

ER PROGRAM DATA ASSESSMENT  
SUMMARY REPORT FORM

Batch No. 8909S083 - E0734 Site Area 2 - Hillside  
 Laboratory TMA/Eberline No. of Samples/Matrix 6/Water  
 Reviewer Org. TechLaw, Inc.  
 Sample Numbers SW070006, SW069006, SW068006, SW067006, SW066006, SW031006

Alpha Spectrometric Analyses  
Data Assessment Summary

	Iso-U	Iso-Pu	Am <sup>241</sup>	Comments
1. Holding Times	<u>V</u>	<u>V</u>	<u>V</u>	
2. Initial Calibrations	<u>V</u>	<u>V</u>	<u>V</u>	
3. Blanks	<u>V</u>	<u>V</u>	<u>A</u>	<u>See Action Item 1.</u>
4. Lab Replicates	<u>V</u>	<u>V</u>	<u>V</u>	
5. Lab Control Samples	<u>V</u>	<u>V</u>	<u>A</u>	<u>See Action Item 2.</u>
6. Resolution	<u>V</u>	<u>V</u>	<u>V</u>	
7. Recovery Factors	<u>V</u>	<u>V</u>	<u>R</u>	<u>See Action Item 3.</u>
8. Sample Calculations	<u>V</u>	<u>V</u>	<u>V</u>	
9. Overall Assessment	<u>V</u>	<u>V</u>	<u>R</u>	

V = Data had no problems.  
 A = Data acceptable but qualified due to problems.  
 R = Data rejected.  
 X = Problems, but do not affect data.

**Data Quality:** Data for Iso-Uranium and Plutonium analyses in the above batch were reviewed and found to be valid. Data for Americium analysis were reviewed and found to be rejected. Refer to action items and comments listed below for discussion.

ADMIN RECORD

"REVIEWED FOR CLASSIFICATION

By R. B. Hoffman  
 Date 7-12-90

REVIEWED FOR CLASSIFICATION/ A-0001-000085

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By George H. Setlow  
 Date 6/26/90

e0734/rk39

**Action Items:** 1) One reagent blank out of two for the Am<sup>241</sup> analysis in this batch exceeded the Minimum Detectable Activity (MDA); thus all data were flagged as estimated (J).

2) One of two lab controls (LCSs) for the Am<sup>241</sup> analysis was outside 2  $\sigma$  but within 3  $\sigma$  control limits; thus all data associated with these LCSs were flagged as estimated (J).

3) The Am<sup>241</sup> analysis of samples SW070006, SW069006, SW068006, SW066006, and SW031006 had chemical recoveries less than 12%; thus the data were flagged as rejected (R).

**Comments:** 1) One out of two reagent blanks for the Am<sup>241</sup> analysis of this batch exceeded the MDA; thus all data associated with the blank were flagged as estimated (J).

2) One out of two LCSs for the Am<sup>241</sup> analysis was outside 2  $\sigma$  but within 3  $\sigma$  control limits; thus all data associated with these LCSs were flagged as estimated (J).

3) The Am<sup>241</sup> analysis of samples SW070006, SW069006, SW068006, SW066006, and SW031006 had chemical recoveries of less than 12%; thus all data were flagged rejected (R).

The Required Detection Limit (RDL) for Am<sup>241</sup> analysis was not achieved on samples SW069006 and SW068006, due to matrix problems.

The channel by channel printout copies were poorly centered, and it was hard to verify isotopic identities and count sums.

The cumulative nature of the above flags caused the overall assessment of the Am<sup>241</sup> analysis to be flagged as rejected (R).

