CALORIMETRY EXCHANGE PROGRAM
QUARTERLY DATA REPORT FOR
01/89 - 03/89

RECEIVED
JUL 22 1996
OSTI

EG&G MOUND APPLIED TECHNOLOGIES

P.O. BOX 3000

MIAMISBURG, OHIO 45343-0987

513-865-4020

operated for the UNITED STATES DEPARTMENT OF ENERGY

Contract No. DE-AC04-88-DP43495

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

**Portions of this document may be illegible
in electronic image products. Images are
produced from the best available original
document.**

CALORIMETRY EXCHANGE PROGRAM
QUARTERLY DATA REPORT FOR
01/89 - 03/89

Prepared by

James E. Lyons
EG&G-Mound Applied Technologies

Tina M. McClelland
EG&G-Mound Applied Technologies

Reviewed by

David A. Rakel
EG&G-Mound Applied Technologies

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

The Calorimetry Exchange Program

The goals of the Calorimetry Sample Exchange Program are:

1. Discuss measurement differences
2. Review and improve analytical measurements and methods
3. Discuss new measurement capabilities
4. Provide data to DoE on measurement capabilities to evaluate shipper-receiver differences
5. Provide characterized or standard materials as necessary for exchange participants
6. Provide a measurement control program for plutonium analysis

A sample of PuO₂ powder is available at each participating site for NDA measurement, including either or both calorimetry and high-resolution gamma-ray spectroscopy, the elements which are typically combined to provide a calorimetric assay of plutonium. The facilities measure the sample as frequently and to the level of precision which they desire, and then submit the data to the Exchange for analysis. Statistical tests are used to evaluate the data and to determine if there are significant differences from accepted values for the exchange sample or from data previously reported by that facility. This information is presented, in the form of a quarterly report, intended for use by Exchange participants in measurement control programs, or to indicate when bias corrections may be appropriate. No attempt, however, has been made to standardize methods or frequency of data collection, calibration, or operating procedures. Direct comparisons between laboratories may, therefore, be misleading since data have not been collected to the same precision or for the same time periods.

A meeting of the participants of the Calorimetry Exchange is held annually at EG&G-Mound. The purposes of this meeting are to discuss measurement differences, problems, and new measurement capabilities, and to determine the additional activities needed to fulfill the goals of the Exchange.

TABLE OF CONTENTS

Summary.....	1
Calorimetry.....	3
P-eff.....	10
238-Pu/239-Pu.....	15
240-Pu/239-Pu.....	20
241-Pu/239-Pu.....	25
241-Am/239-Pu.....	30
Percent 238-Pu.....	35
Percent 239-Pu.....	40
Percent 240-Pu.....	45
Percent 241-Pu.....	50
Percent 241-Am.....	55
Accepted Values and Constants.....	60
Mailing List.....	61

SUMMARY

LAWRENCE LIVERMORE NATIONAL LABORATORY

No significant differences from accepted values were noted this quarter.

LOS ALAMOS NATIONAL LABORATORY

No significant differences from accepted values were noted this quarter.

EG&G - MOUND APPLIED TECHNOLOGIES

No significant differences from accepted values were noted this quarter.

WESTINGHOUSE HANFORD COMPANY

No significant difference from the accepted value for power was noted. Significant differences from the accepted values were noted this quarter for: P-eff (0.33%), 238-Pu (14.27%), 239-Pu (-0.17%), 240-Pu (2.72%), 241-Am (-4.21%).

ROCKY FLATS PLANT

Chemical Standards Laboratory:

No significant difference from accepted value for power was noted this quarter. A significant difference from the accepted value for P-eff (0.33%) was noted this quarter.

Analytical Laboratories:

No significant differences from the accepted values for power or P-eff were noted this quarter. A significant difference from the accepted value for 238-Pu (13.01%) was noted this quarter.

SAVANNAH RIVER SITE

No data was submitted for this quarter.

SUMMARY TABLE

% DIFFERENCE FROM ACCEPTED VALUES FOR THE CALORIMETRY EXCHANGE SAMPLE

MEAS.	LIVERMORE	LOS ALAMOS	MOUND	HANFORD	ROCKY FLATS CSL	FLATS AL	SAVANNAH RIVER
=====	=====	=====	=====	=====	=====	=====	=====
POWER	.20	-.19	.04	.03	.21	.13	**
P-EFF	-.09	.13	.08	.33*	.33*	.24	**
238/239 Pu	-.79	-1.91	9.78	14.28*	5.58	12.96*	**
240/239 Pu	.01	.95	-1.03	2.85*	.83	-.56	**
241/239 Pu	-.30	-.70	.36	.10	.35	.45	**
Am/239 Pu	-1.47	.36	-.21	-4.03*	.03	.45	**
% 238 Pu	-.75	-1.98	9.90	14.27*	5.55	13.01*	**
% 239 Pu	0.00	-.07	.06	-.17*	-.05	.03	**
% 240 Pu	.02	.93	-.96	2.72*	.78	-.51	**
% 241 Pu	-.28	-.75	.43	-.04	.31	.47	**
% 241 Am	-1.48	.26	-.16	-4.21*	-.03	.47	**

* A t-test indicates a significant difference from the accepted value for this measurement exists (95% confidence).

** No data was reported for this measurement.

RESULTS OF ANALYSIS OF CALORIMETRY DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (W)	.97794	.97784	.97402	.97627	.97623	.97713	---
OBS. STD DEV (mW)	3.6**	2.1	3.7	1.5	1.5	1.7	---
REP. STD DEV (mW)	2.0	4.9	---	---	1.5	2.5	---
NO. OF DATA PTS.	8	7	12	24	23	6	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(mW)	2.0	1.9	-1.9	.4	.3	1.2	---
(%)	.21	.20	-.19	.04	.03	.13	---

MEAN - MEAN FOR LAST PERIOD

(mW)	---	1.9	-2.7*	.9*	-.2	-.6	---
(%)	---	.20	-.28*	.09*	-.02	-.06	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= 0.9759 W

POWER DATA FOR 01/89 - 03/89 *

2.67445
2.14264
1.61082
1.079
.547187
.0153704
-.516446
-1.04826
-1.58008
-2.1119
-2.64371

ERROR (%)

* DATA DECAYED TO 1/1/89
** ACCEPTED VALUE= .9759 WATTS

MONTHLY MEANS FOR POWER DATA *

POWER DATA (WATTS) **

Error (%)

2.67445

2.14264

1.61082

1.079

.547187

.0153704

-.516446

-1.04826

-1.58008

-2.1119

-2.64371

10/88 11/88 12/88 1/89 2/89 3/89

* DATA DECAYED TO 1/1/89

** ACCEPTED VALUE= .9759 WATTS

CALORIMETRY POWER DATA

OBS	LAB	RAW DATA (WATTS)	DEC DATA * (WATTS)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	CS	.97447	.97441	.20	-.15	1/ 5/1989	M-4
2	CS	.97659	.97630	.20	.04	1/24/1989	M-4
3	CS	.98066	.98025	.20	.45	2/ 2/1989	M-3
4	CS	.97890	.97848	.25	.26	2/ 3/1989	M-5
5	CS	.97984	.97938	.15	.36	2/ 6/1989	M-6
6	CS	.97401	.97309	.20	-.29	3/15/1989	M-4
7	CS	.98377	.98283	.20	.71	3/16/1989	M-3
8	CS	.97913	.97811	.30	.23	3/22/1989	M-5

1	LL	.97705	.97699	.50	.11	1/ 6/1989	32
2	LL	.97741	.97712	.50	.12	1/24/1989	32
3	LL	.97943	.97885	.50	.30	2/15/1989	32
4	LL	.97979	.97910	.50	.33	2/24/1989	32
5	LL	.97814	.97736	.50	.15	3/ 3/1989	32
6	LL	.97851	.97760	.50	.17	3/13/1989	32
7	LL	.97888	.97783	.50	.20	3/24/1989	32

1	LA	.97483	.97480	---	-.11	1/ 3/1989	K01
2	LA	.97621	.97618	---	.03	1/ 3/1989	K03
3	LA	.96684	.96671	---	-.94	1/11/1989	K04
4	LA	.97594	.97572	---	-.02	1/18/1989	K02
5	LA	.97466	.97435	---	-.16	1/25/1989	K01
6	LA	.97164	.97119	---	-.48	2/ 6/1989	K04
7	LA	.97365	.97299	---	-.30	2/22/1989	K02
8	LA	.97259	.97191	---	-.41	2/23/1989	K01
9	LA	.98291	.98209	---	.63	3/ 6/1989	K03
10	LA	.97470	.97371	---	-.22	3/20/1989	K02
11	LA	.97288	.97188	---	-.41	3/21/1989	K04
12	LA	.97774	.97665	---	.08	3/27/1989	K01

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= .9759 WATTS

*** LAB GENERATED INSTRUMENT ID

CALORIMETRY POWER DATA
(CONTINUED)

OBS	LAB	RAW DATA (WATTS)	DEC DATA * (WATTS)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	MT	.97420	.97397	---	-.20	1/19/1989	128_P
2	MT	.97449	.97426	---	-.17	1/19/1989	128_E
3	MT	.97632	.97602	---	.01	1/25/1989	111_P
4	MT	.97715	.97684	---	.10	1/25/1989	111_E
5	MT	.97772	.97715	---	.13	2/14/1989	128_P
6	MT	.97801	.97745	---	.16	2/14/1989	128_E
7	MT	.97561	.97502	---	-.09	2/16/1989	111_P
8	MT	.97656	.97597	---	.01	2/16/1989	111_E
9	MT	.97789	.97722	---	.14	2/22/1989	128_P
10	MT	.97818	.97752	---	.17	2/22/1989	128_E
11	MT	.98148	.98079	---	.50	2/24/1989	111_P
12	MT	.97675	.97606	---	.02	2/24/1989	111_E
13	MT	.97618	.97541	---	-.05	3/ 2/1989	111_P
14	MT	.97676	.97600	---	.01	3/ 2/1989	111_E
15	MT	.97473	.97390	---	-.20	3/ 7/1989	128_P
16	MT	.97502	.97419	---	-.17	3/ 7/1989	128_E
17	MT	.97637	.97551	---	-.04	3/ 9/1989	111_P
18	MT	.97720	.97635	---	.05	3/ 9/1989	111_E
19	MT	.97777	.97682	---	.09	3/17/1989	128_P
20	MT	.97806	.97711	---	.12	3/17/1989	128_E
21	MT	.97728	.97626	---	.04	3/22/1989	111_P
22	MT	.97771	.97669	---	.08	3/22/1989	111_E
23	MT	.97794	.97691	---	.10	3/23/1989	111_E
24	MT	.97810	.97702	---	.11	3/27/1989	111_E

