.30E-03 | |
| REAGENT | BLK | U238 | +1.53E-03 | +6.24E-04 | NA | NA | Bq/spl | NA% | 11/09/2005 | 77.0% | 01 | +6.97E-04 | |
| REAGENT | BLK | PU238 | +5.12E-05 | +8.03E-05 | NA | NA | Bq/spl | NA% | 11/12/2005 | 62.3% | 16 | +6.70E-04 | |
| REAGENT | BLK | PU239/240 | +1.61E-04 | +2.45E-04 | NA | NA | Bq/spl | NA% | 11/12/2005 | 62.3% | 16 | +6.71E-04 | |
| REAGENT | BLK | AM241 | +1.17E-04 | +1.71E-04 | NA | NA | Bq/spl | NA% | 11/08/2005 | 58.2% | 11 | +3.17E-04 | |
| REAGENT | BLK | U236 | -6.85E-05 | -1.12E-04 | NA | NA | Bq/spl | NA% | 11/09/2005 | 77.0% | 01 | +9.82E-04 | |
| REAGENT | LCS | U238 | +1.95E-01 | +2.98E-02 | +1.99E-01 | NA | Bq/mL | 97.9% | 11/09/2005 | 84.3% | 08 | +1.39E-03 | |
| REAGENT | LCS | PU239/240 | +1.71E-01 | +1.94E-02 | +1.50E-01 | NA | Bq/mL | 114.0% | 11/14/2005 | 66.3% | 07 | +4.91E-04 | |
| REAGENT | LCS | AM241 | +1.37E-01 | +1.15E-02 | +1.55E-01 | NA | Bq/mL | 88.3% | 11/09/2005 | 98.7% | 07 | +9.19E-04 | |

See Key for Form II.

Comments: _____

Project: **Alpha Analysis for Amchitka Island (Batch 15)**
Laboratory: RTC
Report #: AmchitBatchF15
SDG#: K-EE-620

## Summary of 2 and 3 sigma activities

Below are the results for U234, U235, U236, U238, Pu238, Pu239/240, and Am241 for Batch 13 from the Amchitka Island Project that had a result/uncertainty ratio of 2 or more (uncertainty @ one sigma).

| Customer ID | Lab ID | Isotope | Result Bq/g | Uncertainty Bq/g | MDA | Result/ Uncertainty |
|---|---|---|---|---|---|---|
| K-EE-620 | 02XP-01-A | U234 | 3.55E-04 | 1.44E-04 | 3.67E-05 | 2.5 |
| K-EE-620 | 02XP-01-A | U238 | 2.94E-04 | 1.02E-04 | 4.85E-05 | 2.9 |
| K-EE-621 | 02XP-02-A | U234 | 3.16E-04 | 1.35E-04 | 3.73E-05 | 2.3 |
| K-EE-621 | 02XP-02-A | U238 | 2.98E-04 | 9.83E-05 | 3.46E-05 | 3.0 |
| K-EE-622 | 02XP-03-A | U234 | 5.01E-04 | 1.62E-04 | 3.68E-05 | 3.1 |
| K-EE-622 | 02XP-03-A | U238 | 5.39E-04 | 1.39E-04 | 2.74E-05 | 3.9 |
| K-EE-622 | 02XP-03-A | PU239/240 | 7.31E-05 | 3.31E-05 | 3.31E-05 | 2.2 |
| K-EE-623 | 02XP-04-A | U234 | 7.52E-04 | 1.91E-04 | 3.85E-05 | 3.9 |
| K-EE-623 | 02XP-04-A | U238 | 6.57E-04 | 1.56E-04 | 3.52E-05 | 4.2 |
| K-EE-624 | 02XP-05-A | U234 | 5.47E-04 | 1.69E-04 | 4.13E-05 | 3.2 |
| K-EE-624 | 02XP-05-A | U238 | 3.81E-04 | 1.16E-04 | 4.13E-05 | 3.3 |
| K-EE-625 | 02XP-06-A | U234 | 4.39E-04 | 1.56E-04 | 4.57E-05 | 2.8 |
| K-EE-625 | 02XP-06-A | U238 | 4.37E-04 | 1.25E-04 | 3.45E-05 | 3.5 |
| K-EE-626 | 02XP-07-A | U234 | 8.11E-04 | 2.04E-04 | 4.33E-05 | 4.0 |
| K-EE-626 | 02XP-07-A | U238 | 7.09E-04 | 1.70E-04 | 5.47E-05 | 4.2 |
| K-EE-627 | 02XP-08-A | U234 | 6.48E-04 | 1.77E-04 | 4.29E-05 | 3.7 |
| K-EE-627 | 02XP-08-A | U238 | 6.71E-04 | 1.57E-04 | 3.75E-05 | 4.3 |
| K-EE-628 | 02XP-09-A | U234 | 3.86E-04 | 1.48E-04 | 4.34E-05 | 2.6 |
| K-EE-628 | 02XP-09-A | U238 | 3.60E-04 | 1.12E-04 | 3.69E-05 | 3.2 |
| K-EE-638 | 02XP-19-A | U234 | 7.00E-04 | 2.05E-04 | 5.22E-05 | 3.4 |
| K-EE-638 | 02XP-19-A | U238 | 6.81E-04 | 1.75E-04 | 5.22E-05 | 3.9 |
| K-EE-638 | 02XP-19-A | PU238 | 5.75E-03 | 6.27E-04 | 3.73E-05 | 9.2 |
| K-EE-638 | 02XP-19-A | PU239/240 | 6.41E-03 | 6.88E-04 | 1.47E-05 | 9.3 |
| K-EE-638 | 02XP-19-A | AM241 | 3.47E-03 | 3.13E-04 | 3.32E-05 | 11.1 |

**Alpha Analysis for Amchitka Island (Batch 15)**
**Summary of 2 and 3 sigma activities**
**page 2**

| Customer ID | Lab ID | Isotope | Result Bq/g | Uncertainty Bq/g | MDA | Result/ Uncertainty |
|---|---|---|---|---|---|---|
| K-FF-629 | 02XP-10-A | U234 | 2.79E-04 | 1.34E-04 | 3.99E-05 | 2.1 |
| K-FF-629 | 02XP-10-A | U238 | 2.64E-04 | 9.68E-05 | **3.64E-05** | 2.7 |
| K-GG-630 | 02XP-11-A | U234 | 4.85E-04 | 1.65E-04 | **4.48E-05** | 2.9 |
| K-GG-630 | 02XP-11-A | U238 | 4.75E-04 | 1.34E-04 | **4.48E-05** | 3.5 |
| K-GG-631 | 02XP-12-A | U234 | 2.50E-04 | 1.24E-04 | **3.17E-05** | 2.0 |
| K-GG-631 | 02XP-12-A | U238 | 3.41E-04 | 1.02E-04 | **2.90E-05** | 3.3 |
| K-GG-633 | 02XP-14-A | U234 | 3.30E-04 | 1.41E-04 | **4.32E-05** | 2.3 |
| K-GG-633 | 02XP-14-A | U238 | 3.60E-04 | 1.11E-04 | **3.26E-05** | 3.2 |
| K-GG-634 | 02XP-15-A | U238 | 2.50E-04 | 9.69E-05 | **5.15E-05** | 2.6 |
| K-HH-635 | 02XP-16-A | U234 | 8.12E-04 | 1.94E-04 | **3.83E-05** | 4.2 |
| K-HH-635 | 02XP-16-A | U238 | 5.80E-04 | 1.41E-04 | **3.56E-05** | 4.1 |
| K-HH-636 | 02XP-17-A | U234 | 4.82E-04 | 1.60E-04 | **4.36E-05** | 3.0 |
| K-HH-636 | 02XP-17-A | U238 | 5.25E-04 | 1.38E-04 | **3.71E-05** | 3.8 |
| K-HH-636 | 02XP-17-A | PU239/240 | 6.32E-05 | 3.02E-05 | **2.56E-05** | 2.1 |
| K-HH-637 | 02XP-18-A | U234 | 4.02E-04 | 1.51E-04 | **4.15E-09** | 2.7 |
| K-HH-637 | 02XP-18-A | U238 | 5.23E-04 | 1.38E-04 | **3.79E-05** | 3.8 |
| K-HH-639 | 02XP-20-A | U234 | 8.77E-04 | 2.34E-04 | **5.21E-05** | 3.7 |
| K-HH-639 | 02XP-20-A | U238 | 6.55E-04 | 1.72E-04 | **5.21E-05** | 3.8 |
| K-HH-639 | 02XP-20-A | PU238 | 6.78E-03 | 8.42E-04 | **1.27E-04** | 8.1 |
| K-HH-639 | 02XP-20-A | PU239/240 | 3.98E-03 | 5.44E-04 | **1.14E-04** | 7.3 |
| K-HH-639 | 02XP-20-A | AM241 | 4.78E-03 | 5.03E-04 | **1.10E-04** | 9.5 |

All known sources of uncertainty are included in the uncertainty term. There may be unknown sources of uncertainty that are not accounted for. If the result/uncertainty ratio is more than 3, we have a degree of confidence that the result is positive (i.e. the result is statistically different than zero). A result with the result/uncertainty ratio between 2 and 3 is the first indication that an isotope may be present and further investigation may be warranted.

As with any good science no single data point is used in important decisions (results need to be reproducible).

# COVER PAGE
## RADIOANALYTICAL ANALYSES DATA PACKAGE

Project Title: Amchitka Island Alpha Analysis Report (Batch 16)

Lab Name: RTC | Case No: NA

Report No.: AmchitBatchF16 | Method Type: A/B

Approved SAP No.: NA | SDG No.: S-II-640

## SAMPLE NUMBERS

| Customer Sample ID | Lab Sample ID |
|---|---|
| S-II-640 | 02YX-01-A |
| S-II-641 | 02YX-02-A |
| S-II-642 | 02YX-03-A |
| S-II-643 | 02YX-04-A |
| S-II-644 | 02YX-05-A |
| S-II-645 | 02YX-06-A |
| S-II-646 | 02YX-07-A |
| S-II-647 | 02YX-08-A |
| S-II-648 | 02YX-09-A |
| S-S-649 | 02YX-10-A |
| S-S-651 | 02YX-12-A |
| S-S-652 | 02YX-13-A |
| S-S-653 | 02YX-14-A |
| S-S-654 | 02YX-15-A |
| S-S-655 | 02YX-16-A |
| S-S-656 | 02YX-17-A |
| S-S-657 | 02YX-18-A |
| S-S-658 | 02YX-19-A |
| S-S-659 | 02YX-20-A |

Comments:

Release of the data contained in this data package has been authorized by the laboratory manager or the manager's designee, as verified by the following signature:

Signature: B.K. Schwartz for J.G.E. | Name: J. G. Eisenmenger

Title: Technical Leader | Date: 11/22/2005

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF16

SDG No.: S-II-640

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-II-640 | 02YX-01-A | SoftTiss | U234 | +4.43E-04 | +9.56E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.7 | 02 | +3.30E-05 | |
| S-II-640 | 02YX-01-A | SoftTiss | U235 | +8.17E-06 | +1.86E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.7 | 02 | +4.68E-05 | |
| S-II-640 | 02YX-01-A | SoftTiss | U238 | +4.26E-04 | +9.91E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.7 | 02 | +5.14E-05 | |
| S-II-640 | 02YX-01-A | SoftTiss | PU238 | -1.28E-05 | +1.46E-05 | Bq/g | 11/14/05 | 10/04/05 | 15 | 94.2 | 12 | +4.16E-05 | |
| S-II-640 | 02YX-01-A | SoftTiss | PU239/240 | +2.85E-06 | +3.75E-05 | Bq/g | 11/14/05 | 10/04/05 | 15 | 94.2 | 12 | +3.33E-05 | |
| S-II-640 | 02YX-01-A | SoftTiss | AM241 | +1.87E-05 | +3.29E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 96.3 | 09 | +3.22E-05 | |
| S-II-640 | 02YX-01-A | SoftTiss | U236 | -5.22E-06 | +6.04E-06 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.7 | 02 | +3.30E-05 | |
| S-II-641 | 02YX-02-A | SoftTiss | U234 | +4.60E-04 | +9.41E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.6 | 03 | +3.83E-05 | |
| S-II-641 | 02YX-02-A | SoftTiss | U235 | +4.14E-05 | +5.30E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.6 | 03 | +4.49E-05 | |
| S-II-641 | 02YX-02-A | SoftTiss | U238 | +3.98E-04 | +8.98E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.6 | 03 | +3.57E-05 | |
| S-II-641 | 02YX-02-A | SoftTiss | PU238 | -2.73E-06 | +8.28E-06 | Bq/g | 11/14/05 | 10/04/05 | 15 | 89.2 | 13 | +3.02E-05 | |
| S-II-641 | 02YX-02-A | SoftTiss | PU239/240 | +1.78E-05 | +5.25E-05 | Bq/g | 11/14/05 | 10/04/05 | 15 | 89.2 | 13 | +4.50E-05 | |
| S-II-641 | 02YX-02-A | SoftTiss | AM241 | +8.87E-06 | +2.23E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 98.4 | 10 | +3.11E-05 | |
| S-II-641 | 02YX-02-A | SoftTiss | U236 | -3.92E-06 | +4.55E-06 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.6 | 03 | +3.83E-05 | |
| S-II-642 | 02YX-03-A | SoftTiss | U234 | +3.12E-04 | +7.58E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.8 | 04 | +3.78E-05 | |
| S-II-642 | 02YX-03-A | SoftTiss | U235 | +8.33E-06 | +1.87E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.8 | 04 | +4.76E-05 | |
| S-II-642 | 02YX-03-A | SoftTiss | U238 | +2.76E-04 | +7.21E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.8 | 04 | +3.78E-05 | |
| S-II-642 | 02YX-03-A | SoftTiss | PU238 | -9.81E-06 | +1.07E-05 | Bq/g | 11/14/05 | 10/04/05 | 15 | 73.4 | 14 | +4.09E-05 | |
| S-II-642 | 02YX-03-A | SoftTiss | PU239/240 | +9.13E-06 | +4.34E-05 | Bq/g | 11/14/05 | 10/04/05 | 15 | 73.4 | 14 | +3.64E-05 | |
| S-II-642 | 02YX-03-A | SoftTiss | AM241 | +2.11E-05 | +1.51E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 101.4 | 11 | +1.21E-05 | |
| S-II-642 | 02YX-03-A | SoftTiss | U236 | -8.22E-06 | +1.04E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.8 | 04 | +4.14E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC Case No: NA

