

FACSIMILE REQUEST AND COVER SHEET



U. S. Environmental Protection Agency
Region II
Emergency and Remedial Response Division
290 Broadway - 19th Floor
New York, New York 10007-1866



DATE: 11/25/97

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OFFICE: NRC

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OFFICE: _____

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Number of Pages (including cover sheet): 24

COMMENTS: Attached are the results of isotopic uranium analyses conducted on soil samples collected from the Newfield Landfill.

GENERAL INFORMATION

SAMPLE TYPES

BLD	Blind sample
FBK	Field blank
SAM	Normal sample

ANALYSIS QC TYPES

ANA	Normal analysis
DUP	Laboratory duplicate
LCS	Laboratory control sample (blank spike)
MS	Matrix spike
MSD	Matrix spike duplicate
RBK	Reagent blank

QUALITY INDICATORS

RPD	Relative Percent Difference
%R	Percent Recovery
Z	Number of standard deviations by which a QC measurement differs from the expected value

EVALUATION OF QC ANALYSES

A reagent blank result is considered unacceptable if it is more than 3 standard deviations (counting uncertainty) below zero or more than 3 standard deviations above a predetermined upper control limit. For some analyses NAREL has set the upper control limit at zero. For others the control limit is a small positive number.

NAREL evaluates the results of duplicate and spike analyses using "Z scores". A Z score is the number of standard deviations by which the QC result differs from its ideal value. The score is considered acceptable if its absolute value is not greater than 3.

The Z score for a spiked sample is computed by dividing the difference between the measured value and the target value by the estimated total uncertainty in the difference.

The Z score for a duplicate analysis is computed by dividing the difference between the two measured values by the estimated total uncertainty in the difference. When the precision of paired MS/MSD analyses is evaluated, the native sample activity is subtracted from each measurement and the net concentrations are then converted to total activities before the Z score is computed.

Each measurement uncertainty used to compute a Z score includes an additional fixed term to represent sources of measurement error other than counting error. This additional term is not used in the evaluation of reagent blanks.

NAREL reports the "relative percent difference," or RPD, between duplicate results and the "percent recovery," or %R, for spiked analyses, but does not use these values for evaluation.

U.S. ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY
 U ANALYSES
 SDG #9700121

ANALYSIS SUMMARY

Analysis Procedure: U
 Title: Uranium

NAREL Sample #	QC Type	Preparation Procedure	Date Completed	Prep Batch #	QC Batch #
97.05384T		N/A	10/30/1997	0000300K	0000085N
97.05385U		N/A	10/30/1997	0000300K	0000085N
97.05386V		N/A	10/30/1997	0000300K	0000085N
97.05387W		N/A	10/30/1997	0000300K	0000085N
97.05388X		N/A	10/30/1997	0000300K	0000085N
97.05389Y		N/A	10/30/1997	0000300K	0000085N
97.05390Q		N/A	10/30/1997	0000300K	0000085N
97.05390Q	DUP	N/A	10/30/1997	0000300K	0000085N
97.05391R		N/A	10/30/1997	0000300K	0000085N
97.05391R	MS	N/A	10/30/1997	0000300K	0000085N
97.05391R	MSD	N/A	10/30/1997	0000300K	0000085N
97.05392T		N/A	10/30/1997	0000300K	0000085N
97.05393U		N/A	10/30/1997	0000300K	0000085N
RBK-00362200T *	RBK	N/A	11/06/1997	0000300K	0000085N

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

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U ANALYSES
SDG #9700121

SAMPLE ANALYSIS REPORT

Sample #: 97.05384T QC batch #: 0000085N
 Matrix: SOIL Prep batch #: 0000300K
 Sample type: SAM Prep procedure: N/A
 Amount analyzed: 5.000e-03 GASH Analysis procedure: U (handwritten)
 Dry/wet weight: 77.04 % Analyst: AS
 Ash/dry weight: 80.19 % QC type: ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:34	1000.0	AS02	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	6.43e+00	3.1e+00	2.7e+00	PCI/GDRY	10/29/1997
U235	1.54e+00	2.0e+00	3.2e+00	PCI/GDRY	10/29/1997
U238	9.32e+00	3.6e+00	2.2e+00	PCI/GDRY	10/29/1997