1	WH	.97650	.97646	.16	.06	1/ 4/1989	4
2	WH	.97530	.97524	.16	-.07	1/ 6/1989	1
3	WH	.97870	.97860	.16	.28	1/ 9/1989	2
4	WH	.97420	.97407	.16	-.19	1/11/1989	3
5	WH	.97600	.97586	.16	-0.00	1/12/1989	4
6	WH	.97570	.97555	.16	-.04	1/13/1989	1
7	WH	.97820	.97800	.16	.21	1/17/1989	2
8	WH	.97700	.97677	.16	.09	1/19/1989	3
9	WH	.97530	.97506	.16	-.09	1/20/1989	1
10	WH	.97580	.97551	.16	-.04	1/24/1989	1
11	WH	.97380	.97342	.16	-.25	1/31/1989	4
12	WH	.97340	.97299	.22	-.30	2/ 2/1989	1
13	WH	.97680	.97638	.22	.05	2/ 3/1989	3
14	WH	.97680	.97633	.22	.04	2/ 7/1989	1
15	WH	.97690	.97639	.22	.05	2/10/1989	4
16	WH	.97650	.97593	.22	0.00	2/15/1989	3
17	WH	.97320	.97251	.22	-.35	2/24/1989	1
18	WH	.97950	.97876	.22	.29	2/28/1989	2
19	WH	.97760	.97682	.12	.09	3/ 3/1989	3
20	WH	.97950	.97867	.12	.28	3/ 7/1989	1
21	WH	.97690	.97606	.12	.02	3/ 8/1989	2
22	WH	.97820	.97708	.12	.12	3/30/1989	2

23 WH .97700 .97588 .12 -0.00 3/30/1989 3

=====
* DATA DECAYED TO 1/1/1989
** ACCEPTED VALUE= .9759 WATTS
*** LAB GENERATED INSTRUMENT ID

CALORIMETRY POWER DATA
(CONTINUED)

OBS	LAB	RAW DATA (WATTS)	DEC DATA * (WATTS)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	RF	.97810	.97798	.25	.21	1/10/1989	RF4
2	RF	.97730	.97707	.25	.12	1/19/1989	M05
3	RF	.97610	.97545	.50	-.05	2/21/1989	3-7
4	RF	.97730	.97643	.20	.05	3/10/1989	MT2
5	RF	.97940	.97846	.20	.26	3/16/1989	MT1
6	RF	.97550	.97456	.35	-.14	3/16/1989	M7

*. DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= .9759 WATTS
 *** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF P-EFFECTIVE DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (mW/)	2.456	2.448	2.453	2.452	2.458	2.458	---
OBS. S DEV (mW/G)	.0092	.0030**	.0115	.0067**	.0160	.0162**	---
REP. S DEV (mW/G)	.0105	.0019	.0151	.0046	.0146	.0133	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE							
(mW/G)	.006	-.002	.003	.002	.008*	.008*	---
(%)	.24	-.09	.13	.08	.33*	.33*	---

MEAN - MEAN FOR LAST PERIOD							
(mW/G)	---	-.000	.001	-.004	.006*	.008*	---
(%)	---	-.02	.06	-.16	.25*	.34*	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= .00245 mW/G

P-EFF FOR 01/89 - 03/89 *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= .00245 mW/G

MONTHLY MEANS FOR P-EFF *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= .00245 mW/G

ISOTOPIC DATA: P-EFFECTIVE							
OBS	LAB	RAW DATA (mW/g)	DEC DATA * (mW/g)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	CS	2.4522	2.4521	.36	.09	1/ 4/1989	CSL
2	CS	2.4579	2.4578	.35	.32	1/ 5/1989	CSL
3	CS	2.4520	2.4519	.35	.08	1/ 6/1989	CSL
4	CS	2.4510	2.4503	.40	.01	1/23/1989	CSL
5	CS	2.4520	2.4509	.44	.04	2/ 1/1989	CSL
6	CS	2.4682	2.4658	.46	.64	3/16/1989	CSL
7	CS	2.4702	2.4678	.65	.73	3/16/1989	CSL
8	CS	2.4627	2.4601	.45	.41	3/23/1989	CSL
9	CS	2.4671	2.4645	.48	.59	3/23/1989	CSL
10	CS	2.4443	2.4417	.47	-.34	3/23/1989	CSL
11	CS	2.4672	2.4646	.47	.59	3/23/1989	CSL

1	LA	2.4500	2.4497	.09	-.01	1/11/1989	MGA-2
2	LA	2.4509	2.4504	.10	.02	1/17/1989	MGA-2
3	LA	2.4483	2.4475	.09	-.10	1/25/1989	MGA-2
4	LA	2.4465	2.4450	.06	-.20	2/15/1989	MGA-2
5	LA	2.4511	2.4484	.06	-.07	3/24/1989	MGA-2

1	LA	2.4522	2.4521	.61	.08	1/ 4/1989	M03
2	LA	2.4459	2.4454	.55	-.19	1/17/1989	M01
3	LA	2.4409	2.4401	.59	-.40	1/24/1989	M03
4	LA	2.4714	2.4704	.73	.83	1/31/1989	M03
5	LA	2.4650	2.4640	.62	.57	1/31/1989	M03
6	LA	2.4395	2.4385	.65	-.47	2/ 3/1989	M03
7	LA	2.4624	2.4612	.56	.46	2/ 6/1989	M01
8	LA	2.4501	2.4487	.66	-.05	2/13/1989	M03
9	LA	2.4751	2.4732	.63	.95	3/ 1/1989	M03
10	LA	2.4512	2.4490	.60	-.04	3/ 8/1989	M03
11	LA	2.4623	2.4598	.61	.40	3/20/1989	M01
12	LA	2.4434	2.4409	.62	-.37	3/20/1989	M03

1	MT	2.4424	2.4422	.19	-.32	1/ 6/1989	40/70
2	MT	2.4578	2.4572	.17	.29	1/20/1989	40/70
3	MT	2.4610	2.4595	.23	.39	2/17/1989	40/70
4	MT	2.4539	2.4510	.18	.04	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= 2.4500 mW/g
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: P-EFFECTIVE

(CONTINUED)

OBS	LAB	RAW DATA (mW/g)	DEC DATA * (mW/g)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST. ***
1	WH	2.4523	2.4522	.56	.09	1/ 3/1989	627
2	WH	2.4567	2.4564	.56	.26	1/10/1989	1985
3	WH	2.4744	2.4740	.59	.98	1/13/1989	627
4	WH	2.4799	2.4794	.60	1.20	1/16/1989	1985
5	WH	2.4842	2.4836	.60	1.37	1/19/1989	627
6	WH	2.4403	2.4395	.55	-.43	1/26/1989	1985
7	WH	2.4427	2.4417	.56	-.34	1/30/1989	627
8	WH	2.4586	2.4577	.58	.31	1/30/1989	1985
9	WH	2.4673	2.4662	.62	.66	2/ 6/1989	1985
10	WH	2.4485	2.4471	.59	-.12	2/13/1989	1985
11	WH	2.4808	2.4791	.64	1.19	2/22/1989	627
12	WH	2.4686	2.4668	.60	.69	2/24/1989	1985
13	WH	2.4564	2.4545	.64	.18	2/27/1989	627
14	WH	2.4583	2.4564	.63	.26	2/28/1989	1985
15	WH	2.4375	2.4354	.58	-.59	3/ 6/1989	1985
16	WH	2.4657	2.4634	.62	.55	3/14/1989	1985
17	WH	2.4626	2.4598	.62	.40	3/27/1989	1985
18	WH	2.4498	2.4470	.58	-.12	3/27/1989	627

1	RF	2.4483	2.4482	.56	-.07	1/ 4/1989	2
2	RF	2.4609	2.4608	.60	.44	1/ 4/1989	1
3	RF	2.4628	2.4625	.60	.51	1/10/1989	1
4	RF	2.4562	2.4557	.55	.23	1/18/1989	2
5	RF	2.4431	2.4425	.64	-.30	1/18/1989	1
6	RF	2.4487	2.4479	.75	-.08	1/24/1989	2
7	RF	2.4256	2.4248	.54	-1.03	1/24/1989	2
8	RF	2.4521	2.4513	.45	.05	1/24/1989	2
9	RF	2.4620	2.4612	.41	.46	1/24/1989	2
10	RF	2.4731	2.4721	.56	.90	1/31/1989	2
11	RF	2.4445	2.4427	.50	-.30	2/23/1989	2
12	RF	2.4943	2.4926	.59	1.74	2/23/1989	1
13	RF	2.4796	2.4776	.59	1.13	2/28/1989	1
14	RF	2.4481	2.4461	.44	-.16	2/28/1989	2
15	RF	2.4804	2.4783	.57	1.16	3/ 6/1989	1
16	RF	2.4742	2.4721	.74	.90	3/ 6/1989	1
17	RF	2.4755	2.4734	.45	.96	3/ 6/1989	2
18	RF	2.4539	2.4518	.62	.08	3/ 6/1989	2
19	RF	2.4706	2.4682	.66	.74	3/13/1989	1
20	RF	2.4584	2.4561	.43	.25	3/13/1989	2
21	RF	2.4620	2.4595	.49	.39	3/17/1989	2
22	RF	2.4549	2.4523	.50	.10	3/20/1989	1
23	RF	2.4614	2.4588	.78	.36	3/20/1989	1

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= 2.4500 mW/g

*** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF 238 Pu/239 Pu DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (PPM)	107	100	99	111	115	114	---
OBS. S DEV (PPM)	15.35	2.43	13.03	12.84**	14.47**	28.49**	---
REP. S DEV (PPM)	12.92	2.74	12.54	6.87	1.07	19.27	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(PPM)	6	-1	-2	10	14*	13*	---
(%)	5.58	-.79	-1.91	9.78	14.28*	12.96*	---

MEAN - MEAN FOR LAST PERIOD

(PPM)	---	0	-8*	-4	15*	14*	---
(%)	---	.02	-8.02*	-3.17	12.93*	12.16*	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= 101.02 PPM