Report No.: AmchitBatchF16 SDG No.: S-II-640

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-II-643 | 02YX-04-A | SoftTiss | U234 | +2.78E-03 | +4.19E-04 | Bq/g | 11/21/05 | 10/04/05 | 12.6 | 101.1 | 05 | +5.08E-05 | |
| S-II-643 | 02YX-04-A | SoftTiss | U235 | +1.42E-04 | +5.23E-05 | Bq/g | 11/21/05 | 10/04/05 | 12.6 | 101.1 | 05 | +4.35E-05 | |
| S-II-643 | 02YX-04-A | SoftTiss | U238 | +2.28E-03 | +3.93E-04 | Bq/g | 11/21/05 | 10/04/05 | 12.6 | 101.1 | 05 | +4.64E-05 | |
| S-II-643 | 02YX-04-A | SoftTiss | PU238 | -9.30E-07 | +1.18E-05 | Bq/g | 11/21/05 | 10/04/05 | 12.6 | 94.7 | 15 | +4.08E-05 | |
| S-II-643 | 02YX-04-A | SoftTiss | PU239/240 | +4.81E-05 | +3.96E-05 | Bq/g | 11/21/05 | 10/04/05 | 12.6 | 94.7 | 15 | +4.40E-05 | |
| S-II-643 | 02YX-04-A | SoftTiss | AM241 | +6.57E-06 | +2.21E-05 | Bq/g | 11/21/05 | 10/04/05 | 12.6 | 98.5 | 12 | +4.76E-05 | |
| S-II-643 | 02YX-04-A | SoftTiss | U236 | -1.43E-06 | +4.98E-06 | Bq/g | 11/21/05 | 10/04/05 | 12.6 | 101.1 | 05 | +4.64E-05 | |
| S-II-644 | 02YX-05-A | SoftTiss | U234 | +4.68E-04 | +9.66E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 115.6 | 06 | +3.73E-05 | |
| S-II-644 | 02YX-05-A | SoftTiss | U235 | +1.08E-05 | +2.12E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 115.6 | 06 | +3.20E-05 | |
| S-II-644 | 02YX-05-A | SoftTiss | U238 | +4.66E-04 | +1.02E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 115.6 | 06 | +3.73E-05 | |
| S-II-644 | 02YX-05-A | SoftTiss | PU238 | -5.37E-06 | +7.47E-06 | Bq/g | 11/14/05 | 10/04/05 | 15 | 88.7 | 15 | +3.66E-05 | |
| S-II-644 | 02YX-05-A | SoftTiss | PU239/240 | +5.27E-06 | +4.04E-05 | Bq/g | 11/14/05 | 10/04/05 | 15 | 88.7 | 15 | +3.94E-05 | |
| S-II-644 | 02YX-05-A | SoftTiss | AM241 | +1.72E-05 | +2.91E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 106.2 | 13 | +2.56E-05 | |
| S-II-644 | 02YX-05-A | SoftTiss | U236 | +1.62E-05 | +2.57E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 115.6 | 06 | +2.54E-05 | |
| S-II-645 | 02YX-06-A | SoftTiss | U234 | +8.72E-04 | +1.41E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.7 | 07 | +2.90E-05 | |
| S-II-645 | 02YX-06-A | SoftTiss | U235 | +4.86E-05 | +2.41E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.7 | 07 | +1.31E-05 | |
| S-II-645 | 02YX-06-A | SoftTiss | U238 | +7.38E-04 | +1.35E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.7 | 07 | +2.65E-05 | |
| S-II-645 | 02YX-06-A | SoftTiss | PU238 | +2.71E-06 | +1.39E-05 | Bq/g | 11/14/05 | 10/04/05 | 15 | 86.1 | 16 | +3.23E-05 | |
| S-II-645 | 02YX-06-A | SoftTiss | PU239/240 | +1.14E-05 | +4.36E-05 | Bq/g | 11/14/05 | 10/04/05 | 15 | 86.1 | 16 | +3.23E-05 | |
| S-II-645 | 02YX-06-A | SoftTiss | AM241 | +6.80E-06 | +1.94E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 96.6 | 14 | +2.33E-05 | |
| S-II-645 | 02YX-06-A | SoftTiss | U236 | +5.38E-06 | +1.12E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.7 | 07 | +1.04E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF16

SDG No.: S-II-640

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-II-646 | 02YX-07-A | SoftTiss | U234 | +7.46E-04 | +1.41E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.5 | 08 | +4.11E-05 | |
| S-II-646 | 02YX-07-A | SoftTiss | U235 | +1.70E-05 | +2.87E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.5 | 08 | +4.21E-05 | |
| S-II-646 | 02YX-07-A | SoftTiss | U238 | +7.18E-04 | +1.46E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.5 | 08 | +3.76E-05 | |
| S-II-646 | 02YX-07-A | SoftTiss | PU238 | -7.82E-06 | +8.67E-06 | Bq/g | 11/17/05 | 10/04/05 | 15 | 86.3 | 09 | +3.18E-05 | |
| S-II-646 | 02YX-07-A | SoftTiss | PU239/240 | +1.34E-05 | +4.74E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 86.3 | 09 | +3.91E-05 | |
| S-II-646 | 02YX-07-A | SoftTiss | AM241 | +5.92E-06 | +1.89E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 100.3 | 15 | +3.50E-05 | |
| S-II-646 | 02YX-07-A | SoftTiss | U236 | +8.60E-06 | +1.54E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.5 | 08 | +1.48E-05 | |
| S-II-647 | 02YX-08-A | SoftTiss | U234 | +6.70E-04 | +1.26E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 115.6 | 01 | +4.10E-05 | |
| S-II-647 | 02YX-08-A | SoftTiss | U235 | +1.53E-05 | +2.70E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 115.6 | 01 | +5.49E-05 | |
| S-II-647 | 02YX-08-A | SoftTiss | U238 | +5.34E-04 | +1.13E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 115.6 | 01 | +3.48E-05 | |
| S-II-647 | 02YX-08-A | SoftTiss | PU238 | +1.15E-06 | +1.20E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 85.9 | 10 | +3.55E-05 | |
| S-II-647 | 02YX-08-A | SoftTiss | PU239/240 | +1.80E-06 | +3.57E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 85.9 | 10 | +2.64E-05 | |
| S-II-647 | 02YX-08-A | SoftTiss | AM241 | -3.61E-06 | +9.11E-06 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.6 | 16 | +2.67E-05 | |
| S-II-647 | 02YX-08-A | SoftTiss | U236 | -9.11E-06 | +1.18E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 115.6 | 01 | +4.10E-05 | |
| S-II-648 | 02YX-09-A | SoftTiss | U234 | +8.88E-04 | +1.49E-04 | Bq/g | 11/21/05 | 10/04/05 | 12.7 | 103.1 | 07 | +3.44E-05 | |
| S-II-648 | 02YX-09-A | SoftTiss | U235 | +8.08E-05 | +3.33E-05 | Bq/g | 11/21/05 | 10/04/05 | 12.7 | 103.1 | 07 | +1.56E-05 | |
| S-II-648 | 02YX-09-A | SoftTiss | U238 | +7.52E-04 | +1.42E-04 | Bq/g | 11/21/05 | 10/04/05 | 12.7 | 103.1 | 07 | +3.15E-05 | |
| S-II-648 | 02YX-09-A | SoftTiss | PU238 | +3.64E-05 | +5.76E-05 | Bq/g | 11/21/05 | 10/04/05 | 12.7 | 109.8 | 06 | +5.86E-05 | |
| S-II-648 | 02YX-09-A | SoftTiss | PU239/240 | +8.08E-03 | +8.67E-04 | Bq/g | 11/21/05 | 10/04/05 | 12.7 | 109.8 | 06 | +3.77E-05 | |
| S-II-648 | 02YX-09-A | SoftTiss | AM241 | +5.15E-03 | +5.57E-04 | Bq/g | 11/21/05 | 10/04/05 | 12.7 | 111.4 | 08 | +8.83E-05 | |
| S-II-648 | 02YX-09-A | SoftTiss | U236 | +1.81E-06 | +8.21E-06 | Bq/g | 11/21/05 | 10/04/05 | 12.7 | 103.1 | 07 | +1.24E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF16

SDG No.: S-II-640

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-S-649 | 02YX-10-A | SoftTiss | U234 | +5.06E-04 | +1.02E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 111.3 | 02 | +3.79E-05 | |
| S-S-649 | 02YX-10-A | SoftTiss | U235 | +1.39E-05 | +2.51E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 111.3 | 02 | +4.36E-05 | |
| S-S-649 | 02YX-10-A | SoftTiss | U238 | +4.43E-04 | +9.94E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 111.3 | 02 | +4.79E-05 | |
| S-S-649 | 02YX-10-A | SoftTiss | PU238 | -1.64E-06 | +9.11E-06 | Bq/g | 11/17/05 | 10/04/05 | 15 | 97.2 | 11 | +2.37E-05 | |
| S-S-649 | 02YX-10-A | SoftTiss | PU239/240 | -1.07E-05 | +2.67E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 97.2 | 11 | +2.83E-05 | |
| S-S-649 | 02YX-10-A | SoftTiss | AM241 | -4.33E-09 | +1.20E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 96.0 | 09 | +3.23E-05 | |
| S-S-649 | 02YX-10-A | SoftTiss | U236 | -5.03E-06 | +5.79E-06 | Bq/g | 11/21/05 | 10/04/05 | 15 | 111.3 | 02 | +3.08E-05 | |
| S-S-651 | 02YX-12-A | SoftTiss | U234 | +7.83E-03 | +1.01E-03 | Bq/g | 11/21/05 | 10/04/05 | 11.5 | 105.8 | 05 | +5.31E-05 | |
| S-S-651 | 02YX-12-A | SoftTiss | U235 | +4.25E-04 | +1.05E-04 | Bq/g | 11/21/05 | 10/04/05 | 11.5 | 105.8 | 05 | +4.55E-05 | |
| S-S-651 | 02YX-12-A | SoftTiss | U238 | +7.56E-03 | +1.11E-03 | Bq/g | 11/21/05 | 10/04/05 | 11.5 | 105.8 | 05 | +4.85E-05 | |
| S-S-651 | 02YX-12-A | SoftTiss | PU238 | +1.86E-05 | +3.95E-05 | Bq/g | 11/17/05 | 10/04/05 | 11.5 | 94.3 | 08 | +1.01E-04 | |
| S-S-651 | 02YX-12-A | SoftTiss | PU239/240 | +2.24E-05 | +7.31E-05 | Bq/g | 11/17/05 | 10/04/05 | 11.5 | 94.3 | 08 | +9.73E-05 | |
| S-S-651 | 02YX-12-A | SoftTiss | AM241 | +4.43E-06 | +1.91E-05 | Bq/g | 11/21/05 | 10/04/05 | 11.5 | 100.1 | 11 | +1.60E-05 | |
| S-S-651 | 02YX-12-A | SoftTiss | U236 | +2.66E-05 | +4.27E-05 | Bq/g | 11/21/05 | 10/04/05 | 11.5 | 105.8 | 05 | +4.85E-05 | |
| S-S-652 | 02YX-13-A | SoftTiss | U234 | +9.49E-04 | +1.58E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 111.8 | 03 | +3.82E-05 | |
| S-S-652 | 02YX-13-A | SoftTiss | U235 | +3.32E-05 | +4.60E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 111.8 | 03 | +4.20E-05 | |
| S-S-652 | 02YX-13-A | SoftTiss | U238 | +8.44E-04 | +1.57E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 111.8 | 03 | +3.34E-05 | |
| S-S-652 | 02YX-13-A | SoftTiss | PU238 | -1.39E-05 | +1.62E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 82.5 | 12 | +4.75E-05 | |
| S-S-652 | 02YX-13-A | SoftTiss | PU239/240 | -1.64E-05 | +2.47E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 82.5 | 12 | +3.80E-05 | |
| S-S-652 | 02YX-13-A | SoftTiss | AM241 | +1.81E-05 | +3.22E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 97.5 | 10 | +3.14E-05 | |
| S-S-652 | 02YX-13-A | SoftTiss | U236 | -8.27E-06 | +1.04E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 111.8 | 03 | +3.59E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF16

SDG No.: S-II-640

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-S-653 | 02YX-14-A | SoftTiss | U234 | +6.75E-04 | +1.30E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 106.2 | 04 | +4.39E-05 | |
| S-S-653 | 02YX-14-A | SoftTiss | U235 | +2.19E-05 | +3.48E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 106.2 | 04 | +4.70E-05 | |
| S-S-653 | 02YX-14-A | SoftTiss | U238 | +5.83E-04 | +1.24E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 106.2 | 04 | +3.73E-05 | |
| S-S-653 | 02YX-14-A | SoftTiss | PU238 | -2.41E-06 | +8.51E-06 | Bq/g | 11/17/05 | 10/04/05 | 15 | 78.5 | 13 | +3.44E-05 | |
| S-S-653 | 02YX-14-A | SoftTiss | PU239/240 | +1.14E-05 | +4.77E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 78.5 | 13 | +5.11E-05 | |
| S-S-653 | 02YX-14-A | SoftTiss | AM241 | +2.49E-05 | +1.58E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.8 | 11 | +1.18E-05 | |
| S-S-653 | 02YX-14-A | SoftTiss | U236 | -2.70E-06 | +3.80E-06 | Bq/g | 11/21/05 | 10/04/05 | 15 | 106.2 | 04 | +4.08E-05 | |
| S-S-654 | 02YX-15-A | SoftTiss | U234 | +5.60E-04 | +1.14E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.0 | 05 | +4.15E-05 | |
| S-S-654 | 02YX-15-A | SoftTiss | U235 | +4.50E-05 | +2.72E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.0 | 05 | +4.25E-05 | |
| S-S-654 | 02YX-15-A | SoftTiss | U238 | +5.26E-04 | +1.15E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.0 | 05 | +3.79E-05 | |
| S-S-654 | 02YX-15-A | SoftTiss | PU238 | -1.68E-06 | +9.07E-06 | Bq/g | 11/17/05 | 10/04/05 | 15 | 95.4 | 14 | +2.34E-05 | |
| S-S-654 | 02YX-15-A | SoftTiss | PU239/240 | -1.59E-06 | +3.33E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 95.4 | 14 | +2.80E-05 | |
| S-S-654 | 02YX-15-A | SoftTiss | AM241 | +9.49E-06 | +2.35E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 103.1 | 12 | +3.82E-05 | |
| S-S-654 | 02YX-15-A | SoftTiss | U236 | -5.29E-06 | +6.12E-06 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.0 | 05 | +3.37E-05 | |
| S-S-655 | 02YX-16-A | SoftTiss | U234 | +8.44E-04 | +1.53E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 107.1 | 06 | +4.03E-05 | |
| S-S-655 | 02YX-16-A | SoftTiss | U235 | +3.87E-05 | +2.48E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 107.1 | 06 | +3.45E-05 | |
| S-S-655 | 02YX-16-A | SoftTiss | U238 | +7.99E-04 | +1.59E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 107.1 | 06 | +4.03E-05 | |
| S-S-655 | 02YX-16-A | SoftTiss | PU238 | -9.88E-06 | +1.07E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 95.6 | 15 | +3.40E-05 | |
| S-S-655 | 02YX-16-A | SoftTiss | PU239/240 | -5.43E-06 | +3.05E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 95.6 | 15 | +3.66E-05 | |
| S-S-655 | 02YX-16-A | SoftTiss | AM241 | +1.30E-05 | +2.60E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 106.0 | 13 | +2.56E-05 | |
| S-S-655 | 02YX-16-A | SoftTiss | U236 | +1.59E-06 | +7.26E-06 | Bq/g | 11/21/05 | 10/04/05 | 15 | 107.1 | 06 | +2.74E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC Case No: NA