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U ANALYSES
SDG #9700121

*2 NLT
10/21/97*

SAMPLE ANALYSIS REPORT

Sample #:	97.05385U	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	5.000e-03 GASH	Analysis procedure:	U
Dry/wet weight:	95.58 %	Analyst:	AS
Ash/dry weight:	90.00 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS03	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	2.87e+00	2.2e+00	2.4e+00	PCI/GDRY	10/29/1997
U235	1.72e+00	1.7e+00	1.3e+00	PCI/GDRY	10/29/1997
U238	6.94e+00	3.4e+00	2.8e+00	PCI/GDRY	10/29/1997

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U ANALYSES
SDG #9700121**

SAMPLE ANALYSIS REPORT

Sample #:	97.05386V	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.444e-01 GASH	Analysis procedure:	U
Dry/wet weight:	99.94 %	Analyst:	AS
Ash/dry weight:	96.40 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS04	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	4.44e-01	1.3e-01	7.7e-02	PCI/GDRY	10/29/1997
U235	6.88e-02	5.5e-02	5.4e-02	PCI/GDRY	10/29/1997
U238	3.22e-01	1.1e-01	5.3e-02	PCI/GDRY	10/29/1997

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U ANALYSES
SDG #9700121**

SAMPLE ANALYSIS REPORT

Sample #:	97.05387W	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.243e-01 GASH	Analysis procedure:	U
Dry/wet weight:	99.93 %	Analyst:	AS
Ash/dry weight:	98.00 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS05	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	4.37e-01	1.3e-01	4.5e-02	PCI/GDRY	10/29/1997
U235	1.03e-02	3.2e-02	7.0e-02	PCI/GDRY	10/29/1997
U238	2.87e-01	1.0e-01	5.3e-02	PCI/GDRY	10/29/1997

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U ANALYSES
SDG #9700121**

SAMPLE ANALYSIS REPORT

Sample #:	97.05388X	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	4.988e-01 GASH	Analysis procedure:	U
Dry/wet weight:	99.95 %	Analyst:	AS
Ash/dry weight:	97.59 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS06	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	3.32e-01	7.6e-02	2.4e-02	PCI/GDRY	10/29/1997
U235	4.24e-02	3.0e-02	3.2e-02	PCI/GDRY	10/29/1997
U238	2.28e-01	6.2e-02	2.7e-02	PCI/GDRY	10/29/1997

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SAMPLE ANALYSIS REPORT

Sample #:	97.05389Y	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.556e-01 GASH	Analysis procedure:	U
Dry/wet weight:	99.92 %	Analyst:	AS
Ash/dry weight:	95.00 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS07	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	4.75e-01	1.4e-01	1.0e-01	PCI/GDRY	10/29/1997
U235	4.62e-02	4.7e-02	6.0e-02	PCI/GDRY	10/29/1997
U238	4.30e-01	1.3e-01	4.5e-02	PCI/GDRY	10/29/1997

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SAMPLE ANALYSIS REPORT

Sample #:	97.05390Q	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.492e-01 GASH	Analysis procedure:	U
Dry/wet weight:	99.94 %	Analyst:	AS
Ash/dry weight:	97.60 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS08	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	3.89e-01	1.1e-01	5.3e-02	PCI/GDRY	10/29/1997
U235	7.18e-02	4.8e-02	2.4e-02	PCI/GDRY	10/29/1997
U238	3.11e-01	9.5e-02	4.9e-02	PCI/GDRY	10/29/1997

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SAMPLE ANALYSIS REPORT

Sample #:	97.05390Q	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.510e-01 GASH	Analysis procedure:	U
Dry/wet weight:	99.94 %	Analyst:	AS
Ash/dry weight:	97.60 %	QC type:	DUP

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS09	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	6.07e-01	1.6e-01	9.4e-02	PCI/GDRY	10/29/1997
U235	1.29e-01	7.8e-02	3.5e-02	PCI/GDRY	10/29/1997
U238	4.41e-01	1.4e-01	2.9e-02	PCI/GDRY	10/29/1997