238 Pu/239 Pu FOR 01/89 - 03/89 *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= 101.02 PPM

MONTHLY MEANS FOR 238 Pu/239 Pu *

* DATA DECAYED TO 1/1/89

** ACCEPTED VALUE= 101.02 PPM

ISOTOPIC DATA: 238 Pu/239 Pu							
OBS	LAB	RAW DATA (ppm)	DEC DATA * (ppm)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
=====							
1	CS	105.8	105.8	9.30	4.74	1/ 4/1989	CSL
2	CS	117.9	117.9	8.70	16.72	1/ 5/1989	CSL
3	CS	95.6	95.6	11.80	-5.36	1/ 6/1989	CSL
4	CS	87.0	87.0	13.30	-13.84	1/23/1989	CSL
5	CS	99.5	99.6	11.80	-1.44	2/ 1/1989	CSL
6	CS	123.9	124.1	12.20	22.84	3/16/1989	CSL
7	CS	125.3	125.5	16.40	24.23	3/16/1989	CSL
8	CS	102.3	102.5	14.80	1.44	3/23/1989	CSL
9	CS	130.6	130.8	12.30	29.51	3/23/1989	CSL
10	CS	85.8	85.9	17.50	-14.92	3/23/1989	CSL
11	CS	126.3	126.5	12.30	25.24	3/23/1989	CSL
=====							
1	LA	100.6	100.6	3.28	- .40	1/11/1989	MGA-2
2	LA	104.9	104.9	3.28	3.84	1/17/1989	MGA-2
3	LA	100.6	100.6	3.31	- .39	1/25/1989	MGA-2
4	LA	97.3	97.4	2.28	-3.57	2/15/1989	MGA-2
5	LA	100.6	100.7	2.23	- .28	3/24/1989	MGA-2
=====							
1	LA	114.3	114.3	11.13	13.14	1/ 4/1989	M03
2	LA	99.8	99.8	11.12	-1.20	1/17/1989	M01
3	LA	96.5	96.5	12.82	-4.47	1/24/1989	M03
4	LA	87.2	87.3	16.91	-13.60	1/31/1989	M03
5	LA	115.4	115.5	11.00	14.34	1/31/1989	M03
6	LA	88.5	88.5	14.83	-12.38	2/ 3/1989	M03
7	LA	85.2	85.2	13.16	-15.62	2/ 6/1989	M01
8	LA	84.6	84.7	15.47	-16.13	2/13/1989	M03
9	LA	96.0	96.2	13.49	-4.81	3/ 1/1989	M03
10	LA	122.3	122.5	10.19	21.24	3/ 8/1989	M03
11	LA	110.6	110.8	11.23	9.66	3/20/1989	M01
12	LA	85.8	86.0	14.60	-14.88	3/20/1989	M03
=====							
1	MT	97.0	97.0	7.00	-3.97	1/ 6/1989	40/70
2	MT	115.0	115.0	5.90	13.89	1/20/1989	40/70
3	MT	118.0	118.1	8.00	16.93	2/17/1989	40/70
4	MT	115.0	115.2	5.00	14.06	3/31/1989	40/70
=====							

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= 101. ppm
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: 238 Pu/239 Pu

(CONTINUED)

OBS	LAB	RAW DATA (ppm)	DEC DATA * (ppm)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	WH	102.9	102.9	10.47	1.85	1/ 3/1989	627
2	WH	108.1	108.2	10.47	7.07	1/10/1989	1985
3	WH	128.8	128.8	10.47	27.52	1/13/1989	627
4	WH	119.4	119.5	10.47	18.28	1/16/1989	1985
5	WH	114.1	114.2	10.47	13.02	1/19/1989	627
6	WH	96.2	96.3	10.47	-4.71	1/26/1989	1985
7	WH	104.9	104.9	10.47	3.89	1/30/1989	627
8	WH	120.1	120.2	10.47	18.98	1/30/1989	1985
9	WH	117.9	117.9	13.44	16.76	2/ 6/1989	1985
10	WH	97.4	97.5	13.44	-3.46	2/13/1989	1985
11	WH	122.4	122.6	13.44	21.33	2/22/1989	627
12	WH	89.2	89.3	13.44	-11.57	2/24/1989	1985
13	WH	133.7	133.9	13.44	32.50	2/27/1989	627
14	WH	129.3	129.5	13.44	28.19	2/28/1989	1985
15	WH	114.2	114.4	.44	13.21	3/ 6/1989	1985
16	WH	115.9	116.1	.44	14.92	3/14/1989	1985
17	WH	115.8	116.0	.44	14.84	3/27/1989	1985
18	WH	115.2	115.5	.44	14.29	3/27/1989	627

1	RF	106.0	106.0	19.98	4.94	1/ 4/1989	2
2	RF	123.0	123.0	18.69	21.77	1/ 4/1989	1
3	RF	144.0	144.0	15.96	42.57	1/10/1989	1
4	RF	106.0	106.0	17.92	4.97	1/18/1989	2
5	RF	93.0	93.0	21.60	-7.91	1/18/1989	1
6	RF	104.0	104.1	24.57	3.00	1/24/1989	2
7	RF	70.0	70.0	25.19	-30.67	1/24/1989	2
8	RF	126.0	126.1	13.01	24.79	1/24/1989	2
9	RF	93.0	93.0	13.90	-7.89	1/24/1989	2
10	RF	127.0	127.1	16.84	25.80	1/31/1989	2
11	RF	79.0	79.1	21.47	-21.71	2/23/1989	2
12	RF	183.0	183.2	12.81	81.36	2/23/1989	1
13	RF	154.0	154.2	15.07	52.64	2/28/1989	1
14	RF	93.0	93.1	16.82	-7.82	2/28/1989	2
15	RF	162.0	162.2	13.14	60.59	3/ 6/1989	1
16	RF	133.0	133.2	22.59	31.84	3/ 6/1989	1
17	RF	135.0	135.2	11.53	33.82	3/ 6/1989	2
18	RF	120.0	120.2	15.72	18.95	3/ 6/1989	2
19	RF	142.0	142.2	19.07	40.78	3/13/1989	1
20	RF	109.0	109.2	13.88	8.06	3/13/1989	2
21	RF	108.0	108.2	16.67	7.08	3/17/1989	2
22	RF	118.0	118.2	15.96	17.01	3/20/1989	1
23	RF	110.0	110.2	28.15	9.07	3/20/1989	1

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= 101 ppm
 *** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF 240 Pu/239 Pu DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (PPM)	62684	62175	62757	61529	63943	61819	---
OBS. S DEV (PPM)	909.16	229.36	3308.07	869.58**	3125.97	1703.49	---
REP. S DEV (PPM)	1718.28	247.35	3100.11	604.22	2842.54	1812.37	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(PPM)	516	7	589	-639	1775*	-349	---
(%)	.83	.01	.95	-1.03	2.85*	-.56	---

MEAN - MEAN FOR LAST PERIOD

(PPM)	---	80	1513*	-191	598	-64	---
(%)	---	.13	2.41*	-.31	.93	-.10	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= 62168 PPM

MONTHLY MEANS FOR 240 Pu/239 Pu *

```
* DATA DECAYED TO 1/1/89
** ACCEPTED VALUE= 62168 PPM
```


ISOTOPIC DATA: 240 Pu/239 Pu							
OBS	LAB	RAW DATA (ppm)	DEC DATA * (ppm)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	CS	62435.9	62435.9	2.50	.43	1/ 4/1989	CSL
2	CS	61538.5	61538.6	2.40	-1.01	1/ 5/1989	CSL
3	CS	63292.3	63292.4	2.10	1.81	1/ 6/1989	CSL
4	CS	63515.3	63515.6	2.70	2.17	1/23/1989	CSL
5	CS	62931.1	62931.5	3.10	1.23	2/ 1/1989	CSL
6	CS	63374.2	63375.2	2.80	1.94	3/16/1989	CSL
7	CS	61863.3	61864.3	4.20	-.49	3/16/1989	CSL
8	CS	63745.5	63746.6	2.70	2.54	3/23/1989	CSL
9	CS	61885.7	61886.8	3.00	-.45	3/23/1989	CSL
10	CS	61926.9	61928.0	3.00	-.39	3/23/1989	CSL
11	CS	62452.6	62453.7	2.90	.46	3/23/1989	CSL

1	LA	62515.6	62515.7	.49	.56	1/11/1989	MGA-2
2	LA	62398.4	62398.6	.50	.37	1/17/1989	MGA-2
3	LA	62256.8	62257.1	.49	.14	1/25/1989	MGA-2
4	LA	61845.5	61846.1	.34	-.52	2/15/1989	MGA-2
5	LA	62196.6	62197.7	.31	.05	3/24/1989	MGA-2

1	LA	60482.3	60482.4	5.02	-2.71	1/ 4/1989	M03
2	LA	61861.6	61861.9	4.45	-.49	1/17/1989	M01
3	LA	58301.4	58301.7	5.03	-6.22	1/24/1989	M03
4	LA	71614.5	71614.9	5.27	15.20	1/31/1989	M03
5	LA	62260.4	62260.8	5.04	.15	1/31/1989	M03
6	LA	62082.7	62083.1	5.22	-.14	2/ 3/1989	M03
7	LA	65203.6	65204.1	4.39	4.88	2/ 6/1989	M01
8	LA	65298.5	65299.1	5.13	5.04	2/13/1989	M03
9	LA	66697.3	66698.2	4.84	7.29	3/ 1/1989	M03
10	LA	58779.1	58780.0	5.13	-5.45	3/ 8/1989	M03
11	LA	63043.9	63044.9	4.92	1.41	3/20/1989	M01
12	LA	61606.4	61607.4	5.04	-.90	3/20/1989	M03

1	MT	60795.0	60795.1	1.03	-2.21	1/ 6/1989	40/70
2	MT	62162.0	62162.2	.83	-.01	1/20/1989	40/70
3	MT	61830.0	61830.6	1.03	-.54	2/17/1989	40/70
4	MT	60957.0	60958.1	1.11	-1.95	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= 62168. ppm
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: 240 Pu/239 Pu

(CONTINUED)

OBS	LAB	RAW DATA (ppm)	DEC DATA * (ppm)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	WH	64136.3	64136.3	4.26	3.17	1/ 3/1989	627
2	WH	63093.7	63093.9	4.25	1.49	1/10/1989	1985
3	WH	65557.1	65557.2	4.26	5.45	1/13/1989	627
4	WH	68389.8	68390.0	4.28	10.01	1/16/1989	1985
5	WH	68960.4	68960.7	4.28	10.93	1/19/1989	627
6	WH	61510.1	61510.5	4.25	-1.06	1/26/1989	1985
7	WH	62662.3	62662.7	4.25	.80	1/30/1989	627
8	WH	64823.9	64824.3	4.26	4.27	1/30/1989	1985
9	WH	63863.7	63864.2	4.36	2.73	2/ 6/1989	1985
10	WH	63183.4	63184.0	4.36	1.63	2/13/1989	1985
11	WH	66309.0	66309.7	4.37	6.66	2/22/1989	627
12	WH	67443.1	67443.9	4.38	8.49	2/24/1989	1985
13	WH	61942.3	61943.1	4.35	-.36	2/27/1989	627
14	WH	61334.5	61335.2	4.35	-1.34	2/28/1989	1985
15	WH	59794.2	59795.0	5.04	-3.82	3/ 6/1989	1985
16	WH	65625.7	65626.7	5.07	5.56	3/14/1989	1985
17	WH	64586.2	64587.3	5.07	3.89	3/27/1989	1985
18	WH	59616.5	59617.6	5.04	-4.10	3/27/1989	627