Report No.: AmchitBatchF16 SDG No.: S-II-640

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-S-656 | 02YX-17-A | SoftTiss | U234 | +5.09E-04 | +1.04E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 113.1 | 01 | +4.19E-05 | |
| S-S-656 | 02YX-17-A | SoftTiss | U235 | +5.49E-05 | +6.59E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 113.1 | 01 | +5.61E-05 | |
| S-S-656 | 02YX-17-A | SoftTiss | U238 | +4.69E-04 | +1.03E-04 | Bq/g | 11/21/05 | 10/04/05 | 15 | 113.1 | 01 | +3.17E-05 | |
| S-S-656 | 02YX-17-A | SoftTiss | PU238 | -2.47E-06 | +8.46E-06 | Bq/g | 11/17/05 | 10/04/05 | 15 | 82.7 | 16 | +3.36E-05 | |
| S-S-656 | 02YX-17-A | SoftTiss | PU239/240 | +7.11E-06 | +4.12E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 82.7 | 16 | +3.36E-05 | |
| S-S-656 | 02YX-17-A | SoftTiss | AM241 | +2.00E-05 | +1.52E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 98.2 | 14 | +2.29E-05 | |
| S-S-656 | 02YX-17-A | SoftTiss | U236 | -2.68E-06 | +3.80E-06 | Bq/g | 11/21/05 | 10/04/05 | 15 | 113.1 | 01 | +3.90E-05 | |
| S-S-657 | 02YX-18-A | SoftTiss | U234 | +5.67E-04 | +1.19E-04 | Bq/g | 11/21/05 | 10/04/05 | 13.6 | 99.0 | 02 | +4.71E-05 | |
| S-S-657 | 02YX-18-A | SoftTiss | U235 | +3.31E-05 | +4.92E-05 | Bq/g | 11/21/05 | 10/04/05 | 13.6 | 99.0 | 02 | +5.42E-05 | |
| S-S-657 | 02YX-18-A | SoftTiss | U238 | +5.27E-04 | +1.21E-04 | Bq/g | 11/21/05 | 10/04/05 | 13.6 | 99.0 | 02 | +5.68E-05 | |
| S-S-657 | 02YX-18-A | SoftTiss | PU238 | -9.50E-07 | +1.09E-05 | Bq/g | 11/17/05 | 10/04/05 | 13.6 | 82.6 | 06 | +7.63E-05 | |
| S-S-657 | 02YX-18-A | SoftTiss | PU239/240 | -1.57E-05 | +2.77E-05 | Bq/g | 11/17/05 | 10/04/05 | 13.6 | 82.6 | 06 | +4.70E-05 | |
| S-S-657 | 02YX-18-A | SoftTiss | AM241 | +1.50E-05 | +3.13E-05 | Bq/g | 11/21/05 | 10/04/05 | 13.6 | 99.8 | 15 | +4.15E-05 | |
| S-S-657 | 02YX-18-A | SoftTiss | U236 | -5.93E-06 | +6.87E-06 | Bq/g | 11/21/05 | 10/04/05 | 13.6 | 99.0 | 02 | +3.83E-05 | |
| S-S-658 | 02YX-19-A | SoftTiss | U234 | +4.09E-04 | +8.69E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.0 | 03 | +4.10E-05 | |
| S-S-658 | 02YX-19-A | SoftTiss | U235 | +2.36E-05 | +3.67E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.0 | 03 | +4.52E-05 | |
| S-S-658 | 02YX-19-A | SoftTiss | U238 | +4.01E-04 | +9.03E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.0 | 03 | +3.58E-05 | |
| S-S-658 | 02YX-19-A | SoftTiss | PU238 | -1.02E-05 | +1.11E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 69.4 | 09 | +4.45E-05 | |
| S-S-658 | 02YX-19-A | SoftTiss | PU239/240 | -1.14E-05 | +2.64E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 69.4 | 09 | +4.87E-05 | |
| S-S-658 | 02YX-19-A | SoftTiss | AM241 | +6.19E-06 | +1.91E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 95.5 | 16 | +2.93E-05 | |
| S-S-658 | 02YX-19-A | SoftTiss | U236 | -8.71E-06 | +1.11E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 104.0 | 03 | +3.86E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Report No.: AmchitBatchF16

Case No: NA

SDG No.: S-II-640

| Customer ID | Lab Sample ID | Sample Matrix | Anal Type | Sample Value | Sample Uncer +/- | Units | Anal Date | Sample Date | Sample Size | Chem Yield | Detector ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-S-659 | 02YX-20-A | SoftTiss | U234 | +3.60E-04 | +8.24E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 109.1 | 04 | +4.27E-05 | |
| S-S-659 | 02YX-20-A | SoftTiss | U235 | +2.13E-05 | +3.40E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 109.1 | 04 | +4.57E-05 | |
| S-S-659 | 02YX-20-A | SoftTiss | U238 | +3.87E-04 | +9.07E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 109.1 | 04 | +3.63E-05 | |
| S-S-659 | 02YX-20-A | SoftTiss | PU238 | -9.87E-06 | +1.07E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 73.6 | 10 | +4.14E-05 | |
| S-S-659 | 02YX-20-A | SoftTiss | PU239/240 | +5.02E-06 | +3.90E-05 | Bq/g | 11/17/05 | 10/04/05 | 15 | 73.6 | 10 | +3.08E-05 | |
| S-S-659 | 02YX-20-A | SoftTiss | AM241 | +1.21E-05 | +2.57E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 107.0 | 09 | +2.90E-05 | |
| S-S-659 | 02YX-20-A | SoftTiss | U236 | +7.88E-06 | +1.62E-05 | Bq/g | 11/21/05 | 10/04/05 | 15 | 109.1 | 04 | +3.97E-05 | |

See Key for Form I.

Comments: _____

RADIOANALYTICAL ANALYSES DATA PACKAGE

Lab Name: RTC

Case No: NA

Report No.: AmchitBatchF16

SDG No.: S-II-640

| QC Sample ID | Sample Type | Anal Type | Sample Value | Sample Uncer +/- | Known Value | Known Uncer+/- | Units | LCS Recov | Anal Date | Chem Yield | Det ID | MDA | DQF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REAGENT | BLK | U234 | +1.23E-04 | +1.91E-04 | NA | NA | Bq/spl | NA% | 11/17/2005 | 100.2% | 01 | +7.54E-04 | |
| REAGENT | BLK | U235 | -1.25E-04 | -2.04E-04 | NA | NA | Bq/spl | NA% | 11/17/2005 | 100.2% | 01 | +1.05E-03 | |
| REAGENT | BLK | U238 | -4.68E-05 | -7.67E-05 | NA | NA | Bq/spl | NA% | 11/17/2005 | 100.2% | 01 | +5.36E-04 | |
| REAGENT | BLK | PU238 | +7.57E-05 | +1.11E-04 | NA | NA | Bq/spl | NA% | 11/17/2005 | 89.3% | 11 | +2.05E-04 | |
| REAGENT | BLK | PU239/240 | +2.62E-04 | +3.70E-04 | NA | NA | Bq/spl | NA% | 11/17/2005 | 89.3% | 11 | +4.63E-04 | |
| REAGENT | BLK | AM241 | +8.48E-05 | +1.28E-04 | NA | NA | Bq/spl | NA% | 11/21/2005 | 94.8% | 10 | +4.85E-04 | |
| REAGENT | BLK | U236 | +3.51E-05 | +5.64E-05 | NA | NA | Bq/spl | NA% | 11/17/2005 | 100.2% | 01 | +7.54E-04 | |
| REAGENT | LCS | U238 | +1.92E-01 | +2.82E-02 | +1.99E-01 | NA | Bq/mL | 96.4% | 11/21/2005 | 101.4% | 08 | +1.16E-03 | |
| REAGENT | LCS | PU239/240 | +1.53E-01 | +1.77E-02 | +1.50E-01 | NA | Bq/mL | 102.0% | 11/17/2005 | 98.0% | 08 | +2.21E-03 | |
| REAGENT | LCS | AM241 | +1.52E-01 | +1.41E-02 | +1.55E-01 | NA | Bq/mL | 98.0% | 11/21/2005 | 112.2% | 07 | +7.39E-04 | |

See Key for Form II.

Comments: _____

Project: **Alpha Analysis for Amchitka Island (Batch 16)**
Laboratory: RTC
Report #: AmchitBatchF16
SDG#: S-II-640

## Summary of 2 and 3 sigma activities

Below are the results for U234, U235, U236, U238, Pu238, Pu239/240, and Am241 for Batch 13 from the Amchitka Island Project that had a result/uncertainty ratio of 2 or more (uncertainty @ one sigma).

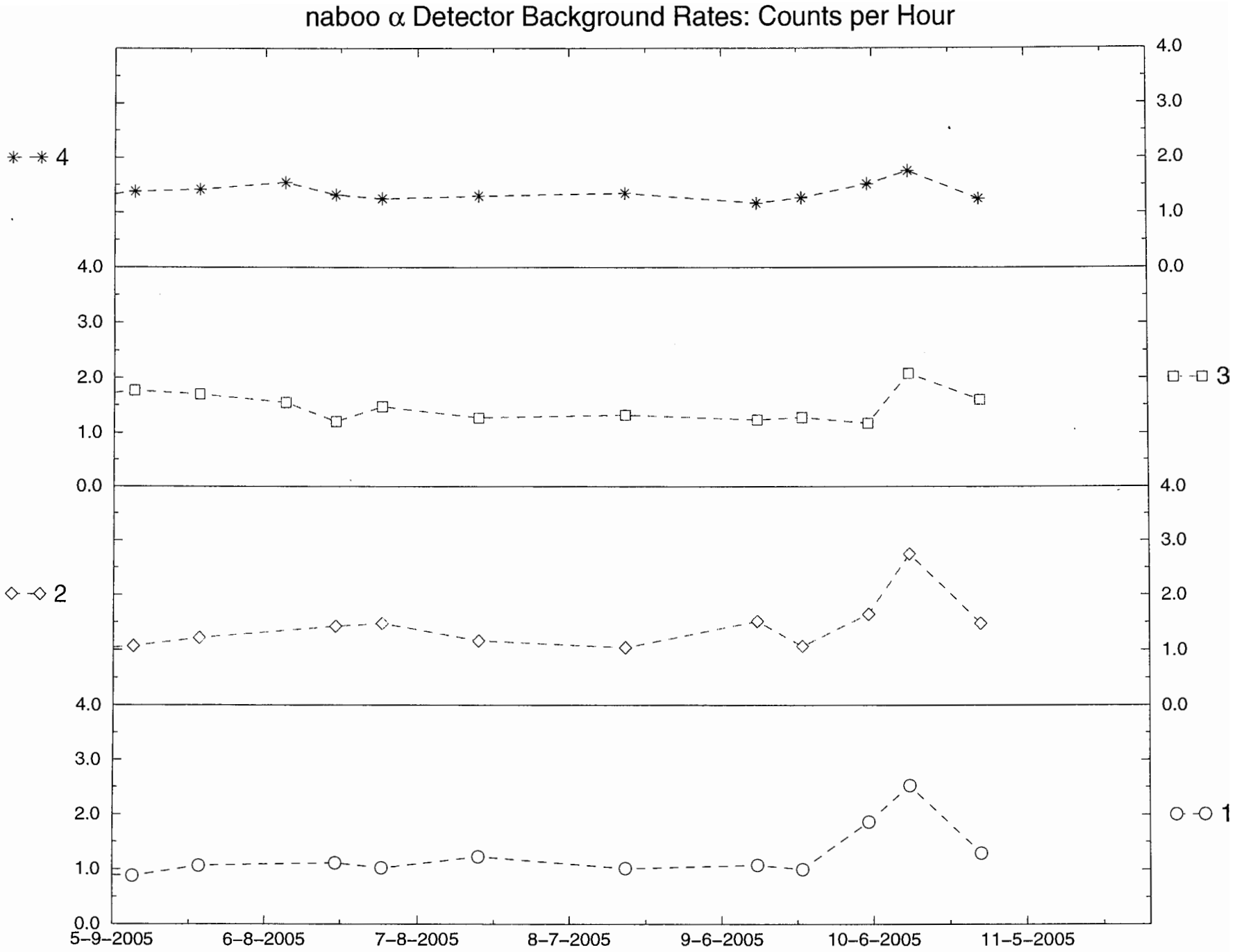
| Customer ID | Lab ID | Isotope | Result Bq/g | Uncertainty Bq/g | MDA | Result/ Uncertainty |
|---|---|---|---|---|---|---|
| S-II-640 | 02YX-01-A | U234 | 4.43E-04 | 9.56E-05 | 3.30E-05 | 4.6 |
| S-II-640 | 02YX-01-A | U238 | 4.26E-04 | 9.91E-05 | 5.14E-05 | 4.3 |
| S-II-641 | 02YX-02-A | U234 | 4.60E-04 | 9.41E-05 | 3.83E-05 | 4.9 |
| S-II-641 | 02YX-02-A | U238 | 3.98E-04 | 8.98E-05 | 3.57E-05 | 4.4 |
| S-II-642 | 02YX-03-A | U234 | 3.12E-04 | 7.58E-05 | 3.78E-05 | 4.1 |
| S-II-642 | 02YX-03-A | U238 | 2.76E-04 | 7.21E-05 | 3.78E-05 | 3.8 |
| S-II-643 | 02YX-04-A | U234 | 2.78E-03 | 4.19E-04 | 5.08E-05 | 6.6 |
| S-II-643 | 02YX-04-A | U235 | 1.42E-04 | 5.23E-05 | 4.35E-05 | 2.7 |
| S-II-643 | 02YX-04-A | U238 | 2.28E-03 | 3.93E-04 | 4.64E-05 | 5.8 |
| S-II-644 | 02YX-05-A | U234 | 4.68E-04 | 9.66E-05 | 3.73E-05 | 4.8 |
| S-II-644 | 02YX-05-A | U238 | 4.66E-04 | 1.02E-04 | 3.73E-05 | 4.6 |
| S-II-645 | 02YX-06-A | U234 | 8.72E-04 | 1.41E-04 | 2.90E-05 | 6.2 |
| S-II-645 | 02YX-06-A | U235 | 4.86E-05 | 2.41E-05 | 1.31E-05 | 2.0 |
| S-II-645 | 02YX-06-A | U238 | 7.38E-04 | 1.35E-04 | 2.65E-05 | 5.5 |
| S-II-646 | 02YX-07-A | U234 | 7.46E-04 | 1.41E-04 | 4.11E-05 | 5.3 |
| S-II-646 | 02YX-07-A | U238 | 7.18E-04 | 1.46E-04 | 3.76E-05 | 4.9 |
| S-II-647 | 02YX-08-A | U234 | 6.70E-04 | 1.26E-04 | 4.10E-05 | 5.3 |
| S-II-647 | 02YX-08-A | U238 | 5.34E-04 | 1.13E-04 | 3.48E-05 | 4.7 |
| S-II-648 | 02YX-09-A | AM241 | 5.15E-03 | 5.57E-04 | 8.83E-05 | 9.2 |
| S-II-648 | 02YX-09-A | PU239/240 | 8.08E-03 | 8.67E-04 | 3.77E-05 | 9.3 |
| S-II-648 | 02YX-09-A | U234 | 8.88E-04 | 1.49E-04 | 3.44E-05 | 6.0 |
| S-II-648 | 02YX-09-A | U235 | 8.08E-05 | 3.33E-05 | 1.56E-05 | 2.4 |
| S-II-648 | 02YX-09-A | U238 | 7.52E-04 | 1.42E-04 | 3.15E-05 | 5.3 |
| S-S-649 | 02YX-10-A | U234 | 5.06E-04 | 1.02E-04 | 3.79E-05 | 5.0 |
| S-S-649 | 02YX-10-A | U238 | 4.43E-04 | 9.94E-05 | 4.79E-05 | 4.5 |