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SAMPLE ANALYSIS REPORT

Sample #:	97.05391R	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.566e-01 GASH	Analysis procedure:	U
Dry/wet weight:	83.95 %	Analyst:	AS
Ash/dry weight:	98.80 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS10	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	3.13e-01	9.8e-02	3.8e-02	PCI/GDRY	10/29/1997
U235	3.80e-02	4.0e-02	5.4e-02	PCI/GDRY	10/29/1997
U238	2.61e-01	9.0e-02	3.8e-02	PCI/GDRY	10/29/1997

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U ANALYSES
SDG #9700121**

*# 26
10/29/97*

*same as
rest
sample?*

SAMPLE ANALYSIS REPORT

Sample #:	97.05391R	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.513e-01 GASH	Analysis procedure:	U
Dry/wet weight:	83.95 %	Analyst:	AS
Ash/dry weight:	98.80 %	QC type:	MS

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS17	DPG

ANALYTICAL RESULTS

Analyte	Activity	± 2σ Uncertainty	MDC	Unit	Date
U234	3.78e+01	2.7e+00	9.4e-02	PCI/GDRY	10/29/1997
U235	2.41e+00	3.5e-01	8.4e-02	PCI/GDRY	10/29/1997
U238	3.85e+01	2.8e+00	7.8e-02	PCI/GDRY	10/29/1997

U.S. ENVIRONMENTAL PROTECTION AGENCY
 NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY
 U ANALYSES
 SDG #9700121

save sample #

SAMPLE ANALYSIS REPORT

Sample #:	97.05391R	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	2.522e-01 GASH	Analysis procedure:	U
Dry/wet weight:	83.95 %	Analyst:	AS
Ash/dry weight:	98.80 %	QC type:	MSD

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS19	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	3.73e+01	2.6e+00	5.4e-02	PCI/GDRY	10/29/1997
U235	3.01e+00	3.8e-01	4.5e-02	PCI/GDRY	10/29/1997
U238	3.83e+01	2.7e+00	4.4e-02	PCI/GDRY	10/29/1997

**U.S. ENVIRONMENTAL PROTECTION AGENCY
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U ANALYSES
SDG #9700121**

SAMPLE ANALYSIS REPORT

Sample #:	97.05392T	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	5.038e-01 GASH	Analysis procedure:	U
Dry/wet weight:	100.00 %	Analyst:	AS
Ash/dry weight:	97.19 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS21	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	3.26e-01	7.3e-02	2.6e-02	PCI/GDRY	10/29/1997
U235	4.24e-02	2.8e-02	2.3e-02	PCI/GDRY	10/29/1997
U238	2.97e-01	6.9e-02	2.5e-02	PCI/GDRY	10/29/1997

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NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY
U ANALYSES
SDG #9700121**

SAMPLE ANALYSIS REPORT

Sample #:	97.05393U	QC batch #:	0000085N
Matrix:	SOIL	Prep batch #:	0000300K
Sample type:	SAM	Prep procedure:	N/A
Amount analyzed:	5.015e-01 GASH	Analysis procedure:	U
Dry/wet weight:	99.91 %	Analyst:	AS
Ash/dry weight:	97.00 %	QC type:	ANA

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
10/29/1997 15:35	1000.0	AS22	DPG

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	4.10e-01	1.0e-01	3.3e-02	PCI/GDRY	10/29/1997
U235	3.26e-02	3.3e-02	4.4e-02	PCI/GDRY	10/29/1997
U238	3.23e-01	8.8e-02	3.3e-02	PCI/GDRY	10/29/1997

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NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY
U ANALYSES
SDG #9700121**

SAMPLE ANALYSIS REPORT

QC Sample #: RBK-00362200T

QC batch #: 0000085N
Prep batch #: 0000300K
Prep procedure: N/A
Analysis procedure: U
Analyst: AS
QC type: RBK

COUNTING INFORMATION

Date and time	Duration (min)	Detector ID	Operator
11/05/1997 14:26	1000.0	AS39	JAM

ANALYTICAL RESULTS

Analyte	Activity	$\pm 2\sigma$ Uncertainty	MDC	Unit	Date
U234	5.47e-02	2.8e-02	1.0e-02	PCI	11/05/1997
U235	8.19e-03	1.2e-02	1.2e-02	PCI	11/05/1997
U238	3.31e-02	2.2e-02	1.8e-02	PCI	11/05/1997