1	RF	60711.0	60711.0	2.94	-2.34	1/ 4/1989	2
2	RF	61091.0	61091.0	2.97	-1.73	1/ 4/1989	1
3	RF	59962.0	59962.1	3.12	-3.55	1/10/1989	1
4	RF	62756.0	62756.2	3.14	.95	1/18/1989	2
5	RF	60920.0	60920.2	4.17	-2.01	1/18/1989	1
6	RF	60942.0	60942.3	4.55	-1.97	1/24/1989	2
7	RF	60151.0	60151.3	3.31	-3.24	1/24/1989	2
8	RF	58986.0	58986.3	2.53	-5.12	1/24/1989	2
9	RF	65644.0	65644.3	2.46	5.59	1/24/1989	2
10	RF	63778.0	63778.4	2.75	2.59	1/31/1989	2
11	RF	62315.0	62315.7	2.96	.24	2/23/1989	2
12	RF	61833.0	61833.7	2.91	-.54	2/23/1989	1
13	RF	62005.0	62005.8	2.82	-.26	2/28/1989	1
14	RF	62108.0	62108.8	2.49	-.10	2/28/1989	2
15	RF	60283.0	60283.8	3.07	-3.03	3/ 6/1989	1
16	RF	62954.0	62954.8	3.24	1.27	3/ 6/1989	1
17	RF	63368.0	63368.9	2.61	1.93	3/ 6/1989	2
18	RF	59568.0	59568.8	4.28	-4.18	3/ 6/1989	2
19	RF	60830.0	60830.9	2.81	-2.15	3/13/1989	1
20	RF	62886.0	62886.9	2.47	1.16	3/13/1989	2
21	RF	63610.0	63611.0	2.55	2.32	3/17/1989	2
22	RF	60079.0	60080.0	2.61	-3.36	3/20/1989	1
23	RF	63005.0	63006.0	3.52	1.35	3/20/1989	1

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= 62168 ppm

*** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF 241 Pu/239 Pu DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (PPM)	2479	2463	2453	2479	2473	2481	---
OBS. S DEV (PPM)	13.75	10.90**	60.44**	9.51**	11.29	23.83	---
REP. S DEV (PPM)	16.29	6.57	9.25	6.49	12.88	25.31	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(PPM)	9	-7	-17	9	2	11	---
(%)	.35	-.30	-.70	.36	.10	.45	---

MEAN - MEAN FOR LAST PERIOD

(PPM)	---	-2	.16	3	-8*	17*	---
(%)	---	-.09	.65	.11	-.31*	.68*	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= 2470.3 PPM

241 Pu/239 Pu FOR 01/89 - 03/89 *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= 2470.3 PPM

MONTHLY MEANS FOR 241 Pu/239 Pu *

* DATA DECAYED TO 1/1/89

** ACCEPTED VALUE= 2470.3 PPM

ISOTOPIC DATA: 241 Pu/239 Pu							
OBS	LAB	RAW DATA (ppm)	DEC DATA * (ppm)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	CS	2479.3	2480.3	.50	.40	1/ 4/1989	CSL
2	CS	2493.7	2495.0	.50	1.00	1/ 5/1989	CSL
3	CS	2469.8	2471.4	.50	.05	1/ 6/1989	CSL
4	CS	2461.8	2469.0	.60	-.05	1/23/1989	CSL
5	CS	2462.5	2472.6	.70	.09	2/ 1/1989	CSL
6	CS	2474.4	2498.7	.70	1.15	3/16/1989	CSL
7	CS	2462.3	2486.5	1.20	.66	3/16/1989	CSL
8	CS	2441.7	2468.0	.90	-.09	3/23/1989	CSL
9	CS	2445.1	2471.4	.80	.05	3/23/1989	CSL
10	CS	2441.0	2467.3	.80	-.12	3/23/1989	CSL
11	CS	2453.9	2480.3	.80	.41	3/23/1989	CSL

1	LA	2462.4	2465.6	.32	-.19	1/11/1989	MGA-2
2	LA	2460.0	2465.2	.33	-.21	1/17/1989	MGA-2
3	LA	2453.3	2461.1	.32	-.37	1/25/1989	MGA-2
4	LA	2437.5	2452.0	.22	-.74	2/15/1989	MGA-2
5	LA	2445.7	2472.4	.22	.08	3/24/1989	MGA-2

1	LA	2472.4	2473.4	.38	.12	1/ 4/1989	M03
2	LA	2458.3	2463.5	.34	-.27	1/17/1989	M01
3	LA	2412.2	2419.5	.37	-2.06	1/24/1989	M03
4	LA	2686.8	2697.5	.45	9.20	1/31/1989	M03
5	LA	2414.7	2424.3	.38	-1.86	1/31/1989	M03
6	LA	2415.1	2425.7	.38	-1.81	2/ 3/1989	M03
7	LA	2442.2	2453.9	.35	-.66	2/ 6/1989	M01
8	LA	2428.3	2442.1	.39	-1.14	2/13/1989	M03
9	LA	2424.3	2443.3	.38	-1.09	3/ 1/1989	M03
10	LA	2406.1	2427.2	.38	-1.74	3/ 8/1989	M03
11	LA	2424.2	2449.4	.38	-.85	3/20/1989	M01
12	LA	2396.3	2421.1	.37	-1.99	3/20/1989	M03

1	MT	2479.0	2480.6	.30	.42	1/ 6/1989	40/70
2	MT	2476.0	2482.2	.20	.48	1/20/1989	40/70
3	MT	2459.0	2474.3	.30	.16	2/17/1989	40/70
4	MT	2447.0	2476.0	.30	.23	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= 2470. ppm
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: 241 Pu/239 Pu

(CONTINUED)

OBS	LAB	RAW DATA (ppm)	DEC DATA * (ppm)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	WH	2489.3	2490.0	.61	.80	1/ 3/1989	627
2	WH	2485.8	2488.8	.61	.75	1/10/1989	1985
3	WH	2456.6	2460.5	.61	-.40	1/13/1989	627
4	WH	2467.5	2472.4	.61	.09	1/16/1989	1985
5	WH	2451.8	2457.6	.61	-.51	1/19/1989	627
6	WH	2460.9	2469.0	.61	-.05	1/26/1989	1985
7	WH	2451.9	2461.3	.61	-.36	1/30/1989	627
8	WH	2475.1	2484.6	.61	.58	1/30/1989	1985
9	WH	2426.1	2437.7	.64	-1.32	2/ 6/1989	1985
10	WH	2466.9	2481.0	.64	.43	2/13/1989	1985
11	WH	2447.8	2464.6	.64	-.23	2/22/1989	627
12	WH	2456.7	2474.3	.64	.16	2/24/1989	1985
13	WH	2470.4	2489.1	.64	.76	2/27/1989	627
14	WH	2446.8	2465.6	.64	-.19	2/28/1989	1985
15	WH	2456.9	2477.7	.36	.30	3/ 6/1989	1985
16	WH	2444.0	2467.4	.36	-.12	3/14/1989	1985
17	WH	2448.0	2475.6	.36	.22	3/27/1989	1985
18	WH	2450.1	2477.8	.36	.30	3/27/1989	627

1	RF	2482.0	2483.0	1.49	.51	1/ 4/1989	2
2	RF	2442.0	2443.0	1.27	-1.11	1/ 4/1989	1
3	RF	2469.0	2471.9	1.33	.07	1/10/1989	1
4	RF	2437.0	2442.5	1.38	-1.13	1/18/1989	2
5	RF	2469.0	2474.6	1.58	.17	1/18/1989	1
6	RF	2502.0	2509.6	1.35	1.59	1/24/1989	2
7	RF	2444.0	2451.4	.91	-.76	1/24/1989	2
8	RF	2458.0	2465.5	.76	-.19	1/24/1989	2
9	RF	2485.0	2492.6	.66	.90	1/24/1989	2
10	RF	2452.0	2461.7	.91	-.35	1/31/1989	2
11	RF	2484.0	2501.5	1.13	1.26	2/23/1989	2
12	RF	2495.0	2512.5	1.22	1.71	2/23/1989	1
13	RF	2526.0	2545.4	1.28	3.04	2/28/1989	1
14	RF	2456.0	2474.9	.76	.19	2/28/1989	2
15	RF	2452.0	2472.8	1.27	.10	3/ 6/1989	1
16	RF	2473.0	2494.0	1.62	.96	3/ 6/1989	1
17	RF	2475.0	2496.0	.78	1.04	3/ 6/1989	2
18	RF	2434.0	2454.7	1.07	-.63	3/ 6/1989	2
19	RF	2477.0	2500.4	1.27	1.22	3/13/1989	1
20	RF	2460.0	2483.2	.76	.52	3/13/1989	2
21	RF	2459.0	2483.5	.78	.53	3/17/1989	2
22	RF	2465.0	2490.5	1.10	.82	3/20/1989	1
23	RF	2490.0	2515.8	1.54	1.84	3/20/1989	1

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= 2470 ppm

*** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF 241 AM/239 Pu DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (PPM)	1510	1487	1515	1506	1449	1516	---
OBS. S DEV (PPM)	15.76	22.65**	57.01	10.52**	74.14**	15.32	---
REP. S DEV (PPM)	19.60	5.09	---	7.05	39.77	20.52	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(PPM)	0	-22	5	-3	-61*	7	---
(%)	.03	-1.47	.36	-.21	-4.03*	.45	---

MEAN - MEAN FOR LAST PERIOD

(PPM)	---	-5	-11	-5	-5	7*	---
(%)	---	-.37	-.72	-.33	-.33	.44*	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= 1509.5 PPM

241 Am/239 Pu FOR 01/89 - 03/89 *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= 1509.7 PPM

MONTHLY MEANS FOR 241 Am/239 Pu *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= 1509.7 PPM