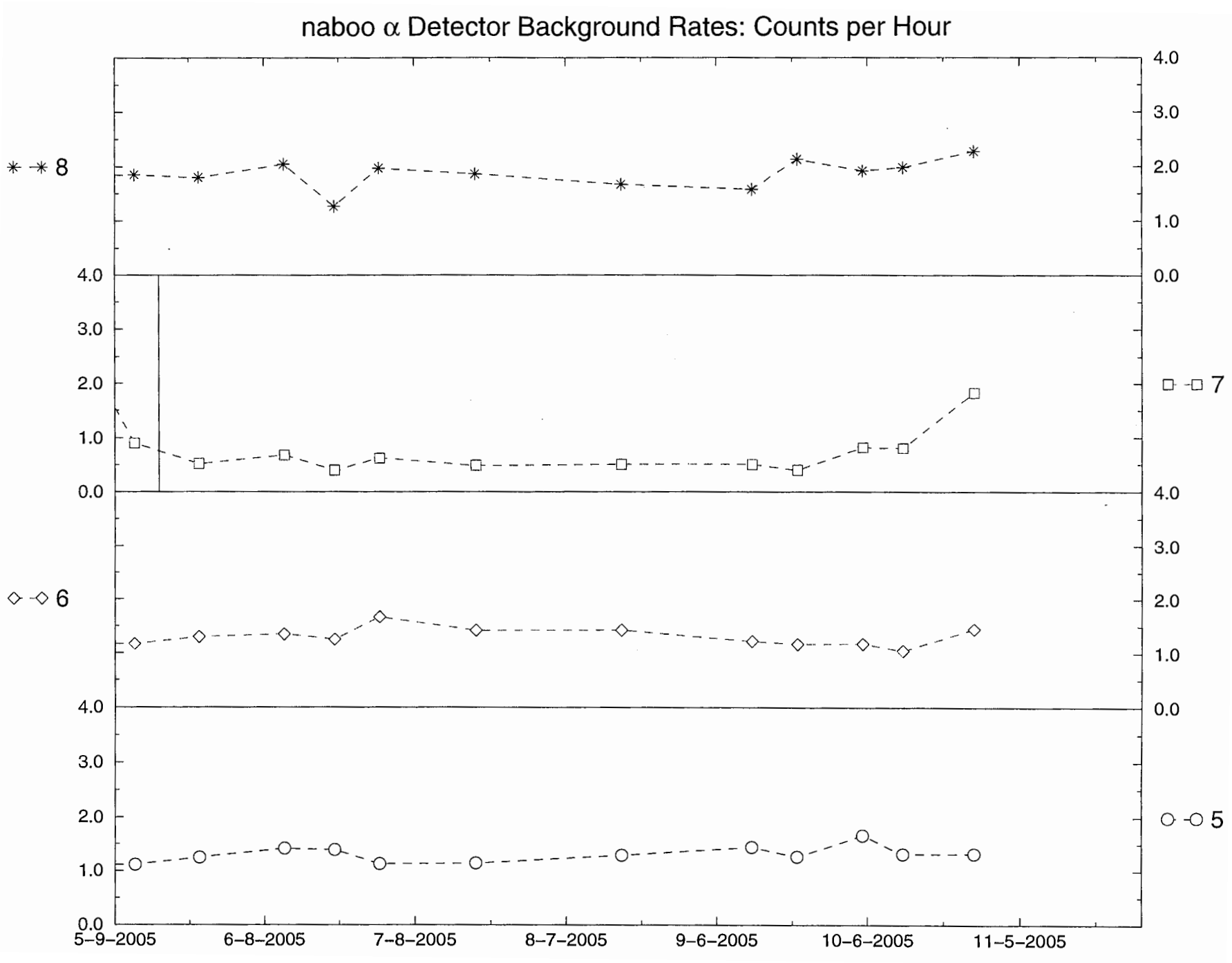
**Alpha Analysis for Amchitka Island (Batch 16)**
**Summary of 2 and 3 sigma activities**
**page 2**

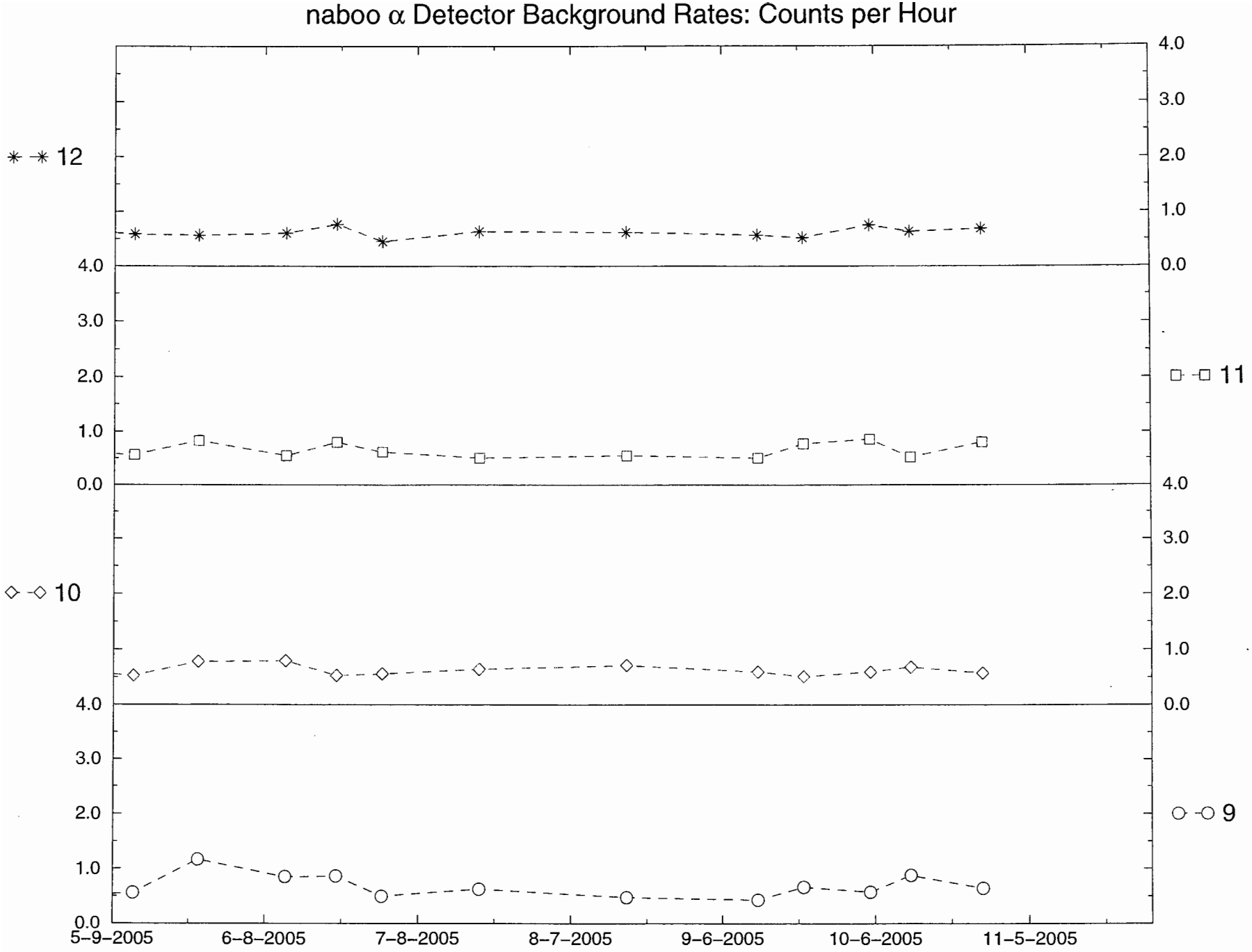
| Customer ID | Lab ID | Isotope | Result Bq/g | Uncertainty Bq/g | MDA | Result/ Uncertainty |
|---|---|---|---|---|---|---|
| S-S-651 | 02YX-12-A | U234 | 7.83E-03 | 1.01E-03 | 5.31E-05 | 7.8 |
| S-S-651 | 02YX-12-A | U235 | 4.25E-04 | 1.05E-04 | 4.55E-05 | 4.0 |
| S-S-651 | 02YX-12-A | U238 | 7.56E-03 | 1.11E-03 | 4.85E-05 | 6.8 |
| S-S-652 | 02YX-13-A | U234 | 9.49E-04 | 1.58E-04 | 3.82E-05 | 6.0 |
| S-S-652 | 02YX-13-A | U238 | 8.44E-04 | 1.57E-04 | 3.34E-05 | 5.4 |
| S-S-653 | 02YX-14-A | U234 | 6.75E-04 | 1.30E-04 | 4.39E-05 | 5.2 |
| S-S-653 | 02YX-14-A | U238 | 5.83E-04 | 1.24E-04 | 3.73E-05 | 4.7 |
| S-S-654 | 02YX-15-A | U234 | 5.60E-04 | 1.14E-04 | 4.15E-05 | 4.9 |
| S-S-654 | 02YX-15-A | U238 | 5.26E-04 | 1.15E-04 | 3.79E-05 | 4.6 |
| S-S-655 | 02YX-16-A | U234 | 8.44E-04 | 1.53E-04 | 4.03E-05 | 5.5 |
| S-S-655 | 02YX-16-A | U238 | 7.99E-04 | 1.59E-04 | 4.03E-05 | 5.0 |
| S-S-656 | 02YX-17-A | U234 | 5.09E-04 | 1.04E-04 | 4.19E-05 | 4.9 |
| S-S-656 | 02YX-17-A | U238 | 4.69E-04 | 1.03E-04 | 3.17E-05 | 4.6 |
| S-S-657 | 02YX-18-A | U234 | 5.67E-04 | 1.19E-04 | 4.71E-05 | 4.8 |
| S-S-657 | 02YX-18-A | U238 | 5.27E-04 | 1.21E-04 | 5.68E-05 | 4.4 |
| S-S-658 | 02YX-19-A | U234 | 4.09E-04 | 8.69E-05 | 4.10E-05 | 4.7 |
| S-S-658 | 02YX-19-A | U238 | 4.01E-04 | 9.03E-05 | 3.58E-05 | 4.4 |
| S-S-659 | 02YX-20-A | U234 | 3.60E-04 | 8.24E-05 | 4.27E-05 | 4.4 |
| S-S-659 | 02YX-20-A | U238 | 3.87E-04 | 9.07E-05 | 3.63E-05 | 4.3 |

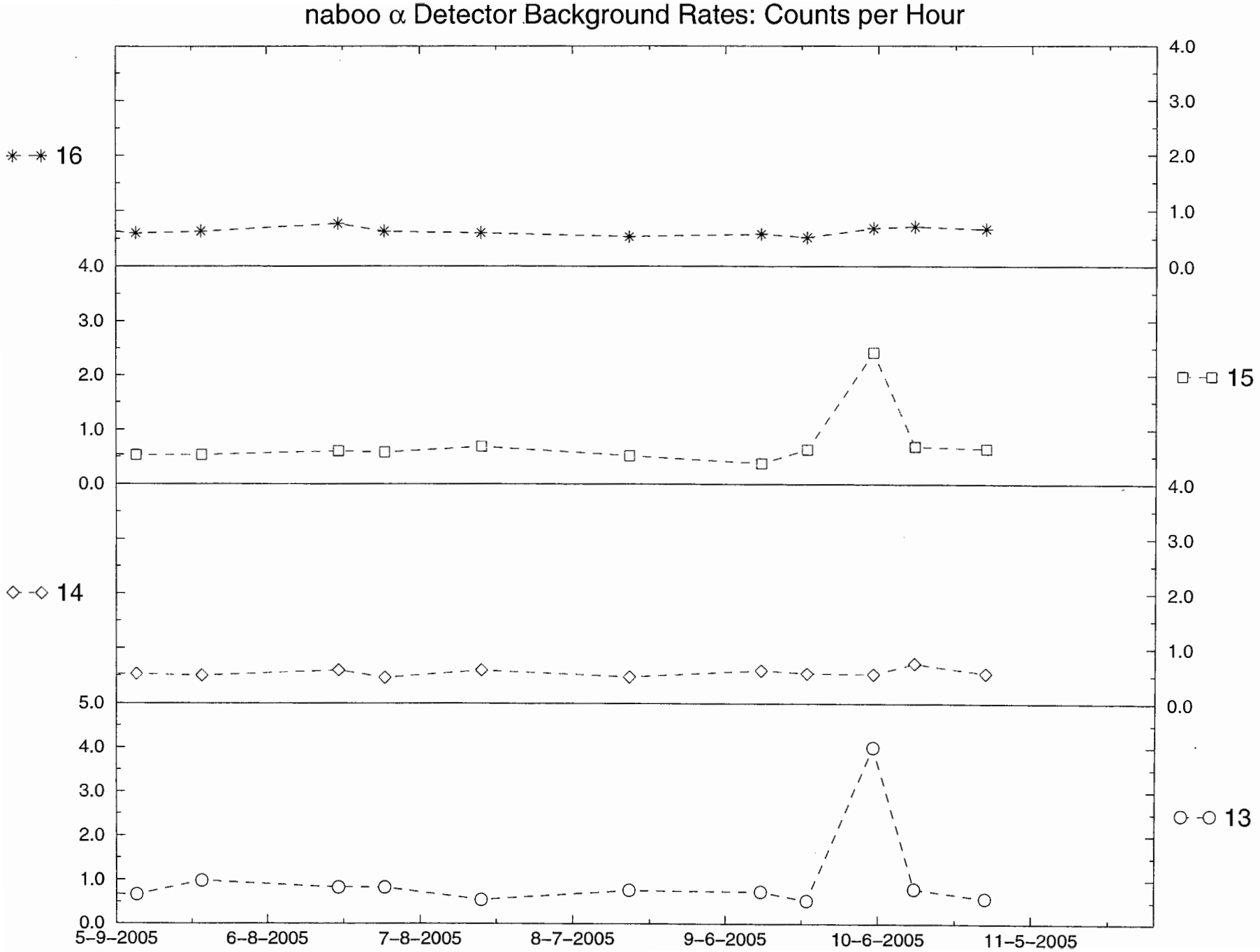
All known sources of uncertainty are included in the uncertainty term. There may be unknown sources of uncertainty that are not accounted for. If the result/uncertainty ratio is more than 3, we have a degree of confidence that the result is positive (i.e. the result is statistically different than zero). A result with the result/uncertainty ratio between 2 and 3 is the first indication that an isotope may be present and further investigation may be warranted.