**U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL AIR AND RADIATION ENVIRONMENTAL LABORATORY
U ANALYSES
SDG #9700121**

QC BATCH SUMMARY

QC batch #: 0000085N
Preparation procedure: N/A
Analysis procedure: U

NAREL Sample #	QC Type	Yield (%)	$\pm 2\sigma$ Uncertainty (%)	Analyst
97.05384T		101.10 %	6.62 %	AS
97.05385U		98.24 %	6.41 %	AS
97.05386V		99.52 %	6.70 %	AS
97.05387W		97.73 %	6.34 %	AS
97.05388X		100.58 %	6.57 %	AS
97.05389Y		91.74 %	6.33 %	AS
97.05390Q		95.80 %	5.92 %	AS
97.05390Q	DUP	98.30 %	6.98 %	AS
97.05391R		102.57 %	6.58 %	AS
97.05391R	MS	96.64 %	6.41 %	AS
97.05391R	MSD	104.14 %	6.63 %	AS
97.05392T		96.13 %	6.17 %	AS
97.05393U		69.61 %	5.15 %	AS
RBK-00362200T *	RBK	41.83 %	3.34 %	AS

* Samples marked with an asterisk are not in this sample delivery group but were analyzed with it for QC purposes.

**National Air and Radiation Environmental Laboratory
QC Batch Report**

QC Batch #: 0000085N

Analytical Procedure: U

REAGENT BLANKS (PCI)

Sample ID	Nuclide	Activity $\pm 2\sigma$
00362200T	U234	5.47e-02 \pm 2.8e-02
00362200T	U235	8.19e-03 \pm 1.2e-02
00362200T	U238	3.31e-02 \pm 2.2e-02

LABORATORY DUPLICATES (PCI/GDRY)

Sample ID	Nuclide	Original $\pm 2\sigma$	Duplicate $\pm 2\sigma$	RPD	Z
97.05390Q	U234	3.89e-01 \pm 1.1e-01	6.07e-01 \pm 1.6e-01	43.79	2.09 OK
97.05390Q	U235	7.18e-02 \pm 4.8e-02	1.29e-01 \pm 7.8e-02	56.90	1.23 OK
97.05390Q	U238	3.11e-01 \pm 9.5e-02	4.41e-01 \pm 1.4e-01	34.47	1.49 OK

MATRIX SPIRES (PCI/GDRY)

Sample ID	Nuclide	Amt Added $\pm 2\sigma$	Native $\pm 2\sigma$	Measured $\pm 2\sigma$	%R	Z
97.05391R	U234	3.62e+01 \pm 1.6e+00	3.13e-01 \pm 9.8e-02	3.78e+01 \pm 2.7e+00	103.67	0.54 OK
97.05391R	U235	1.57e+00 \pm 7.0e-02	3.80e-02 \pm 4.0e-02	2.41e+00 \pm 3.5e-01	150.58	3.70 HIGH
97.05391R	U238	3.62e+01 \pm 1.6e+00	2.61e-01 \pm 9.0e-02	3.85e+01 \pm 2.8e+00	105.80	0.84 OK

MATRIX SPIKE DUPLICATES (PCI/GDRY)

Sample ID	Nuclide	Amt Added $\pm 2\sigma$	Measured $\pm 2\sigma$	RPD	Z	%R	Z
97.05391R	U234	3.60e+01 \pm 1.6e+00	3.73e+01 \pm 2.6e+00	0.95	0.11 OK	102.69	0.40 OK
97.05391R	U235	1.57e+00 \pm 7.0e-02	3.01e+00 \pm 3.8e-01	22.90	1.91 OK	189.53	5.75 HIGH
97.05391R	U238	3.60e+01 \pm 1.6e+00	3.83e+01 \pm 2.7e+00	0.20	0.02 OK	105.59	0.82 OK