ISOTOPIC DATA: 241 Am/239 Pu

OBS	LAB	RAW DATA (ppm)	DEC DATA * (ppm)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	CS	1493.1	1492.1	1.20	-1.15	1/ 4/1989	CSL
2	CS	1522.8	1521.5	1.20	.80	1/ 5/1989	CSL
3	CS	1506.6	1505.0	1.00	-.30	1/ 6/1989	CSL
4	CS	1530.5	1523.5	1.30	.93	1/23/1989	CSL
5	CS	1501.6	1491.7	1.50	-1.18	2/ 1/1989	CSL
6	CS	1515.2	1491.3	1.40	-1.20	3/16/1989	CSL
7	CS	1587.5	1563.8	2.20	3.60	3/16/1989	CSL
8	CS	1555.1	1529.3	1.20	1.31	3/23/1989	CSL
9	CS	1532.0	1506.2	1.30	-.22	3/23/1989	CSL
10	CS	1538.9	1513.1	1.40	.24	3/23/1989	CSL
11	CS	1531.3	1505.4	1.30	-.27	3/23/1989	CSL

1	LA	1493.3	1490.1	.42	-1.29	1/11/1989	MGA-2
2	LA	1485.7	1480.6	.42	-1.91	1/17/1989	MGA-2
3	LA	1487.6	1480.0	.42	-1.96	1/25/1989	MGA-2
4	LA	1503.9	1489.6	.28	-1.32	2/15/1989	MGA-2
5	LA	1516.0	1489.9	.28	-1.30	3/24/1989	MGA-2

1	LA	1528.3	1527.3	---	1.18	1/ 4/1989	M03
2	LA	1485.9	1480.8	---	-1.90	1/17/1989	M01
3	LA	1599.8	1592.6	---	5.50	1/24/1989	M03
4	LA	1390.1	1379.6	---	-8.60	1/31/1989	M03
5	LA	1569.9	1560.5	---	3.38	1/31/1989	M03
6	LA	1473.5	1463.1	---	-3.07	2/ 3/1989	M03
7	LA	1575.3	1563.9	---	3.60	2/ 6/1989	M01
8	LA	1505.5	1491.9	---	-1.16	2/13/1989	M03
9	LA	1580.7	1562.1	---	3.49	3/ 1/1989	M03
10	LA	1548.9	1528.3	---	1.24	3/ 8/1989	M03
11	LA	1537.2	1512.6	---	.21	3/20/1989	M01
12	LA	1541.3	1517.0	---	.49	3/20/1989	M03

1	MT	1510.0	1508.4	.50	-.07	1/ 6/1989	40/70
2	MT	1509.0	1502.9	.40	-.44	1/20/1989	40/70
3	MT	1538.0	1523.0	.50	.89	2/17/1989	40/70
4	MT	1522.0	1493.6	.50	-1.05	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= 1510. ppm

*** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: 241 Am/239 Pu

(CONTINUED)

OBS	LAB	RAW DATA (ppm)	DEC DATA * (ppm)	UNCERT (%)	ERR ** (%)	MEASUREMENT DATE	INST ***
1	WH	1437.3	1436.6	2.66	-4.83	1/ 3/1989	627
2	WH	1495.1	1492.2	2.66	-1.15	1/10/1989	1985
3	WH	1459.4	1455.5	2.66	-3.58	1/13/1989	627
4	WH	1443.1	1438.3	2.66	-4.72	1/16/1989	1985
5	WH	1486.4	1480.7	2.66	-1.91	1/19/1989	627
6	WH	1465.3	1457.3	2.66	-3.46	1/26/1989	1985
7	WH	1398.2	1389.0	2.66	-7.98	1/30/1989	627
8	WH	1384.2	1374.9	2.66	-8.92	1/30/1989	1985
9	WH	1515.1	1503.8	2.59	-.38	2/ 6/1989	1985
10	WH	1467.7	1453.9	2.59	-3.69	2/13/1989	1985
11	WH	1519.8	1503.2	2.59	-.42	2/22/1989	627
12	WH	1523.5	1506.2	2.59	-.22	2/24/1989	1985
13	WH	1413.2	1394.8	2.59	-7.60	2/27/1989	627
14	WH	1476.7	1458.2	2.59	-3.40	2/28/1989	1985
15	WH	1420.8	1400.3	3.33	-7.24	3/ 6/1989	1985
16	WH	1439.3	1416.3	3.33	-6.17	3/14/1989	1985
17	WH	1452.7	1425.5	3.33	-5.56	3/27/1989	1985
18	WH	1536.5	1509.3	3.33	-.01	3/27/1989	627

1	RF	1524.0	1523.0	1.31	.90	1/ 4/1989	2
2	RF	1542.0	1541.1	1.28	2.09	1/ 4/1989	1
3	RF	1502.0	1499.1	1.33	-.69	1/10/1989	1
4	RF	1515.0	1509.6	1.41	.01	1/18/1989	2
5	RF	1531.0	1525.6	1.77	1.06	1/18/1989	1
6	RF	1528.0	1520.5	1.96	.73	1/24/1989	2
7	RF	1513.0	1505.7	1.37	-.25	1/24/1989	2
8	RF	1531.0	1523.7	1.10	.94	1/24/1989	2
9	RF	1515.0	1507.6	1.37	-.13	1/24/1989	2
10	RF	1527.0	1517.4	1.29	.53	1/31/1989	2
11	RF	1556.0	1538.9	1.36	1.95	2/23/1989	2
12	RF	1528.0	1510.8	1.30	.09	2/23/1989	1
13	RF	1526.0	1506.9	1.33	-.17	2/28/1989	1
14	RF	1529.0	1510.5	1.19	.06	2/28/1989	2
15	RF	1564.0	1543.6	1.41	2.26	3/ 6/1989	1
16	RF	1541.0	1520.4	1.48	.72	3/ 6/1989	1
17	RF	1527.0	1506.4	1.28	-.21	3/ 6/1989	2
18	RF	1554.0	1533.7	1.97	1.61	3/ 6/1989	2
19	RF	1549.0	1526.1	1.32	1.10	3/13/1989	1
20	RF	1515.0	1492.2	1.21	-1.14	3/13/1989	2
21	RF	1524.0	1500.0	1.22	-.63	3/17/1989	2
22	RF	1552.0	1527.0	1.21	1.16	3/20/1989	1
23	RF	1533.0	1507.7	1.63	-.12	3/20/1989	1

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= 1510 ppm

*** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF % 238 Pu DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (Wt%)	.0100	.0094	.0093	.0104	.0108	.0107	---
OBS. S DEV (Wt%)	.0014	.0002	.0012	.0012**	.0014**	.0027**	---
REP. S DEV (Wt%)	.0012	.0003	.0012	.0006	.0001	.0018	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(Wt%)	.0005	-.0001	-.0002	.0009	.0013*	.0012*	---
(%)	5.55	-.75	-1.98	9.90	14.27*	13.01*	---

MEAN - MEAN FOR LAST PERIOD

(Wt%)	---	0.0000	-.0008*	-.0003	.0014*	.0013*	---
(%)	---	.01	-8.22*	-3.13	12.98*	12.21*	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= .00944 Wt%

MONTHLY MEANS FOR 238 Pu *

* DATA DECAYED TO 1/1/89

** ACCEPTED VALUE= .00944 WT%

ISOTOPIC DATA: % 238 Pu

OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	CS	.0099	.0099	9.30	4.74	1/ 4/1989	CSL
2	CS	.0110	.0110	8.70	16.82	1/ 5/1989	CSL
3	CS	.0089	.0089	11.80	-5.43	1/ 6/1989	CSL
4	CS	.0081	.0081	13.30	-13.92	1/23/1989	CSL
5	CS	.0093	.0093	11.80	-1.48	2/ 1/1989	CSL
6	CS	.0116	.0116	12.20	22.73	3/16/1989	CSL
7	CS	.0117	.0117	16.40	24.30	3/16/1989	CSL
8	CS	.0095	.0096	14.80	1.32	3/23/1989	CSL
9	CS	.0122	.0122	12.30	29.57	3/23/1989	CSL
10	CS	.0080	.0080	17.50	-14.87	3/23/1989	CSL
11	CS	.0118	.0118	12.30	25.24	3/23/1989	CSL

1	LA	.0094	.0094	3.28	- .40	1/11/1989	MGA-2
2	LA	.0098	.0098	3.28	3.86	1/17/1989	MGA-2
3	LA	.0094	.0094	3.31	- .37	1/25/1989	MGA-2
4	LA	.0091	.0091	2.28	-3.50	2/15/1989	MGA-2
5	LA	.0094	.0094	2.23	- .24	3/24/1989	MGA-2

1	LA	.0107	.0107	11.13	13.35	1/ 4/1989	M03
2	LA	.0093	.0093	11.12	-1.13	1/17/1989	M01
3	LA	.0090	.0091	12.82	-4.08	1/24/1989	M03
4	LA	.0081	.0081	16.91	-14.35	1/31/1989	M03
5	LA	.0108	.0108	11.00	14.37	1/31/1989	M03
6	LA	.0083	.0083	14.83	-12.33	2/ 3/1989	M03
7	LA	.0079	.0079	13.16	-15.83	2/ 6/1989	M01
8	LA	.0079	.0079	15.47	-16.52	2/13/1989	M03
9	LA	.0089	.0090	13.49	-5.18	3/ 1/1989	M03
10	LA	.0115	.0115	10.19	21.67	3/ 8/1989	M03
11	LA	.0103	.0103	11.23	9.61	3/20/1989	M01
12	LA	.0080	.0080	14.60	-14.79	3/20/1989	M03

1	MT	.0091	.0091	7.00	-3.81	1/ 6/1989	40/70
2	MT	.0108	.0108	5.90	13.92	1/20/1989	40/70
3	MT	.0110	.0110	8.00	17.00	2/17/1989	40/70
4	MT	.0108	.0108	5.00	14.23	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= .0094 %
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: % 238 Pu

(CONTINUED)

OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	WH	.0096	.0096	10.47	1.70	1/ 3/1989	627
2	WH	.0101	.0101	10.47	7.01	1/10/1989	1985
3	WH	.0120	.0120	10.47	27.15	1/13/1989	627
4	WH	.0111	.0111	10.47	17.62	1/16/1989	1985
5	WH	.0106	.0106	10.47	12.33	1/19/1989	627
6	WH	.0090	.0090	10.47	-4.61	1/26/1989	1985
7	WH	.0098	.0098	10.47	3.88	1/30/1989	627
8	WH	.0112	.0112	10.47	18.72	1/30/1989	1985
9	WH	.0110	.0110	13.44	16.61	2/ 6/1989	1985
10	WH	.0091	.0091	13.44	-3.51	2/13/1989	1985
11	WH	.0114	.0114	13.44	20.90	2/22/1989	627
12	WH	.0083	.0083	13.44	-11.98	2/24/1989	1985
13	WH	.0125	.0125	13.44	32.58	2/27/1989	627
14	WH	.0121	.0121	13.44	28.34	2/28/1989	1985
15	WH	.0107	.0107	.52	13.50	3/ 6/1989	1985
16	WH	.0108	.0108	.54	14.58	3/14/1989	1985
17	WH	.0108	.0108	.53	14.61	3/27/1989	1985
18	WH	.0108	.0108	.52	14.61	3/27/1989	627

1	RF	.0099	.0099	19.98	5.12	1/ 4/1989	2
2	RF	.0115	.0115	18.69	21.93	1/ 4/1989	1
3	RF	.0135	.0135	15.96	42.92	1/10/1989	1
4	RF	.0099	.0099	17.92	4.95	1/18/1989	2
5	RF	.0087	.0087	21.60	-7.76	1/18/1989	1
6	RF	.0097	.0097	24.57	3.15	1/24/1989	2
7	RF	.0066	.0066	25.19	-30.51	1/24/1989	2
8	RF	.0118	.0118	13.01	25.21	1/24/1989	2
9	RF	.0087	.0087	13.90	-8.16	1/24/1989	2
10	RF	.0119	.0119	16.84	25.65	1/31/1989	2
11	RF	.0074	.0074	21.47	-21.69	2/23/1989	2
12	RF	.0171	.0171	12.81	81.46	2/23/1989	1
13	RF	.0144	.0144	15.07	52.69	2/28/1989	1
14	RF	.0087	.0087	16.82	-7.79	2/28/1989	2
15	RF	.0152	.0152	13.14	60.92	3/ 6/1989	1
16	RF	.0124	.0124	22.59	31.78	3/ 6/1989	1
17	RF	.0126	.0126	11.53	33.71	3/ 6/1989	2
18	RF	.0112	.0113	15.72	19.29	3/ 6/1989	2
19	RF	.0133	.0133	19.07	41.00	3/13/1989	1
20	RF	.0102	.0102	13.88	8.03	3/13/1989	2
21	RF	.0101	.0101	16.67	6.97	3/17/1989	2
22	RF	.0111	.0111	15.96	17.27	3/20/1989	1
23	RF	.0103	.0103	28.15	9.02	3/20/1989	1

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= .0094 %

*** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF % 239 Pu DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (Wt%)	93.8191	93.8740	93.8068	93.9286	93.7139	93.9008	---
OBS. S DEV (Wt%)	.0827	.0214	.3140	.0788**	.2774	.1509	---
REP. S DEV (Wt%)	.1519	.0226	.2743	.0536	.2507	.1605	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(Wt%)	---	-.0509	.0040	-.0632	.0586	-.1561*	.0308	---
(%)	---	-.05	0.00	-.07	.06	-.17*	.03	---

MEAN - MEAN FOR LAST PERIOD

(Wt%)	---	-.0073	-.1507*	.0172	-.0530	.0147	---
(%)	---	-.01	-.16*	.02	-.06	.02	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= 93.87 Wt%

239 Pu FOR 01/89 - 03/89 *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= 93.87 WT%

MONTHLY MEANS FOR 239 Pu *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= 93.87 WT%

ISOTOPIC DATA: % 239 Pu							
OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	CS	93.8413	93.8412	.15	-.03	1/ 4/1989	CSL
2	CS	93.9184	93.9182	.14	.05	1/ 5/1989	CSL
3	CS	93.7673	93.7672	.13	-.11	1/ 6/1989	CSL
4	CS	93.7491	93.7485	.16	-.13	1/23/1989	CSL
5	CS	93.7996	93.7986	.18	-.08	2/ 1/1989	CSL
6	CS	93.7572	93.7550	.17	-.12	3/16/1989	CSL
7	CS	93.8917	93.8895	.25	.02	3/16/1989	CSL
8	CS	93.7293	93.7268	.16	-.15	3/23/1989	CSL
9	CS	93.8908	93.8884	.18	.02	3/23/1989	CSL
10	CS	93.8915	93.8890	.18	.02	3/23/1989	CSL
11	CS	93.8403	93.8378	.17	-.03	3/23/1989	CSL

1	LA	93.8443	93.8440	.03	-.03	1/11/1989	MGA-2
2	LA	93.8545	93.8540	.03	-.02	1/17/1989	MGA-2
3	LA	93.8680	93.8672	.03	-0.00	1/25/1989	MGA-2
4	LA	93.9061	93.9047	.02	.04	2/15/1989	MGA-2
5	LA	93.8740	93.8715	.02	0.00	3/24/1989	MGA-2

1	LA	94.0219	94.0218	.29	.16	1/ 4/1989	M03
2	LA	93.9022	93.9017	.26	.03	1/17/1989	M01
3	LA	94.2240	94.2233	.28	.38	1/24/1989	M03
4	LA	93.0235	93.0226	.35	-.90	1/31/1989	M03
5	LA	93.8692	93.8683	.30	-0.00	1/31/1989	M03
6	LA	93.8878	93.8869	.31	.02	2/ 3/1989	M03
7	LA	93.6085	93.6074	.27	-.28	2/ 6/1989	M01
8	LA	93.4050	93.4038	.32	-.50	2/13/1989	M03
9	LA	93.4777	93.4759	.30	-.42	3/ 1/1989	M03
10	LA	94.1799	94.1779	.29	.33	3/ 8/1989	M03
11	LA	93.8001	93.7977	.29	-.08	3/20/1989	M01
12	LA	93.9318	93.9295	.29	.06	3/20/1989	M03

1	MT	93.9947	93.9945	.06	.13	1/ 6/1989	40/70
2	MT	93.8733	93.8727	.05	0.00	1/20/1989	40/70
3	MT	93.9022	93.9008	.06	.03	2/17/1989	40/70
4	MT	93.9823	93.9796	.06	.12	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= 93.8700 %
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: % 239 Pu

(CONTINUED)

OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	WH	93.6977	93.6976	.26	-.18	1/ 3/1989	627
2	WH	93.7906	93.7903	.25	-.08	1/10/1989	1985
3	WH	93.5718	93.5714	.26	-.32	1/13/1989	627
4	WH	93.3202	93.3198	.27	-.59	1/16/1989	1985
5	WH	93.2715	93.2710	.28	-.64	1/19/1989	627
6	WH	93.9355	93.9347	.25	.07	1/26/1989	1985
7	WH	93.8324	93.8315	.25	-.04	1/30/1989	627
8	WH	93.6383	93.6374	.26	-.25	1/30/1989	1985
9	WH	93.7263	93.7252	.26	-.15	2/ 6/1989	1985
10	WH	93.7852	93.7839	.26	-.09	2/13/1989	1985
11	WH	93.5063	93.5047	.27	-.39	2/22/1989	627
12	WH	93.4077	93.4061	.28	-.49	2/24/1989	1985
13	WH	93.8926	93.8909	.25	.02	2/27/1989	627
14	WH	93.9495	93.9477	.25	.08	2/28/1989	1985
15	WH	94.0881	94.0862	.28	.23	3/ 6/1989	1985
16	WH	93.5679	93.5657	.31	-.32	3/14/1989	1985
17	WH	93.6601	93.6575	.31	-.23	3/27/1989	1985
18	WH	94.1045	94.1019	.28	.25	3/27/1989	627

1	RF	94.0011	94.0010	.17	.14	1/ 4/1989	2
2	RF	93.9694	93.9693	.17	.11	1/ 4/1989	1
3	RF	94.0654	94.0651	.18	.21	1/10/1989	1
4	RF	93.8239	93.8234	.19	-.05	1/18/1989	2
5	RF	93.9848	93.9843	.24	.12	1/18/1989	1
6	RF	93.9790	93.9782	.26	.12	1/24/1989	2
7	RF	94.0573	94.0566	.19	.20	1/24/1989	2
8	RF	94.1547	94.1540	.14	.30	1/24/1989	2
9	RF	93.5662	93.5655	.15	-.32	1/24/1989	2
10	RF	93.7305	93.7296	.17	-.15	1/31/1989	2
11	RF	93.8611	93.8595	.17	-.01	2/23/1989	2
12	RF	93.8937	93.8920	.17	.02	2/23/1989	1
13	RF	93.8783	93.8764	.16	.01	2/28/1989	1
14	RF	93.8807	93.8790	.15	.01	2/28/1989	2
15	RF	94.0368	94.0348	.17	.18	3/ 6/1989	1
16	RF	93.8009	93.7989	.19	-.08	3/ 6/1989	1
17	RF	93.7640	93.7620	.16	-.12	3/ 6/1989	2
18	RF	94.1056	94.1037	.24	.25	3/ 6/1989	2
19	RF	93.9878	93.9856	.16	.12	3/13/1989	1
20	RF	93.8101	93.8080	.15	-.07	3/13/1989	2
21	RF	93.7464	93.7441	.15	-.13	3/17/1989	2
22	RF	94.0576	94.0552	.15	.20	3/20/1989	1
23	RF	93.7969	93.7945	.21	-.08	3/20/1989	1

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= 93.8700 %
 *** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF % 240 Pu DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (Wt%)	5.9058	5.8611	5.9145	5.8037	6.0192	5.8299	---
OBS. S DEV (Wt%)	.0806	.0203	.2935	.0769**	.2777	.1511	---
REP. S DEV (Wt%)	.1523	.0220	.2748	.0537	.2514	.1609	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(Wt%)	.0458	.0011	.0545	-.0563	.1592*	-.0301	---
(%)	.78	.02	.93	-.96	2.72*	-.51	---

MEAN - MEAN FOR LAST PERIOD

(Wt%)	---	.0071	.1351*	-.0169	.0527	-.0053	---
(%)	---	.12	2.28*	-.29	.88	-.09	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= 5.86 Wt%

240 Pu FOR 01/89 - 03/89 *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= 5.86 WT%

MONTHLY MEANS FOR 240 Pu *

Year	10/88	11/88	12/88	1/89	2/89	3/89
1988	10/88	11/88	12/88	1/89	2/89	3/89

```
* DATA DECAYED TO 1/1/89
** ACCEPTED VALUE= 5.86 WT%
```