As with any good science no single data point is used in important decisions (results need to be reproducible).

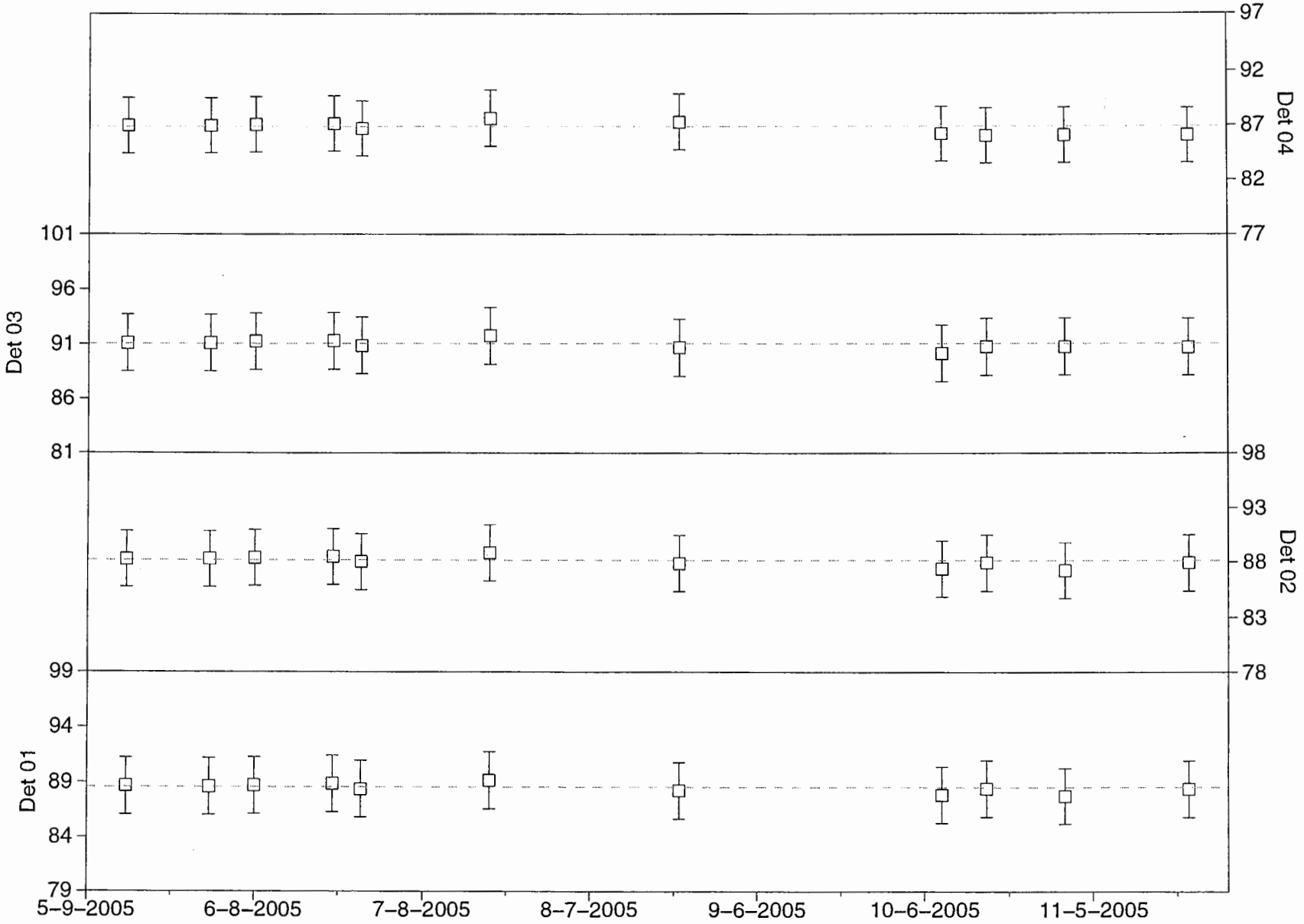

naboo α Detector Background Rates: Counts per Hour
4
3
2
1
4.0
3.0
2.0
1.0
0.0
5–9–2005
6–8–2005
7–8–2005
8–7–2005
9–6–2005
10–6–2005
11–5–2005


naboo α Detector Background Rates: Counts per Hour
8
7
6
5
4.0
3.0
2.0
1.0
0.0
5–9–2005
6–8–2005
7–8–2005
8–7–2005
9–6–2005
10–6–2005
11–5–2005

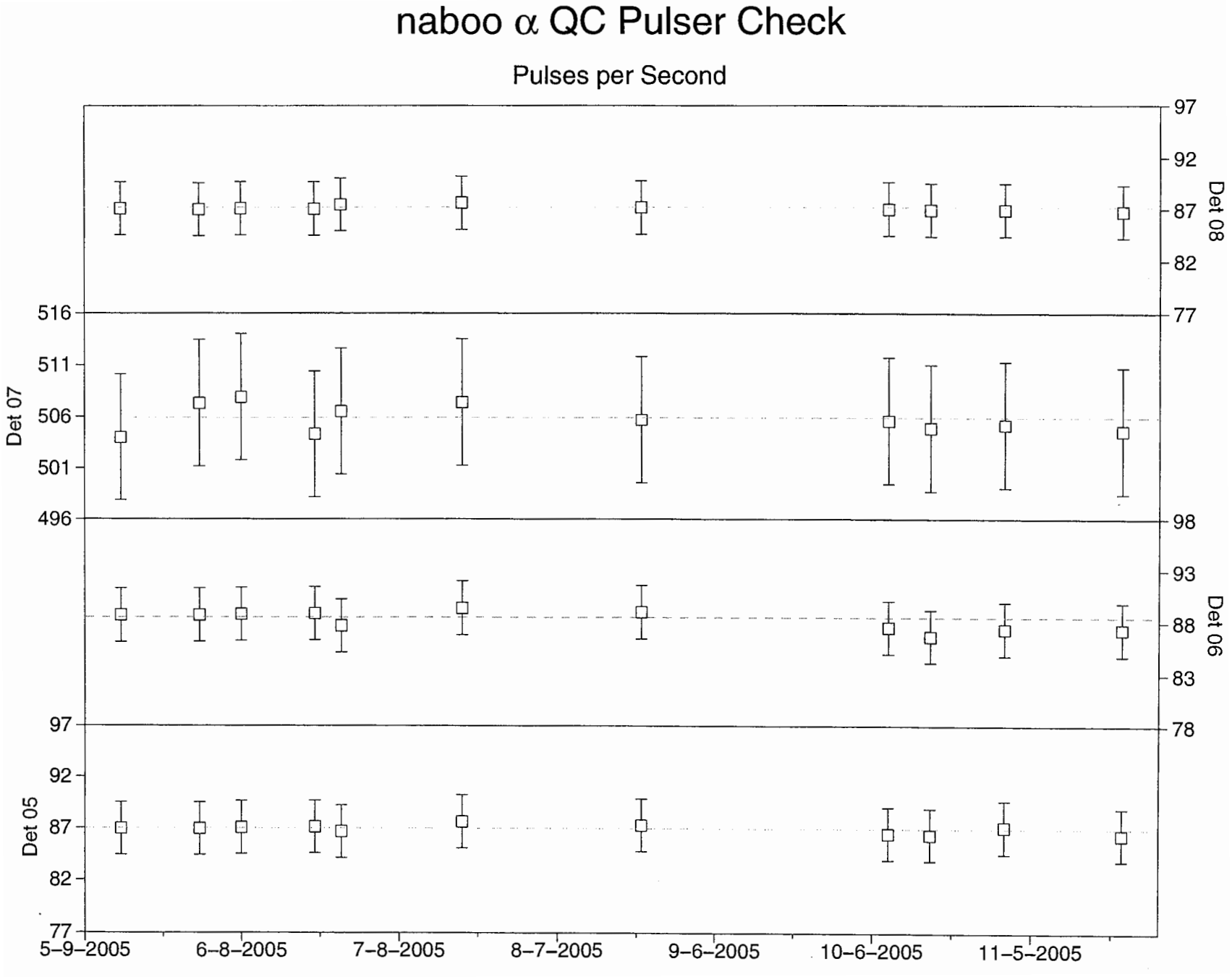

naboo α Detector Background Rates: Counts per Hour
12
11
10
9
4.0
3.0
2.0
1.0
0.0
5–9–2005
6–8–2005
7–8–2005
8–7–2005
9–6–2005
10–6–2005
11–5–2005

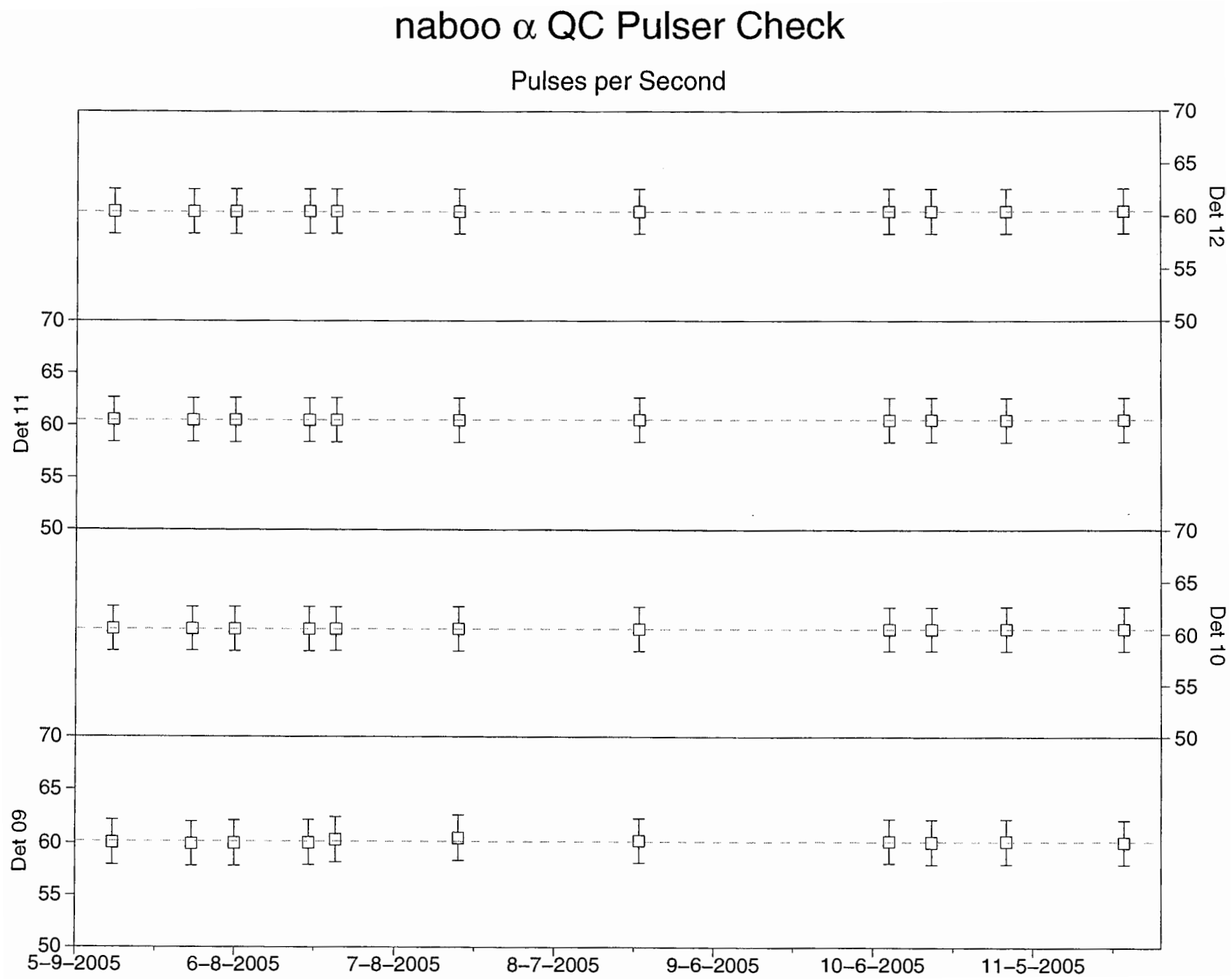

naboo α Detector Background Rates: Counts per Hour
16
15
14
13
4.0
3.0
2.0
1.0
0.0
5.0
5–9–2005
6–8–2005
7–8–2005
8–7–2005
9–6–2005
10–6–2005
11–5–2005

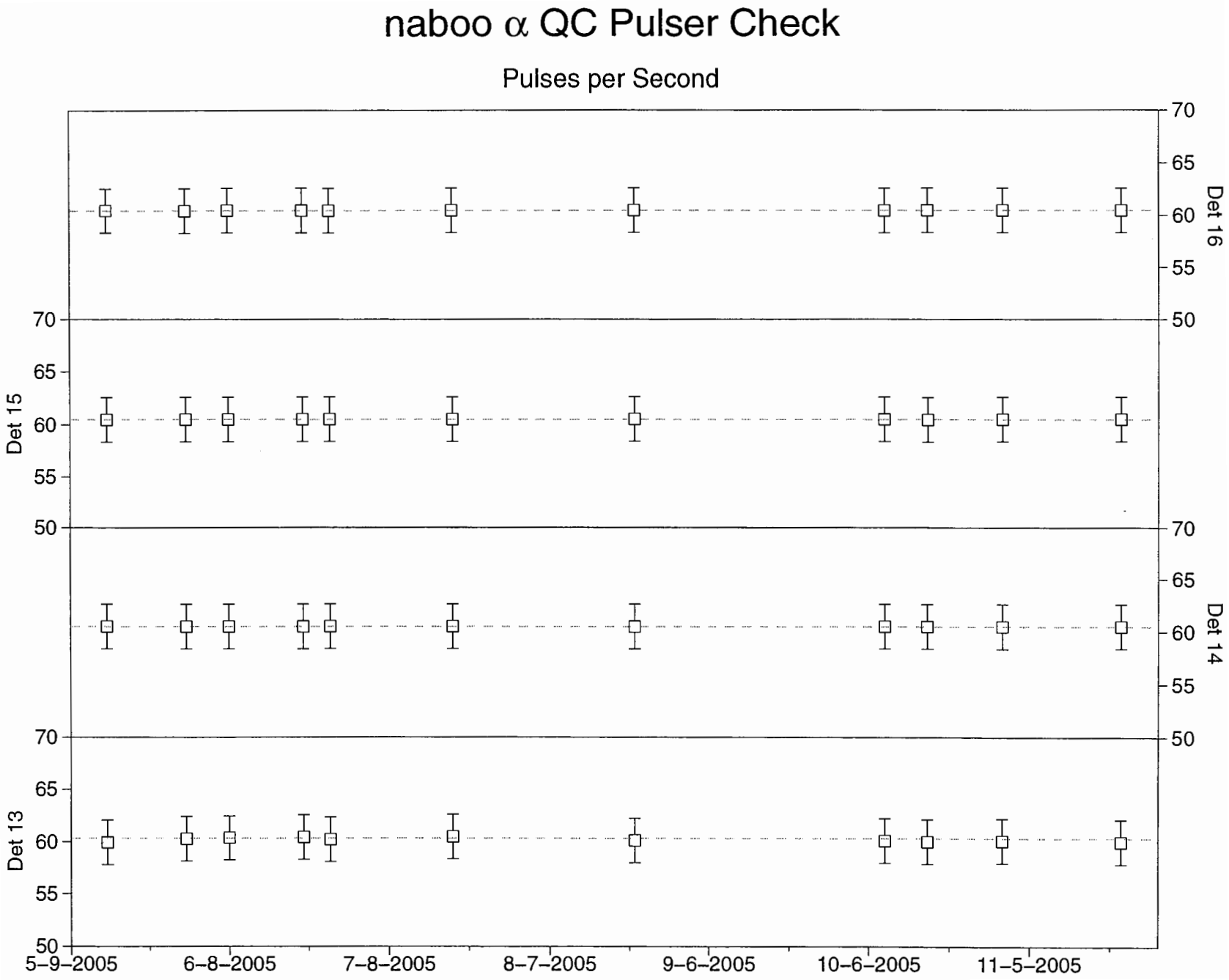
# naboo α QC Pulser Check



# naboo α QC Pulser Check




naboo α QC Pulser Check
Pulses per Second
Det 12
Det 11
Det 10
Det 09
70
65
60
55
50
5–9–2005
6–8–2005
7–8–2005
8–7–2005
9–6–2005
10–6–2005
11–5–2005


naboo α QC Pulser Check
Pulses per Second
Det 16
Det 15
Det 14
Det 13
70
65
60
55
50
5–9–2005
6–8–2005
7–8–2005
8–7–2005
9–6–2005
10–6–2005
11–5–2005