**Note:** Data Summary Tables are attached.

Richard Thurman  
Reviewer Signature

3/8/90  
Date

**Radiochemical Data Completeness  
Checklist for Alpha Spectrometric Analyses  
of Soil and Water**

- A. Yes Case Narrative  
Yes Abnormalities explained  
Yes Matrix Problems explained  
Yes Instrument problems explained  
Yes Improper collection, storage, preservation, container explained  
Yes Hold times were met, explained if not met
- B. Yes Initial and Continuing Calibration Data Package  
Yes Detector ID  
Yes Analyst initials  
Yes Date, Time calibrated  
Yes NIST traceable standards with certification dates and DPMs  
Yes Observed channel numbers of isotopes of interest  
No Book values for proper channel numbers of isotopes of interest  
Yes Voltage settings, gain settings, vacuum settings  
Yes FWHMs in spectra, peak heights  
Yes Results of chi square test for background
- C. Yes Blanks Data Package  
Yes ID number of each detector blank is counted in  
Yes Analyst initials  
Yes Date, Times of counts  
Yes Number and ID of samples included with the blank  
Yes Type of method blank used, MDA of method
- D. Yes Replicate Sample Data Package  
Yes Detector ID  
Yes Analyst Initials  
Yes Date, Time Analyzed  
Yes Value obtained for sample, replicates, mean values  
Yes Count Durations of samples and backgrounds  
Yes Statistical Analysis of Range, Control Limits
- E. Yes Lab Control Samples Data Package  
Yes Sample ID, Detector ID  
Yes Analyst initials  
Yes Values obtained, true value of sample  
Yes Statistical Analysis of Results

- F. Yes Minimum Detectable Activity  
Yes Background Measurements  
Yes Detector ID  
Yes Date and time of count, counting duration  
Yes Mean background CPM over long period  
Yes Calculated MDA for isotope of interest
- G. Yes Internal Recovery Factors  
Yes Efficiency determined experimentally, copy of raw data  
Yes Detector ID  
Yes Analyst Initials, Date, Time of count  
Yes Isotopic Tracer used and DPM value  
Yes Certification Date of Tracer  
Yes Net CPM obtained  
Yes Count duration  
Yes Overall Efficiency Factor  
Yes Instrument Efficiency  
Yes Calculated Chemical Recovery
- H. Yes Sample Data Package  
Yes Printed report of results for sample, reruns  
Yes Computer calculations

**RADIOCHEMICAL ANALYSIS  
ANALYTICAL RESULTS (pCi/L)**

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SITE NAME: Area 2 - Hillside

Sample Location	SW070006	SW069006	SW068006	SW067006	SW066006	SW031006	Reagent Blank	Reagent Blank	
Sample Number	9/26/89	9/26/89	9/26/89	9/26/89	9/26/89	9/26/89	12/6/89	12/7/89	
Sample Date	Water	Water							
Matrix	DL	Val.	+/-	DQ	Val.	+/-	DQ	Val.	+/-
Parameter	pCi/L								
Gross Alpha	2	4.3	1.2	V	3.2	1.0	V	4.0	1.2
Gross Beta	4	0.5	0.4	V	0.2	0.3	V	0.1U	0.3
Total Strontium	1	4.5	1.2	V	3.6	1.1	V	4.7	1.3
Total Cesium	1	0.01	.01U	V	.01	.01	V	.05	.02
Radium 228	1			R			R	.32J	.07
Tritium	400								
Uranium 234 & 233	0.6	4.3	1.2	V	3.2	1.0	V	4.0	1.2
Uranium 235	0.6	0.5	0.4	V	0.2	0.3	V	0.1U	0.3
Uranium 238	0.6	4.5	1.2	V	3.6	1.1	V	4.7	1.3
Plutonium 239 & 240	0.01	.01U	.01	V	.01	.01	V	.05	.02
Americium 241 & 242	0.01	.09	.03	R	<.01U	.03	R	.02U	.05
Radium 226	0.05								
Gamma scan									
Other Isotopes									

U Indicates the parameter was not detected above the Instrument Quantization Limit  
 J Quantitation is approximate due to limitations identified during the quality control review  
 \* Value is rejected due to other contractual criteria examined during the quality control review  
 \*\* Value is rejected due to blank contamination identified during the quality control review  
 DL Detection Limit in PicoCuries per Liter (pCi/L)

DQ Data Qualifier  
 V Valid  
 A Acceptable with qualifications  
 R Rejected  
 e0734L/rk39

**EG&G ER Program  
Rocky Flats Plant**