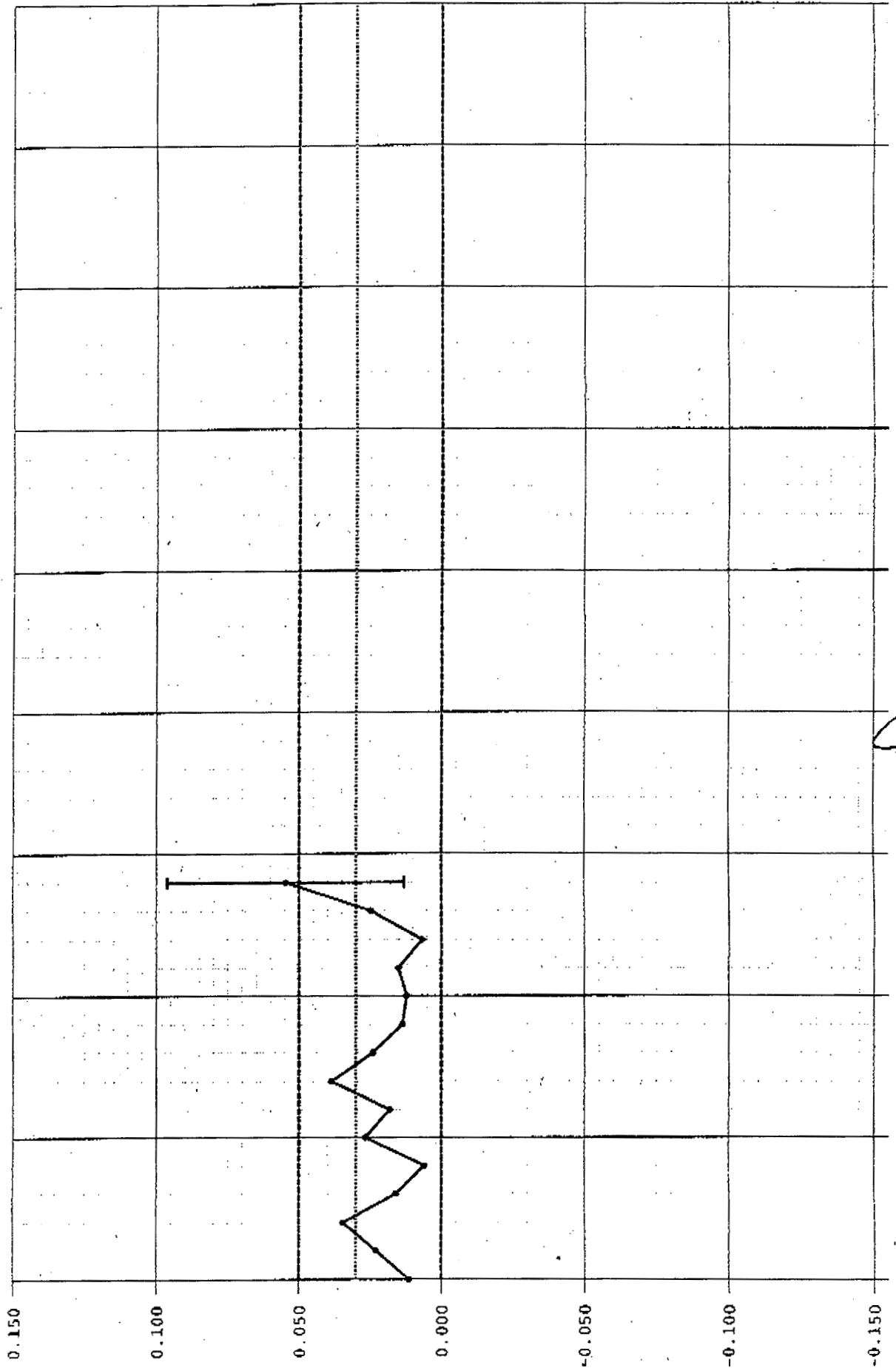
Analyst:

*Albert Smith**11/10/97*

QA Officer:

*Carl McLean**11/10/97*

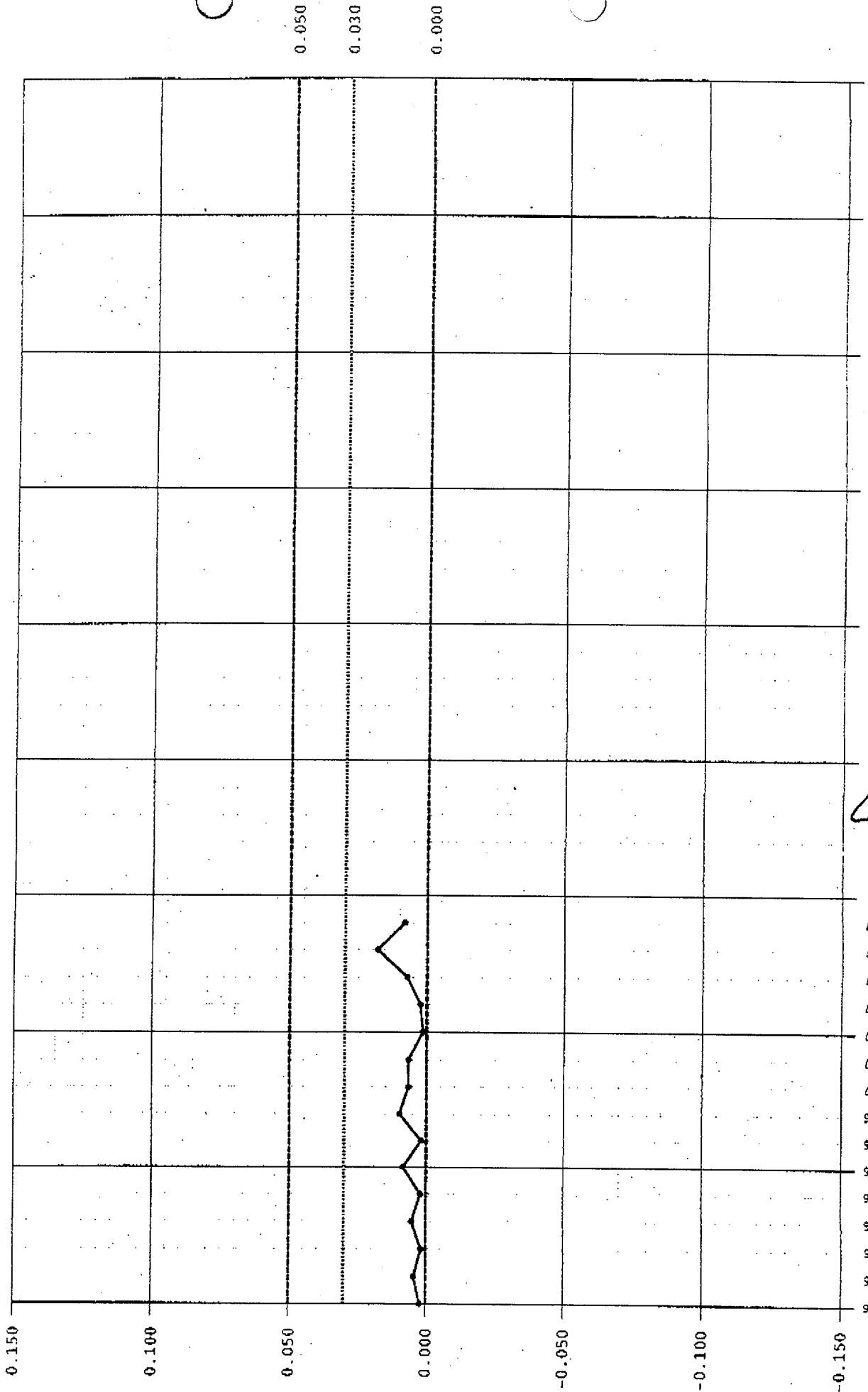
Reagent Blanks
Analyte: U234
Procedure: U
Analyst: Smith, Albert



Handwritten initials: *SA*

10/29/1997
 10/29/1997
 07/24/1997
 05/22/1997
 04/27/1997
 01/28/1997
 01/27/1997
 12/12/1996
 11/22/1996
 06/26/1996
 06/26/1996
 04/16/1996
 03/13/1996
 12/05/1996

Reagent Blanks
Analyte: U235
Procedure: U
Analyst: Smith, Albert



66/p/11
SA

10/29/1997
10/29/1997
07/24/1997
05/21/1997
04/27/1997
02/28/1997
01/27/1997
12/12/1996
11/22/1996
06/26/1996
06/26/1996
04/16/1996
03/13/1996
02/05/1996