ISOTOPIC DATA: % 240 Pu							
OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	CS	5.8836	5.8836	2.35	.40	1/ 4/1989	CSL
2	CS	5.8038	5.8038	2.26	-.96	1/ 5/1989	CSL
3	CS	5.9596	5.9596	1.97	1.70	1/ 6/1989	CSL
4	CS	5.9795	5.9794	2.54	2.04	1/23/1989	CSL
5	CS	5.9276	5.9276	2.92	1.15	2/ 1/1989	CSL
6	CS	5.9667	5.9666	2.63	1.82	3/16/1989	CSL
7	CS	5.8328	5.8327	3.96	-.47	3/16/1989	CSL
8	CS	5.9999	5.9998	2.54	2.39	3/23/1989	CSL
9	CS	5.8349	5.8348	2.82	-.43	3/23/1989	CSL
10	CS	5.8388	5.8387	2.82	-.36	3/23/1989	CSL
11	CS	5.8851	5.8851	2.73	.43	3/23/1989	CSL

1	LA	5.8913	5.8913	.46	.53	1/11/1989	MGA-2
2	LA	5.8809	5.8809	.47	.36	1/17/1989	MGA-2
3	LA	5.8684	5.8684	.46	.14	1/25/1989	MGA-2
4	LA	5.8320	5.8320	.32	-.48	2/15/1989	MGA-2
5	LA	5.8631	5.8631	.29	.05	3/24/1989	MGA-2

1	LA	5.7105	5.7105	4.73	-2.55	1/ 4/1989	M03
2	LA	5.8333	5.8333	4.19	-.46	1/17/1989	M01
3	LA	5.5164	5.5164	4.75	-5.86	1/24/1989	M03
4	LA	6.6898	6.6897	4.92	14.16	1/31/1989	M03
5	LA	5.8688	5.8688	4.74	.15	1/31/1989	M03
6	LA	5.8532	5.8532	4.92	-.12	2/ 3/1989	M03
7	LA	6.1292	6.1292	4.12	4.59	2/ 6/1989	M01
8	LA	6.1248	6.1247	4.82	4.52	2/13/1989	M03
9	LA	6.2608	6.2608	4.54	6.84	3/ 1/1989	M03
10	LA	5.5590	5.5590	4.85	-5.14	3/ 8/1989	M03
11	LA	5.9383	5.9383	4.63	1.34	3/20/1989	M01
12	LA	5.8111	5.8110	4.75	-.84	3/20/1989	M03

1	MT	5.7384	5.7384	.97	-2.08	1/ 6/1989	40/70
2	MT	5.8598	5.8598	.78	-0.00	1/20/1989	40/70
3	MT	5.8303	5.8303	.97	-.51	2/17/1989	40/70
4	MT	5.7529	5.7528	1.05	-1.83	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= 5.8600 %
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: % 240 Pu

(CONTINUED)

OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	WH	6.0346	6.0346	4.00	2.98	1/ 3/1989	627
2	WH	5.9424	5.9424	4.00	1.41	1/10/1989	1985
3	WH	6.1600	6.1600	4.00	5.12	1/13/1989	627
4	WH	6.4089	6.4089	4.00	9.37	1/16/1989	1985
5	WH	6.4590	6.4590	4.00	10.22	1/19/1989	627
6	WH	5.8022	5.8022	4.00	-.99	1/26/1989	1985
7	WH	5.9044	5.9044	4.00	.76	1/30/1989	627
8	WH	6.0954	6.0954	4.00	4.02	1/30/1989	1985
9	WH	6.0108	6.0108	4.10	2.57	2/ 6/1989	1985
10	WH	5.9505	5.9505	4.10	1.54	2/13/1989	1985
11	WH	6.2263	6.2263	4.10	6.25	2/22/1989	627
12	WH	6.3261	6.3261	4.10	7.95	2/24/1989	1985
13	WH	5.8403	5.8403	4.10	-.34	2/27/1989	627
14	WH	5.7865	5.7865	4.10	-1.26	2/28/1989	1985
15	WH	5.6495	5.6495	4.76	-3.59	3/ 6/1989	1985
16	WH	6.1662	6.1661	4.76	5.22	3/14/1989	1985
17	WH	6.0745	6.0744	4.76	3.66	3/27/1989	1985
18	WH	5.6337	5.6336	4.76	-3.86	3/27/1989	627

1	RF	5.7308	5.7308	2.77	-2.20	1/ 4/1989	2
2	RF	5.7647	5.7647	2.80	-1.63	1/ 4/1989	1
3	RF	5.6640	5.6640	2.94	-3.35	1/10/1989	1
4	RF	5.9127	5.9127	2.95	.90	1/18/1989	2
5	RF	5.7496	5.7495	3.93	-1.88	1/18/1989	1
6	RF	5.7513	5.7513	4.29	-1.86	1/24/1989	2
7	RF	5.6814	5.6813	3.12	-3.05	1/24/1989	2
8	RF	5.5771	5.5771	2.39	-4.83	1/24/1989	2
9	RF	6.1678	6.1678	2.31	5.25	1/24/1989	2
10	RF	6.0030	6.0030	2.58	2.44	1/31/1989	2
11	RF	5.8735	5.8734	2.79	.23	2/23/1989	2
12	RF	5.8301	5.8300	2.74	-.51	2/23/1989	1
13	RF	5.8453	5.8453	2.66	-.25	2/28/1989	1
14	RF	5.8552	5.8551	2.34	-.08	2/28/1989	2
15	RF	5.6926	5.6925	2.90	-2.86	3/ 6/1989	1
16	RF	5.9299	5.9298	3.05	1.19	3/ 6/1989	1
17	RF	5.9665	5.9665	2.45	1.82	3/ 6/1989	2
18	RF	5.6292	5.6291	4.04	-3.94	3/ 6/1989	2
19	RF	5.7412	5.7412	2.65	-2.03	3/13/1989	1
20	RF	5.9241	5.9240	2.32	1.09	3/13/1989	2
21	RF	5.9882	5.9881	2.40	2.19	3/17/1989	2
22	RF	5.6746	5.6745	2.46	-3.17	3/20/1989	1
23	RF	5.9344	5.9344	3.31	1.27	3/20/1989	1

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= 5.8600 %

*** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF % 241 Pu DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (Wt%)	.2345	.2331	.2321	.2348	.2337	.2349	---
OBS. S DEV (Wt%)	.0013	.0010**	.0053**	.0010**	.0014	.0022	---
REP. S DEV (Wt%)	.0016	.0006	.0011	.0006	.0014	.0024	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(Wt%)	.0007	-.0007	-.0017	.0010	-.0001	.0011	---
(%)	.31	-.28	-.75	.43	-.04	.47	---

MEAN - MEAN FOR LAST PERIOD

(Wt%)	---	-.0002	.0011	.0003	-.0008*	.0017*	---
(%)	---	-.10	.49	.12	-.34*	.71*	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= .2338 Wt%

241 Pu FOR 01/89 - 03/89 *

* DATA DECAYED TO 1/1/89
** ACCEPTED VALUE= .2338 WT%

MONTHLY MEANS FOR 241 Pu *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= .2338 WT%

ISOTOPIC DATA: % 241 Pu							
OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	CS	.2346	.2347	.52	.39	1/ 4/1989	CSL
2	CS	.2362	.2363	.52	1.07	1/ 5/1989	CSL
3	CS	.2335	.2337	.51	-.05	1/ 6/1989	CSL
4	CS	.2327	.2334	.62	-.17	1/23/1989	CSL
5	CS	.2329	.2339	.72	.03	2/ 1/1989	CSL
6	CS	.2339	.2362	.72	1.04	3/16/1989	CSL
7	CS	.2331	.2354	1.22	.69	3/16/1989	CSL
8	CS	.2308	.2333	.91	-.23	3/23/1989	CSL
9	CS	.2315	.2340	.82	.08	3/23/1989	CSL
10	CS	.2311	.2336	.82	-.09	3/23/1989	CSL
11	CS	.2322	.2347	.82	.38	3/23/1989	CSL

1	LA	.2330	.2333	.32	-.20	1/11/1989	MGA-2
2	LA	.2328	.2333	.33	-.21	1/17/1989	MGA-2
3	LA	.2322	.2330	.32	-.36	1/25/1989	MGA-2
4	LA	.2308	.2322	.22	-.69	2/15/1989	MGA-2
5	LA	.2315	.2340	.22	.10	3/24/1989	MGA-2

1	LA	.2344	.2345	.47	.30	1/ 4/1989	M03
2	LA	.2328	.2333	.43	-.23	1/17/1989	M01
3	LA	.2292	.2299	.46	-1.67	1/24/1989	M03
4	LA	.2520	.2530	.57	8.22	1/31/1989	M03
5	LA	.2286	.2295	.48	-1.85	1/31/1989	M03
6	LA	.2286	.2296	.49	-1.78	2/ 3/1989	M03
7	LA	.2305	.2316	.44	-.93	2/ 6/1989	M01
8	LA	.2287	.2300	.50	-1.62	2/13/1989	M03
9	LA	.2285	.2303	.49	-1.49	3/ 1/1989	M03
10	LA	.2285	.2305	.47	-1.41	3/ 8/1989	M03
11	LA	.2293	.2317	.48	-.91	3/20/1989	M01
12	LA	.2270	.2293	.47	-1.92	3/20/1989	M03

1	MT	.2350	.2351	.31	.57	1/ 6/1989	40/70
2	MT	.2344	.2350	.21	.50	1/20/1989	40/70
3	MT	.2328	.2343	.31	.21	2/17/1989	40/70
4	MT	.2319	.2346	.31	.36	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= .2338 %
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: % 241 Pu

(CONTINUED)

OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	WH	.2352	.2353	.66	.63	1/ 3/1989	627
2	WH	.2351	.2354	.66	.68	1/10/1989	1985
3	WH	.2318	.2322	.66	-.70	1/13/1989	627
4	WH	.2322	.2327	.67	-.49	1/16/1989	1985
5	WH	.2306	.2311	.67	-1.13	1/19/1989	627
6	WH	.2331	.2339	.66	.03	1/26/1989	1985
7	WH	.2320	.2329	.66	-.39	1/30/1989	627
8	WH	.2337	.2346	.66	.34	1/30/1989	1985
9	WH	.2293	.2304	.69	-1.46	2/ 6/1989	1985
10	WH	.2333	.2346	.69	.35	2/13/1989	1985
11	WH	.2308	.2324	.69	-.60	2/22/1989	627
12	WH	.2314	.2331	.70	-.32	2/24/1989	1985
13	WH	.2339	.2357	.69	.80	2/27/1989	627
14	WH	.2318	.2336	.69	-.09	2/28/1989	1985
15	WH	.2331	.2351	.46	.55	3/ 6/1989	1985
16	WH	.2306	.2328	.48	-.43	3/14/1989	1985
17	WH	.2312	.2338	.48	0.00	3/27/1989	1985
18	WH	.2325	.2351	.46	.56	3/27/1989	627