# *Mixed Analyte Performance Evaluation Program*

***Laboratory Results***

*LOCK03* RADIATION MEASUREMENTS LABORATORY/AEDL ***Sample ID:*** MAPEP-05-MaW13

INEEL

Idaho Falls ID 83415-7111

| *Analyte* | *Result* | *Ref Value* | *Flag* | *Flag Text* | *Bias (%)* | *Acceptance Range* | *Unc Value* | *Unc. Flag* | *Units* |
|---|---|---|---|---|---|---|---|---|---|
| Barium | NR | 2.63 | | | | 1.84 - 3.42 | | | |
| Beryllium | NR | 0.417 | | | | 0.29 - 0.54 | | | |
| Cadmium | NR | 0.303 | | | | 0.21 - 0.39 | | | |
| Chromium | NR | 1.67 | | | | 1.17 - 2.17 | | | |
| Copper | NR | 1.92 | | | | 1.34 - 2.50 | | | |
| Lead | NR | 1.21 | | | | 0.85 - 1.57 | | | |
| Mercury | NR | 0.102 | | | | 0.07 - 0.13 | | | |
| Nickel | NR | 0.968 | | | | 0.68 - 1.26 | | | |
| Selenium | NR | 0.362 | | | | 0.25 - 0.47 | | | |
| Uranium-238 | NR | 0.268 | | | | | | | |
| Vanadium | NR | 3.67 | | | | 2.57 - 4.77 | | | |
| Zinc | NR | 1.33 | | | | 0.93 - 1.73 | | | |
| Americium-241 | 1.50 | 1.72 | A | | -12.8 | 1.20 - 2.24 | .10 | | (Bq/L) |
| Cesium-134 | 118 | 127 | A | | -7.1 | 88.90 - 165.10 | 9 | | (Bq/L) |
| Cesium-137 | 318 | 332 | A | | -4.2 | 232.40 - 431.60 | 23 | | (Bq/L) |
| Cobalt-57 | 224 | 227 | A | | -1.3 | 158.90 - 295.10 | 16 | | (Bq/L) |
| Cobalt-60 | 250 | 251 | A | | -0.4 | 175.70 - 326.30 | 18 | | (Bq/L) |
| Hydrogen-3 | 320 | 280 | A | | 14.3 | 196.00 - 364.00 | 50 | | (Bq/L) |
| Iron-55 | 81.3 | 75.9 | A | | 7.1 | 53.13 - 98.67 | 4.9 | | (Bq/L) |
| Manganese-54 | 323 | 331 | A | | -2.4 | 231.70 - 430.30 | 23 | | (Bq/L) |
| Nickel-63 | 4.4 | 9.0 | A | 17 | | | 1.7 | | (Bq/L) |
| Plutonium-238 | 0.011 | 0.018 | A | 17 | | | 0.015 | | (Bq/L) |
| Plutonium-239/240 | 2.36 | 2.4 | A | | -1.7 | 1.68 - 3.12 | .18 | | (Bq/L) |
| Strontium-90 | -.2 | | A | | | | .4 | | (Bq/L) |
| Technetium-99 | NR | 42.9 | | | | 30.03 - 55.77 | | | |
| Uranium-234/233 | 3.23 | 3.24 | A | | -0.3 | 2.27 - 4.21 | .23 | | (Bq/L) |
| Uranium-238 | 3.33 | 3.33 | A | | 0.0 | 2.33 - 4.33 | .23 | | (Bq/L) |
| Zinc-65 | 509 | 496 | A | | 2.6 | 347.20 - 644.80 | 37 | | (Bq/L) |

# *Mixed Analyte Performance Evaluation Program*

***Laboratory Results***

***Sample ID:*** MAPEP-05-GrW13

*LOCK03* RADIATION MEASUREMENTS LABORATORY/AEDL
INEEL
Idaho Falls ID 83415-7111

| *Analyte* | *Result* | *Ref Value* | *Flag* | *Bias (%)* | *Acceptance Range* | *Unc Value* | *Unc. Flag* | *Units* |
|---|---|---|---|---|---|---|---|---|
| Gross alpha | .038 | 0.525 | A | -92.8 | 0.000 - 1.050 | .006 | | (Bq/L) |
| Gross beta | 1.53 | 1.67 | A | -8.4 | 0.835 - 2.505 | .06 | | (Bq/L) |

Gross Alpha Flags:

A = Result acceptable, Bias <= +/- 100% with a statistically positive result at two standard deviations (Result/Uncertainty > 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias > +/- 100% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty <= 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

Gross Beta Flags:

A = Result acceptable, Bias <= +/- 50% with a statistically positive result at two standard deviations (Result/Uncertainty > 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, does not include zero).

N = Result not acceptable, Bias > +/- 50% or the reported result is not statistically positive at two standard deviations (Result/Uncertainty <= 2, i.e., the range encompassing the result, plus or minus the total uncertainty at two standard deviations, includes zero).

***Flags:*** L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)

FP = False Positive
FN = False Negative
NR = Not Reported

# *Mixed Analyte Performance Evaluation Program*

***Laboratory Results***

*LOCK03* RADIATION MEASUREMENTS LABORATORY/AEDL
INEEL
Idaho Falls ID 83415-7111

***Sample ID:*** MAPEP-05-MaS13

| *Analyte* | *Result* | *Ref Value* | *Flag* | *Flag Text* | *Bias (%)* | *Acceptance Range* | *Unc Value* | *Unc. Flag* | *Units* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | NR | 30.9 | | | | 21.63 - 40.17 | | | |
| Arsenic | NR | 51.9 | | | | 36.33 - 67.47 | | | |
| Barium | NR | 792 | | | | 554.40 - 1029.60 | | | |
| Beryllium | NR | 10.3 | | | | 7.21 - 13.39 | | | |
| Cadmium | NR | 13.2 | | | | 9.24 - 17.16 | | | |
| Chromium | NR | 57.2 | | | | 40.04 - 74.36 | | | |
| Lead | NR | 69.0 | | | | 48.30 - 89.70 | | | |
| Mercury | NR | 0.437 | | | | 0.31 - 0.57 | | | |
| Nickel | NR | 144 | | | | 100.80 - 187.20 | | | |
| Silver | NR | 43.1 | | | | 30.17 - 56.03 | | | |
| Thallium | NR | 61.8 | | | | 43.26 - 80.34 | | | |
| Uranium-238 | NR | 20.0 | | | | 14.00 - 26.00 | | | |
| Vanadium | NR | 92.7 | | | | 64.89 - 120.51 | | | |
| Zinc | NR | 200 | | | | 140.00 - 260.00 | | | |
| Americium-241 | NR | 109 | | | | 76.30 - 141.70 | | | |
| Cesium-134 | NR | 759 | | | | 531.30 - 986.70 | | | |
| Cesium-137 | NR | 315 | | | | 220.50 - 409.50 | | | |
| Cobalt-57 | NR | 242 | | | | 169.40 - 314.60 | | | |
| Cobalt-60 | NR | 212 | | | | 148.40 - 275.60 | | | |
| Iron-55 | NR | 1200 | | | | 840.00 - 1560.00 | | | |
| Manganese-54 | NR | 485 | | | | 339.50 - 630.50 | | | |
| Nickel-63 | NR | 1220 | | | | 854.00 - 1586.00 | | | |
| Plutonium-239/240 | NR | 89.5 | | | | 62.65 - 116.35 | | | |
| Strontium-90 | 609 | 640 | A | | -4.8 | 448.00 - 832.00 | 28 | | (Bq/kg) |
| Technetium-99 | NR | 190 | | | | 133.00 - 247.00 | | | |
| Uranium-234/233 | NR | 62.5 | | | | 43.75 - 81.25 | | | |
| Uranium-238 | NR | 249 | | | | 174.30 - 323.70 | | | |
| Zinc-65 | NR | 810 | | | | 567.00 - 1053.00 | | | |

***Flags:***

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low
H = Uncertainty potentially too high
Q = Particapant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

***Flag Text***

1 - False Positive
2 - False Negative
4 - Sensitivity Evaluation
5 - Total Metal
6 - Not Evaluated
7 - DL > CLP Limit
9 - Check QL
10 - Check Isomer
11 - False Positive Test, Value Not Reported
14 - Solubility Issue
15 - Refractory
16 - Reported zero uncertainty
17 - NOT DETECTED, reported a statistical zero result
18 - Sensitivity evaluation, value not reported

# *Mixed Analyte Performance Evaluation Program*

***Laboratory Results***

*LOCK03*

RADIATION MEASUREMENTS LABORATORY/AEDL
INEEL
Idaho Falls ID 83415

***Sample ID:*** MAPEP-03-W11

| *Analyte* | *Result* | *Ref Value* | *Flag* | *Flag Text* | *Bias (%)* | *Acceptance Range* | *Unc Value* | *Unc. Flag* | *Units* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | NR | 0.1296 | | | | 0.09 - 0.17 | | | |
| Arsenic | NR | 0.0537 | | | | 0.04 - 0.07 | | | |
| Barium | NR | 0.541 | | | | 0.38 - 0.70 | | | |
| Beryllium | NR | 0.0985 | | | | 0.07 - 0.13 | | | |
| Cadmium | NR | 0.0799 | | | | 0.06 - 0.10 | | | |
| Copper | NR | 0.803 | | | | 0.56 - 1.04 | | | |
| Lead | NR | 0.894 | | | | 0.63 - 1.16 | | | |
| Nickel | NR | 0.495 | | | | 0.35 - 0.64 | | | |
| Selenium | NR | 0.06981 | | | | 0.05 - 0.09 | | | |
| Thallium | NR | 2.088 | | | | 1.46 - 2.71 | | | |
| Uranium-Total | NR | 0.1968 | | | | 0.14 - 0.26 | | | |
| Uranium-235 | NR | 0.001417 | | | | | | | |
| Uranium-238 | NR | 0.1954 | | | | 0.14 - 0.25 | | | |
| Vanadium | NR | 1.2 | | | | 0.84 - 1.56 | | | |
| Zinc | NR | 1.037 | | | | 0.73 - 1.35 | | | |
| Americium-241 | NR | | | | | | | | |
| Cesium-134 | 310 | 322 | A | | -3.7 | 225.40 - 418.60 | 20 | | (Bq/L) |
| Cesium-137 | 122 | 124 | A | | -1.6 | 86.80 - 161.20 | 9 | | (Bq/L) |
| Cobalt-57 | 170 | 173 | A | | -1.7 | 121.10 - 224.90 | 12 | | (Bq/L) |
| Cobalt-60 | 125 | 121.8 | A | | 2.6 | 85.26 - 158.34 | 9 | | (Bq/L) |
| Hydrogen-3 | NR | 379 | | | | 265.30 - 492.70 | | | |
| Iron-55 | 123 | 131 | A | | -6.1 | 91.70 - 170.30 | 6 | | (Bq/L) |
| Manganese-54 | 154 | 155 | A | | -0.6 | 108.50 - 201.50 | 12 | | (Bq/L) |
| Nickel-63 | 81.3 | 73.7 | A | | 10.3 | 51.59 - 95.81 | 4.7 | | (Bq/L) |
| Plutonium-238 | 1.28 | 1.49 | A | | -14.1 | 1.04 - 1.94 | .11 | | (Bq/L) |
| Plutonium-239/240 | 2.26 | 2.39 | A | | -5.4 | 1.67 - 3.11 | 0.09 | | (Bq/L) |
| Strontium-90 | 15.4 | 17.7 | A | | -13.0 | 12.39 - 23.01 | 0.7 | | (Bq/L) |
| Technetium-99 | NR | 28.8 | | | | 20.16 - 37.44 | | | |
| Uranium-234/233 | 2.39 | 2.35 | A | | 1.7 | 1.64 - 3.05 | 0.12 | | (Bq/L) |
| Uranium-238 | 2.35 | 2.43 | A | | -3.3 | 1.70 - 3.16 | .12 | | (Bq/L) |
| Zinc-65 | 330 | 320 | A | | 3.1 | 224.00 - 416.00 | 30 | | (Bq/L) |

***Flags:***

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for information purposes only)
H = Uncertainty potentially too high (for information purposes only)
Q = Particapant should evaluate reported value
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported
NOTE 1: False Positive Test, Value Not Reported

# *Mixed Analyte Performance Evaluation Program*

## *Laboratory Results*

*LOCK03*

RADIATION MEASUREMENTS LABORATORY/AEDL
INEEL
Idaho Falls ID 83415

***Sample ID:*** MAPEP-03-S10

| *Analyte* | *Result* | *Ref Value* | *Flag* | *Flag Text* | *Bias (%)* | *Acceptance Range* | *Unc Value* | *Unc. Flag* | *Units* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | NR | 19.9 | | | | 13.93 - 25.87 | | | |
| Arsenic | NR | 7.4 | | | | 5.18 - 9.62 | | | |
| Barium | NR | 448 | | | | 313.60 - 582.40 | | | |
| Beryllium | NR | 4.36 | | | | 3.05 - 5.67 | | | |
| Cadmium | NR | 2.14 | | | | 1.50 - 2.78 | | | |
| Chromium | NR | 27 | | | | 18.90 - 35.10 | | | |
| Lead | NR | 14.4 | | | | 10.08 - 18.72 | | | |
| Nickel | NR | 109 | | | | 76.30 - 141.70 | | | |
| Selenium | NR | 1.69 | | | | 1.18 - 2.20 | | | |
| Silver | NR | 11.7 | | | | 8.19 - 15.21 | | | |
| Vanadium | NR | 92 | | | | 64.40 - 119.60 | | | |
| Zinc | NR | 142 | | | | 99.40 - 184.60 | | | |
| Americium-241 | 0.3 | | A | | | | 0.5 | | (Bq/kg) |
| Cesium-134 | 252 | 238 | A | | 5.9 | 166.60 - 309.40 | 20 | | (Bq/kg) |
| Cesium-137 | 920 | 832 | A | | 10.6 | 582.40 - 1081.60 | 70 | | (Bq/kg) |
| Cobalt-57 | 630 | 530 | A | | 18.9 | 371.00 - 689.00 | 50 | | (Bq/kg) |
| Cobalt-60 | 480 | 420 | A | | 14.3 | 294.00 - 546.00 | 30 | | (Bq/kg) |
| Iron-55 | NR | 1020 | | | | 714.00 - 1326.00 | | | |
| Manganese-54 | 151 | 137 | A | | 10.2 | 95.90 - 178.10 | 13 | | (Bq/kg) |
| Nickel-63 | NR | 770 | | | | 539.00 - 1001.00 | | | |
| Plutonium-238 | 62.3 | 66.9 | A | | -6.9 | 46.83 - 86.97 | 3.9 | | (Bq/kg) |
| Plutonium-239/240 | 50.3 | 52.7 | A | | -4.6 | 36.89 - 68.51 | 3.2 | | (Bq/kg) |
| Potassium-40 | 700 | 652 | A | | 7.4 | 456.40 - 847.60 | 60 | | (Bq/kg) |
| Strontium-90 | 706 | 714 | A | | -1.1 | 499.80 - 928.20 | 27 | | (Bq/kg) |
| Uranium-234/233 | 87.8 | 89 | A | | -1.3 | 62.30 - 115.70 | 6.3 | | (Bq/kg) |
| Uranium-238 | 388 | 421 | A | | -7.8 | 294.70 - 547.30 | 26 | | (Bq/kg) |
| Zinc-65 | 560 | 490 | A | | 14.3 | 343.00 - 637.00 | 40 | | (Bq/kg) |

***Flags:***

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for information purposes only)
H = Uncertainty potentially too high (for information purposes only)
Q = Reported detection limit in question
QL = Quantitation Limit
RW = Report Warning
NR = Not Reported

# *Mixed Analyte Performance Evaluation Program*

*Laboratory Results*

*Sample ID:* MAPEP-02-W10

RADIATION MEASUREMENTS LABORATORY/AEDL

*LOCK03* INEEL

Idaho Falls ID 83415

| *Analyte* | *Result* | *Ref Value* | *Flag* | *Flag Text* | *Bias (%)* | *Acceptance Range* | *Unc Value* | *Unc. Flag* | *Units* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | NR | 0.241 | | | | 0.17 - 0.31 | | | |
| Arsenic | NR | | | | | | | | |
| Barium | NR | 0.756 | | | | 0.53 - 0.98 | | | |
| Beryllium | NR | 0.802 | | | | 0.56 - 1.04 | | | |
| Chromium | NR | 2.51 | | | | 1.76 - 3.26 | | | |
| Copper | NR | 1.95 | | | | 1.37 - 2.54 | | | |
| Lead | NR | 3.11 | | | | 2.18 - 4.04 | | | |
| Nickel | NR | 2.16 | | | | 1.51 - 2.81 | | | |
| Selenium | NR | 0.652 | | | | 0.46 - 0.85 | | | |
| Silver | NR | | | | | | | | |
| Thallium | NR | 1.4 | | | | 0.98 - 1.82 | | | |
| Uranium-Total | NR | 0.13 | | | | | | | |
| Uranium-235 | NR | 0.000919 | | | | | | | |
| Uranium-238 | NR | 0.129 | | | | | | | |
| Zinc | NR | 2.46 | | | | 1.72 - 3.20 | | | |
| Americium-241 | 0.54 | 0.578 | A | | -6.6 | 0.40 - 0.75 | 0.04 | | (Bq/L) |
| Cesium-134 | 390 | 421 | A | | -7.4 | 294.70 - 547.30 | 30 | | (Bq/L) |
| Cesium-137 | 327 | 329 | A | | -0.6 | 230.30 - 427.70 | 30 | | (Bq/L) |
| Cobalt-57 | 58.3 | 57 | A | | 2.3 | 39.90 - 74.10 | 4.0 | | (Bq/L) |
| Cobalt-60 | 39.3 | 38.2 | A | | 2.9 | 26.74 - 49.66 | 3.0 | | (Bq/L) |
| Iron-55 | 97.3 | 96 | A | | 1.4 | 67.20 - 124.80 | 6.1 | | (Bq/L) |
| Manganese-54 | 34 | 32.9 | A | | 3.3 | 23.03 - 42.77 | 3 | | (Bq/L) |
| Nickel-63 | 152 | 136.5 | A | | 11.4 | 95.55 - 177.45 | 12 | | (Bq/L) |
| Plutonium-238 | 0.85 | 0.828 | A | | 2.7 | 0.58 - 1.08 | 0.05 | | (Bq/L) |
| Plutonium-239/240 | -0.001 | | A | | | | 0.004 | | (Bq/L) |
| Strontium-90 | 12.4 | 12.31 | A | | 0.7 | 8.62 - 16.00 | 0.7 | | (Bq/L) |
| Technetium-99 | NR | 132 | | | | 92.40 - 171.60 | | | |
| Uranium-234/233 | 1.51 | 1.54 | A | | -1.9 | 1.08 - 2.00 | 0.11' | | (Bq/L) |
| Uranium-235 | 0.073 | | | | | | 0.017 | | (Bq/L) |
| Uranium-238 | 1.49 | 1.6 | A | | -6.9 | 1.12 - 2.08 | 0.083 | | (Bq/L) |
| Zinc-65 | 560 | 516 | A | | 8.5 | 361.20 - 670.80 | 40 | | (Bq/L) |

***Flags:***

A = Result acceptable Bias <= 20%

W = Result acceptable with warning 20% < Bias <= 30%

N = Result not acceptable Bias > 30%

L = Uncertainty potentially too low (for infomation purposes only)

H = Uncertainty potentially too high (for information purposes only)

QL = Quantitation Limit

NR = Not Reported

NOTE 1: False Positive Test, Value Not Reported

# *Mixed Analyte Performance Evaluation Program*

*Laboratory Results*

*Sample ID:* MAPEP-02-S9

RADIATION MEASUREMENTS LABORATORY/AEDL
*LOCK03* INEEL
Idaho Falls ID 83415

| *Analyte* | *Result* | *Ref Value* | *Flag* | *Flag Text* | *Bias (%)* | *Acceptance Range* | *Unc Value* | *Unc. Flag* | *Units* |
|---|---|---|---|---|---|---|---|---|---|
| Antimony | NR | 18.5 | | | | 12.95 - 24.05 | | | |
| Arsenic | NR | 70 | | | | 49.00 - 91.00 | | | |
| Barium | NR | 300 | | | | 210.00 - 390.00 | | | |
| Beryllium | NR | 0.95 | | | | 0.67 - 1.24 | | | |
| Cadmium | NR | 17.3 | | | | 12.11 - 22.49 | | | |
| Chromium | NR | 76 | | | | 53.20 - 98.80 | | | |
| Lead | NR | 38.1 | | | | 26.67 - 49.53 | | | |
| Nickel | NR | 24 | | | | 16.80 - 31.20 | | | |
| Selenium | NR | 18.5 | | | | 12.95 - 24.05 | | | |
| Silver | NR | 55.5 | | | | 38.85 - 72.15 | | | |
| Thallium | NR | 46.3 | | | | 32.41 - 60.19 | | | |
| Uranium-Total | NR | 18.5 | | | | 12.95 - 24.05 | | | |
| Uranium-235 | NR | 0.13 | | | | 0.09 - 0.17 | | | |
| Uranium-238 | NR | 18.4 | | | | 12.88 - 23.92 | | | |
| Vanadium | NR | 53.9 | | | | 37.73 - 70.07 | | | |
| Zinc | NR | 74.5 | | | | 52.15 - 96.85 | | | |
| Americium-241 | 44.1 | 43.5 | A | | 1.4 | 30.45 - 56.55 | 2.7 | | (Bq/kg) |
| Cesium-134 | 859 | 862 | A | | -0.3 | 603.40 - 1120.60 | 61 | | (Bq/kg) |
| Cesium-137 | 113 | 111 | A | | 1.8 | 77.70 - 144.30 | 8 | | (Bq/kg) |
| Cobalt-57 | 244 | 246 | A | | -0.8 | 172.20 - 319.80 | 17 | | (Bq/kg) |
| Cobalt-60 | 97 | 87.5 | A | | 10.9 | 61.25 - 113.75 | 7 | | (Bq/kg) |
| Iron-55 | NR | 1870 | | | | 1309.00 - 2431.00 | | | |
| Manganese-54 | 592 | 546 | A | | 8.4 | 382.20 - 709.80 | 42 | | (Bq/kg) |
| Nickel-63 | NR | 1180 | | | | 826.00 - 1534.00 | | | |
| Plutonium-238 | 32.8 | 33.3 | A | | -1.5 | 23.31 - 43.29 | 1.9 | | (Bq/kg) |
| Plutonium-239/240 | 69.6 | 72.9 | A | | -4.5 | 51.03 - 94.77 | 4.0 | | (Bq/kg) |
| Potassium-40 | 639 | 652 | A | | -2.0 | 456.40 - 847.60 | 50 | | (Bq/kg) |
| Strontium-90 | -1.3 | | A | | | | 4.2 | | (Bq/kg) |
| Uranium-234/233 | 214 | 229 | A | | -6.6 | 160.30 - 297.70 | 11 | | (Bq/kg) |
| Uranium-235 | 14 | | | | | | 1 | | (Bq/kg) |
| Uranium-238 | 222 | 220 | A | | 0.9 | 154.00 - 286.00 | 11 | | (Bq/kg) |
| Zinc-65 | 900 | 809 | A | | 11.2 | 566.30 - 1051.70 | 64 | | (Bq/kg) |

*Flags:*
A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

# QAP 58 Results by Laboratory

**Lab:** EG INEEL TRA Radioanalytical Laboratory, Scoville

| No. Test | Radionuclide | Reported Value | Reported Error | EML Value | EML Error | Reported / EML | Evaluation | QAP 56 Evaluation |
|---|---|---|---|---|---|---|---|---|
| **Matrix:** AI Air Filter Bq / filter | | | | | | | | |
| 1 | AM241 | 0.282 | 0.017 | 0.340 | 0.040 | 0.829 | W | A |
| 1 | CO60 | 38.000 | 1.000 | 33.500 | 0.870 | 1.134 | W | A |
| 1 | CS137 | 118.000 | 7.000 | 99.700 | 2.300 | 1.184 | W | A |
| 1 | MN54 | 53.000 | 1.000 | 43.800 | 1.130 | 1.210 | W | A |
| 1 | PU238 | 0.536 | 0.027 | 0.520 | 0.010 | 1.031 | A | W |
| 1 | PU239 | 0.345 | 0.018 | 0.330 | 0.010 | 1.045 | A | A |
| 1 | U234 | 0.221 | 0.014 | 0.240 | 0.003 | 0.921 | A | A |
| 1 | U238 | 0.224 | 0.014 | 0.240 | 0.010 | 0.933 | A | A |
| **Matrix:** SO Soil Bq / kg | | | | | | | | |
| 1 | AC228 | 68.000 | 7.000 | 57.600 | 2.500 | 1.181 | A | W |
| 1 | BI212 | 99.000 | 9.000 | 60.600 | 4.000 | 1.634 | N | A |
| 1 | BI214 | 77.000 | 5.000 | 67.000 | 2.300 | 1.149 | A | A |
| 1 | CS137 | 1672.000 | 11.000 | 1450.000 | 73.000 | 1.153 | A | A |
| 1 | K40 | 688.000 | 48.000 | 636.000 | 33.000 | 1.082 | A | A |
| 1 | PB212 | 81.000 | 5.000 | 57.900 | 2.900 | 1.399 | N | A |
| 1 | PB214 | 83.000 | 5.000 | 71.100 | 2.300 | 1.167 | A | A |
| 1 | TH234 | 224.000 | 21.000 | 127.000 | 7.100 | 1.764 | W | A |
| **Matrix:** VE Vegetation Bq / kg | | | | | | | | |
| 1 | CO60 | 10.500 | 3.000 | 12.100 | 0.700 | 0.868 | W | W |
| 1 | CS137 | 435.000 | 8.000 | 444.000 | 22.000 | 0.980 | A | A |
| 1 | K40 | 1160.000 | 80.000 | 1120.000 | 60.000 | 1.036 | A | A |
| **Matrix:** WA Water Bq / L | | | | | | | | |
| 1 | AM241 | 2.260 | 0.120 | 2.130 | 0.150 | 1.061 | A | A |
| 1 | CO60 | 240.000 | 30.000 | 234.000 | 8.400 | 1.026 | A | A |
| 1 | CS134 | 30.000 | 1.000 | 30.500 | 1.090 | 0.984 | A | A |
| 1 | CS137 | 64.000 | 2.000 | 63.800 | 3.400 | 1.003 | A | A |
| 1 | Gross Alpha | 247.000 | 20.000 | 377.500 | 10.000 | 0.654 | W | A |
| 1 | Gross Beta | 784.000 | 55.000 | 627.500 | 10.000 | 1.249 | A | A |
| 1 | PU238 | 3.870 | 0.200 | 3.330 | 0.300 | 1.162 | W | W |
| 1 | PU239 | 4.570 | 0.230 | 3.920 | 0.300 | 1.166 | W | W |
| 1 | U234 | 2.050 | 0.110 | 2.050 | 0.190 | 1.000 | A | A |
| 1 | U238 | 2.040 | 0.150 | 2.160 | 0.210 | 0.944 | A | A |

**Values for elemental uranium are reported in µg/filter, g, or mL.**

**Evaluation: A=Acceptable, W=Acceptable with Warning, N=Not Acceptable**
If the evaluation system is not appropriate for the types of analyses performed in your lab, apply a site specific evaluation.

# QAP 57 Results by Laboratory

**Lab:** EG INEEL TRA Radioanalytical Laboratory, Scoville

| No. Test | Radionuclide | Reported Value | Reported Error | EML Value | EML Error | Reported EML | Evaluation | QAP 56 Evaluation |
|---|---|---|---|---|---|---|---|---|
| **Matrix:** AI Air Filter Bq / filter | | | | | | | | |
| 1 | AM241 | 0.195 | 0.014 | 0.191 | 0.004 | 1.023 | A | A |
| 1 | CO60 | 25.000 | 2.000 | 23.000 | 0.059 | 1.087 | A | A |
| 1 | CS137 | 36.000 | 3.000 | 32.500 | 0.777 | 1.108 | A | A |
| 1 | MN54 | 60.000 | 5.000 | 52.200 | 1.170 | 1.149 | A | A |
| 1 | PU238 | 0.097 | 0.005 | 0.119 | 0.003 | 0.817 | W | A |
| 1 | PU239 | 0.183 | 0.009 | 0.206 | 0.002 | 0.889 | A | A |
| 1 | SR90 | 5.740 | 0.290 | 5.561 | 0.119 | 1.032 | A | A |
| 1 | U234 | 0.218 | 0.009 | 0.228 | 0.006 | 0.958 | A | A |
| 1 | U238 | 0.215 | 0.009 | 0.230 | 0.006 | 0.935 | A | A |
| **Matrix:** SO Soil Bq / kg | | | | | | | | |
| 1 | AC228 | 36.000 | 7.000 | 42.300 | 1.560 | 0.851 | W | A |
| 1 | AM241 | 6.870 | 0.690 | 6.767 | 0.301 | 1.015 | A | A |
| 1 | BI212 | 47.000 | 20.000 | 45.930 | 4.510 | 1.023 | A | A |
| 1 | BI214 | 31.000 | 4.000 | 33.630 | 1.560 | 0.922 | A | N |
| 1 | CS137 | 755.000 | 60.000 | 829.330 | 41.580 | 0.910 | A | A |
| 1 | K40 | 600.000 | 41.000 | 637.670 | 34.260 | 0.941 | A | N |
| 1 | PB212 | 42.000 | 4.000 | 43.430 | 2.710 | 0.967 | A | W |
| 1 | PB214 | 34.000 | 4.000 | 35.200 | 1.510 | 0.966 | A | A |
| 1 | PU238 | 18.400 | 1.400 | 19.203 | 0.855 | 0.958 | A | |
| 1 | PU239 | 13.400 | 0.700 | 12.903 | 0.465 | 1.038 | A | W |
| 1 | TH234 | 51.000 | 22.000 | 48.400 | 4.830 | 1.054 | A | A |
| 1 | U234 | 47.900 | 2.900 | 42.320 | 3.100 | 1.132 | W | A |
| 1 | U238 | 48.100 | 2.400 | 44.890 | 3.200 | 1.072 | A | A |
| **Matrix:** VE Vegetation Bq / kg | | | | | | | | |
| 1 | CO60 | 12.000 | 3.000 | 9.660 | 0.630 | 1.242 | W | W |
| 1 | CS137 | 295.000 | 23.000 | 300.670 | 15.250 | 0.981 | A | A |
| 1 | K40 | 1346.000 | 140.000 | 1480.000 | 77.800 | 0.909 | A | W |
| **Matrix:** WA Water Bq / L | | | | | | | | |
| 1 | AM241 | 3.090 | 0.220 | 3.043 | 0.082 | 1.015 | A | A |
| 1 | CO60 | 263.000 | 20.000 | 268.670 | 9.710 | 0.979 | A | A |
| 1 | CS134 | 57.000 | 4.000 | 60.200 | 1.860 | 0.947 | A | W |
| 1 | CS137 | 77.000 | 6.000 | 81.430 | 4.280 | 0.946 | A | A |
| 1 | Gross Alpha | 221.000 | 28.000 | 210.000 | 21.000 | 1.052 | A | A |
| 1 | Gross Beta | 909.000 | 91.000 | 900.000 | 90.000 | 1.010 | A | A |
| 1 | PU238 | 3.710 | 0.170 | 4.331 | 0.117 | 0.857 | W | A |
| 1 | PU239 | 1.840 | 0.080 | 2.070 | 0.074 | 0.889 | W | A |
| 1 | SR90 | 7.900 | 0.600 | 8.690 | 0.420 | 0.909 | A | A |
| 1 | U234 | 3.050 | 0.150 | 3.323 | 0.114 | 0.918 | A | A |
| 1 | U238 | 3.120 | 0.140 | 3.370 | 0.140 | 0.926 | A | A |

**Values for elemental uranium are reported in µg/filter, g, or mL.**

**Evaluation: A=Acceptable, W=Acceptable with Warning, N=Not Acceptable**

If the evaluation system is not appropriate for the types of analyses performed in your lab, apply a site specific evaluation.

# QAP 56 Results by Laboratory

**Lab:** EG INEEL TRA Radioanalytical Laboratory, Scoville

| No. Test | Radionuclide | Reported Value | Reported Error | EML Value | EML Error | Reported / EML | Evaluation | QAP 55 Evaluation |
|---|---|---|---|---|---|---|---|---|
| **Matrix:** AI Air Filter Bq / filter | | | | | | | | |
| 1 | AM241 | 0.092 | 0.007 | 0.088 | 0.005 | 1.042 | A | |
| 1 | CO60 | 33.300 | 2.000 | 30.520 | 0.652 | 1.091 | A | A |
| 1 | CS137 | 31.000 | 2.000 | 28.230 | 0.701 | 1.098 | A | A |
| 1 | MN54 | 43.700 | 3.000 | 38.530 | 0.867 | 1.134 | A | A |
| 1 | PU238 | 0.063 | 0.005 | 0.057 | 0.001 | 1.097 | A | |
| 1 | PU239 | 0.208 | 0.013 | 0.187 | 0.003 | 1.110 | A | |
| 1 | SR90 | 4.080 | 0.130 | 4.832 | 0.184 | 0.844 | A | |
| 1 | U234 | 0.289 | 0.020 | 0.297 | 0.004 | 0.972 | A | |
| 1 | U238 | 0.294 | 0.020 | 0.298 | 0.004 | 0.986 | A | |
| **Matrix:** SO Soil Bq / kg | | | | | | | | |
| 1 | AC228 | 58.000 | 10.000 | 51.167 | 1.941 | 1.134 | A | W |
| 1 | AM241 | 11.400 | 0.900 | 10.927 | 0.373 | 1.043 | A | |
| 1 | BI212 | 61.000 | 24.000 | 53.430 | 5.215 | 1.142 | A | A |
| 1 | BI214 | 39.000 | 7.000 | 53.933 | 2.249 | 0.723 | N | A |
| 1 | CS137 | 1370.000 | 100.000 | 1326.670 | 66.510 | 1.033 | A | A |
| 1 | K40 | 490.000 | 80.000 | 621.670 | 33.860 | 0.788 | N | A |
| 1 | PB212 | 62.000 | 6.000 | 51.100 | 2.753 | 1.213 | W | A |
| 1 | PB214 | 65.000 | 8.000 | 54.367 | 2.249 | 1.196 | A | W |
| 1 | PU239 | 22.400 | 1.900 | 19.098 | 0.706 | 1.173 | W | |
| 1 | SR90 | 51.800 | 2.800 | 53.756 | 1.446 | 0.964 | A | |
| 1 | TH234 | 124.000 | 26.000 | 89.300 | 6.837 | 1.389 | A | A |
| 1 | U234 | 84.200 | 5.300 | 93.885 | 7.767 | 0.897 | A | |
| 1 | U238 | 86.900 | 5.600 | 96.778 | 8.410 | 0.898 | A | |
| **Matrix:** VE Vegetation Bq / kg | | | | | | | | |
| 1 | AM241 | 2.400 | 0.180 | 2.228 | 0.216 | 1.077 | A | |
| 1 | CM244 | 1.300 | 0.110 | 1.320 | 0.164 | 0.985 | A | |
| 1 | CO60 | 9.100 | 1.900 | 11.230 | 0.677 | 0.810 | W | W |
| 1 | CS137 | 317.000 | 25.000 | 313.667 | 15.910 | 1.011 | A | A |
| 1 | K40 | 740.000 | 100.000 | 864.330 | 47.220 | 0.856 | W | A |
| 1 | PU238 | 0.250 | 0.040 | 0.257 | 0.046 | 0.974 | A | |
| 1 | PU239 | 3.540 | 0.250 | 3.543 | 0.377 | 0.999 | A | |
| 1 | SR90 | 520.000 | 17.000 | 586.280 | 11.140 | 0.887 | A | |
| **Matrix:** WA Water Bq / L | | | | | | | | |
| 1 | AM241 | 1.570 | 0.100 | 1.474 | 0.021 | 1.065 | A | A |
| 1 | CO60 | 360.000 | 30.000 | 347.330 | 12.400 | 1.036 | A | A |
| 1 | CS134 | 3.000 | 0.400 | 3.357 | 0.200 | 0.894 | W | |
| 1 | CS137 | 57.000 | 4.000 | 56.067 | 2.929 | 1.017 | A | A |
| 1 | GROSS ALPHA | 360.000 | 29.000 | 375.000 | 37.500 | 0.960 | A | A |
| 1 | GROSS BETA | 1080.000 | 58.000 | 1030.000 | 103.000 | 1.049 | A | A |
| 1 | PU238 | 0.480 | 0.037 | 0.490 | 0.032 | 0.979 | A | A |

**Values for elemental uranium are reported in µg/filter, g, or mL.**

**Evaluation: A=Acceptable, W=Acceptable with Warning, N=Not Acceptable**
If the evaluation system is not appropriate for the types of analyses performed in your lab, apply a site specific evaluation.

# QAP 56 Results by Laboratory

**Lab:** EG INEEL TRA Radioanalytical Laboratory, Scoville

| No. Test | Radionuclide | Reported Value | Reported Error | EML Value | EML Error | Reported / EML | Evaluation | QAP 55 Evaluation |
|---|---|---|---|---|---|---|---|---|
| **Matrix:** WA Water Bq / L | | | | | | | | |
| 1 | PU239 | 4.490 | 0.270 | 4.219 | 0.172 | 1.064 | A | A |
| 1 | SR90 | 6.520 | 0.280 | 7.579 | 0.176 | 0.860 | A | |
| 1 | U234 | 1.270 | 0.070 | 1.402 | 0.056 | 0.906 | A | W |
| 1 | U238 | 1.300 | 0.070 | 1.381 | 0.079 | 0.941 | A | A |

**Values for elemental uranium are reported in µg/filter, g, or mL.**

**Evaluation: A=Acceptable, W=Acceptable with Warning, N=Not Acceptable**
If the evaluation system is not appropriate for the types of analyses performed in your lab, apply a site specific evaluation.

# U.S. DEPARTMENT OF COMMERCE

National Institute of Standards and Technology
Gaithersburg, MD

# REPORT OF TRACEABILITY

**Bechtel BWXT Idaho, LLC**
**Idaho Falls, Idaho**

| | |
|---|---|
| Test Identification | NRIP02-SS |
| Matrix Description | $^{241}$Am, $^{238}$Pu, $^{230}$Th, $^{90}$Sr, $^{238}$U in Soil[1] |
| Test Activity Range | 30mBq•sample$^{-1}$ to 300mBq•sample$^{-1}$ |
| Reference Time | 12:00 EST, April 1, 2002 |

## Measurement Results

| Nuclide | NIST Value [2,3] | | Reported Value[4] | | Difference[5] |
|---|---|---|---|---|---|
| | Massic Activity Bq•g$^{-1}$ | Relative Expanded Uncertainty (%, k=2) | Massic Activity Bq•g$^{-1}$ | Relative Expanded Uncertainty (%, k=2) | (%) |
| $^{241}$Am | 2.127 | 0.67 | 2.12 | 10.8 | -0.4 |
| $^{238}$Pu | 1.893 | 1.14 | 1.65 | 16.4 | -13 |
| $^{230}$Th | 3.187 | 0.61 | NR | NA | NA |
| $^{238}$U | 8.012 | 0.63 | 7.82 | 11.4 | -2.4 |
| $^{90}$Sr | 8.428 | 0.74 | 7.46 | 13.1 | -11 |

**NA= Not Applicable** **NR= Not Reported**

**Measurement Method**

| | NIST[6] | Reporting Laboratory[7] |
|---|---|---|
| Activity Measurements | Alpha- and Beta-Spectrometry<br>Mass Spectrometry | Alpha- and Beta-Spectrometry |

**Evaluation (per ANSI N42.22)**

| Nuclide | N42.22[8] | |
|---|---|---|
| | ANSI N42.22 Traceable | Traceability Limit (±Percent) |
| $^{241}$Am | Yes | 16 |
| $^{238}$Pu | Yes | 22 |
| $^{230}$Th | NA | NA |
| $^{238}$U | Yes | 17 |
| $^{90}$Sr | Yes | 17 |

Samples Distributed May 17, 2002
Reporting Data Received August 19, 2002

For the Director

Bert M. Coursey

Bert Coursey, Acting Leader
Radioactivity Group
**Physics Laboratory**
29 August 2002
(continued)

# U.S. DEPARTMENT OF COMMERCE

National Institute of Standards and Technology
Gaithersburg, MD

# REPORT OF TRACEABILITY

**Lockheed Martin Idaho Technologies Company**
**Idaho Falls, Idaho**

| | |
|---|---|
| Test Identification | NRIP02-GF |
| Matrix Description | $^{241}$Am, $^{238}$Pu, $^{90}$Sr, $^{238}$U, $^{230}$Th on Glass-Fiber Filters[1] |
| Test Activity Range | 30mBq•sample$^{-1}$ to 300mBq•sample$^{-1}$ |
| Reference Time | 12:00 EST, April 1, 2002 |

## Measurement Results

| Nuclide | NIST Value [2,3] | | Reported Value[4] | | Difference[5] |
|---|---|---|---|---|---|
| | Massic Activity Bq•g$^{-1}$ | Relative Expanded Uncertainty (%, 2s) | Massic Activity Bq•g$^{-1}$ | Relative Expanded Uncertainty (%, 2s) | (±% Bias) |
| $^{241}$Am | 2.437 | 0.67 | 2.40 | 10.6 | -1.5 |
| $^{238}$Pu | 2.168 | 1.14 | 2.00 | 10.6 | -7.8 |
| $^{238}$U | 9.527 | 0.63 | 9.26 | 10.8 | -2.8 |
| $^{90}$Sr | 9.653 | 0.77 | 10.01 | 10.8 | +3.7 |
| $^{230}$Th | 3.650 | 0.61 | 3.66 | 12.2 | +0.3 |

**NA= Not Applicable** **NR= Not Reported**

| Methods | | |
|---|---|---|
| | NIST[6] | Reporting Laboratory[7] |
| Activity Measurements | Alpha- and Beta-Spectrometry<br>Mass Spectrometry | Alpha- and Beta-Spectrometry |

**Evaluation (per ANSI N42.22)**

| Nuclide | N42.22[8] | |
|---|---|---|
| | ANSI N42.22 Traceable | Traceability Limit (±Percent) |
| $^{241}$Am | Yes | 16 |
| $^{238}$Pu | Yes | 15 |
| $^{238}$U | Yes | 16 |
| $^{90}$Sr | Yes | 17 |
| $^{230}$Th | Yes | 18 |

Samples Distributed 8 March 2002
Reporting Data Received 16 May 2002

For the Director

Bert M. Coursey

Bert M.Coursey, Acting Leader
Radioactivity Group
**Physics Laboratory**
19 June 2002
(continued)