1	RF	.2353	.2354	1.50	.67	1/ 4/1989	2
2	RF	.2314	.2315	1.28	-.99	1/ 4/1989	1
3	RF	.2342	.2345	1.34	.29	1/10/1989	1
4	RF	.2306	.2311	1.39	-1.16	1/18/1989	2
5	RF	.2340	.2345	1.59	.31	1/18/1989	1
6	RF	.2371	.2378	1.37	1.72	1/24/1989	2
7	RF	.2318	.2325	.93	-.55	1/24/1989	2
8	RF	.2334	.2341	.77	.12	1/24/1989	2
9	RF	.2345	.2352	.68	.59	1/24/1989	2
10	RF	.2318	.2327	.92	-.48	1/31/1989	2
11	RF	.2351	.2368	1.14	1.26	2/23/1989	2
12	RF	.2362	.2379	1.23	1.75	2/23/1989	1
13	RF	.2391	.2410	1.29	3.06	2/28/1989	1
14	RF	.2325	.2343	.77	.21	2/28/1989	2
15	RF	.2325	.2345	1.28	.29	3/ 6/1989	1
16	RF	.2339	.2359	1.63	.90	3/ 6/1989	1
17	RF	.2340	.2360	.79	.94	3/ 6/1989	2
18	RF	.2310	.2329	1.09	-.37	3/ 6/1989	2
19	RF	.2348	.2370	1.28	1.36	3/13/1989	1
20	RF	.2327	.2349	.77	.47	3/13/1989	2
21	RF	.2325	.2348	.79	.41	3/17/1989	2
22	RF	.2338	.2362	1.11	1.03	3/20/1989	1
23	RF	.2355	.2379	1.55	1.77	3/20/1989	1

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= .2338 %

*** LAB GENERATED INSTRUMENT ID

RESULTS OF ANALYSIS OF % 241 Am DATA

REPORTING LABORATORY

	CSL =====	LLL =====	LANL =====	MAT =====	WHC =====	RFP =====	SRP =====
LAB MEAN (Wt%)	.1429	.1408	.1433	.1427	.1369	.1436	---
OBS. S DEV (Wt%)	.0015	.0022**	.0057	.0010**	.0072**	.0016	---
REP. S DEV (Wt%)	.0019	.0005	---	.0007	.0038	.0019	---
# OF DATA POINTS	11	5	12	4	18	23	0

DIFFERENCE BETWEEN MEANS

=====

MEAN - ACCEPTED VALUE

(Wt%)	-.0000	-.0021	.0004	-.0002	-.0060*	.0007	---
(%)	-.03	-1.48	.26	-.16	-4.21*	.47	---

MEAN - MEAN FOR LAST PERIOD

(Wt%)	---	-.0005	-.0013	-.0004	-.0005	.0007*	---
(%)	---	-.37	-.92	-.31	-.40	.46*	---

* DIFFERENCE IS SIGNIFICANT AT THE 95% CONFIDENCE LEVEL

** OBSERVED VARIANCE IS SIGNIFICANTLY DIFFERENT FROM EXPECTED VARIANCE AT THE 95% CONFIDENCE LEVEL

*** NOT ENOUGH DATA REPORTED TO ASSESS SIGNIFICANCE OF DIFFERENCE

**** ACCEPTED VALUE= .1429 Wt%

241 Am FOR 01/89 - 03/89 *

* DATA DECAYED TO 1/1/89
 ** ACCEPTED VALUE= .1429 WT% Pu

MONTHLY MEANS FOR 241 Am *

* DATA DECAYED TO 1/1/89

** ACCEPTED VALUE= .1429 WT% Pu.

ISOTOPIC DATA: % 241 Am

OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	CS	.1413	.1412	1.21	-1.19	1/ 4/1989	CSL
2	CS	.1442	.1441	1.21	.84	1/ 5/1989	CSL
3	CS	.1425	.1423	1.01	-.42	1/ 6/1989	CSL
4	CS	.1447	.1440	1.31	.78	1/23/1989	CSL
5	CS	.1420	.1411	1.51	-1.27	2/ 1/1989	CSL
6	CS	.1433	.1410	1.41	-1.33	3/16/1989	CSL
7	CS	.1503	.1481	2.21	3.61	3/16/1989	CSL
8	CS	.1470	.1445	1.21	1.15	3/23/1989	CSL
9	CS	.1450	.1426	1.31	-.21	3/23/1989	CSL
10	CS	.1457	.1433	1.41	.25	3/23/1989	CSL
11	CS	.1449	.1424	1.31	-.32	3/23/1989	CSL

1	LA	.1413	.1410	.42	-1.32	1/11/1989	MGA-2
2	LA	.1406	.1401	.42	-1.94	1/17/1989	MGA-2
3	LA	.1408	.1401	.42	-1.97	1/25/1989	MGA-2
4	LA	.1424	.1411	.28	-1.29	2/15/1989	MGA-2
5	LA	.1435	.1410	.28	-1.31	3/24/1989	MGA-2

1	LA	.1449	.1448	.29	1.34	1/ 4/1989	M03
2	LA	.1407	.1402	.26	-1.88	1/17/1989	M01
3	LA	.1520	.1513	.28	5.89	1/24/1989	M03
4	LA	.1304	.1294	.35	-9.44	1/31/1989	M03
5	LA	.1486	.1477	.30	3.37	1/31/1989	M03
6	LA	.1395	.1385	.31	-3.07	2/ 3/1989	M03
7	LA	.1487	.1476	.27	3.30	2/ 6/1989	M01
8	LA	.1418	.1405	.32	-1.66	2/13/1989	M03
9	LA	.1490	.1472	.30	3.04	3/ 1/1989	M03
10	LA	.1471	.1451	.29	1.56	3/ 8/1989	M03
11	LA	.1454	.1431	.29	.12	3/20/1989	M01
12	LA	.1460	.1437	.29	.55	3/20/1989	M03

1	MT	.1431	.1430	.50	.05	1/ 6/1989	40/70
2	MT	.1428	.1423	.40	-.45	1/20/1989	40/70
3	MT	.1456	.1442	.50	.92	2/17/1989	40/70
4	MT	.1442	.1415	.50	-.95	3/31/1989	40/70

* DATA DECAYED TO 1/1/1989
 ** ACCEPTED VALUE= .1429 %
 *** LAB GENERATED INSTRUMENT ID

ISOTOPIC DATA: % 241 Am

(CONTINUED)

OBS	LAB	RAW DATA	DEC DATA *	UNCERT	ERR **	MEASUREMENT	INST ***
1	WH	.1358	.1357	2.67	-5.01	1/ 3/1989	627
2	WH	.1414	.1411	2.67	-1.24	1/10/1989	1985
3	WH	.1377	.1373	2.67	-3.89	1/13/1989	627
4	WH	.1358	.1353	2.67	-5.29	1/16/1989	1985
5	WH	.1398	.1393	2.67	-2.55	1/19/1989	627
6	WH	.1388	.1380	2.67	-3.40	1/26/1989	1985
7	WH	.1323	.1314	2.67	-8.03	1/30/1989	627
8	WH	.1307	.1298	2.67	-9.15	1/30/1989	1985
9	WH	.1432	.1421	2.60	-.54	2/ 6/1989	1985
10	WH	.1388	.1375	2.60	-3.78	2/13/1989	1985
11	WH	.1433	.1417	2.60	-.81	2/22/1989	627
12	WH	.1435	.1419	2.60	-.72	2/24/1989	1985
13	WH	.1338	.1321	2.60	-7.59	2/27/1989	627
14	WH	.1399	.1381	2.60	-3.33	2/28/1989	1985
15	WH	.1348	.1329	3.34	-7.03	3/ 6/1989	1985
16	WH	.1358	.1336	3.34	-6.49	3/14/1989	1985
17	WH	.1372	.1346	3.34	-5.79	3/27/1989	1985
18	WH	.1458	.1432	3.34	.22	3/27/1989	627

=====

1	RF	.1445	.1444	1.32	1.03	1/ 4/1989	2
2	RF	.1461	.1460	1.29	2.19	1/ 4/1989	1
3	RF	.1425	.1422	1.34	-.49	1/10/1989	1
4	RF	.1433	.1428	1.42	-.05	1/18/1989	2
5	RF	.1451	.1446	1.79	1.18	1/18/1989	1
6	RF	.1448	.1441	1.98	.84	1/24/1989	2
7	RF	.1435	.1428	1.38	-.06	1/24/1989	2
8	RF	.1454	.1447	1.11	1.23	1/24/1989	2
9	RF	.1429	.1422	1.38	-.46	1/24/1989	2
10	RF	.1443	.1434	1.30	.37	1/31/1989	2
11	RF	.1473	.1456	1.37	1.92	2/23/1989	2
12	RF	.1447	.1430	1.31	.10	2/23/1989	1
13	RF	.1445	.1427	1.34	-.17	2/28/1989	1
14	RF	.1447	.1430	1.20	.06	2/28/1989	2
15	RF	.1483	.1464	1.42	2.43	3/ 6/1989	1
16	RF	.1458	.1438	1.49	.64	3/ 6/1989	1
17	RF	.1444	.1424	1.29	-.33	3/ 6/1989	2
18	RF	.1475	.1455	1.98	1.85	3/ 6/1989	2
19	RF	.1468	.1446	1.33	1.21	3/13/1989	1
20	RF	.1433	.1412	1.22	-1.22	3/13/1989	2
21	RF	.1441	.1418	1.23	-.77	3/17/1989	2
22	RF	.1472	.1448	1.22	1.35	3/20/1989	1
23	RF	.1450	.1426	1.64	-.21	3/20/1989	1

=====

* DATA DECAYED TO 1/1/1989

** ACCEPTED VALUE= .1429 %

*** LAB GENERATED INSTRUMENT ID

CALORIMETRY EXCHANGE SAMPLE ON 01/01/89

Isotope	PPM Isotope / 239-Pu	% Isotope / Pu	% Uncertainty *
238-Pu	101.0	0.00944	0.6
239-Pu	1,000,000	93.8676	0.003
240-Pu	62,168	5.8600	0.06
241-Pu	2,470.3	0.2338	0.57
242-Pu	306.4	0.0291	5.0
241-Am	1,509.7	0.1429	0.4

Power = 0.9759 Watts +/- 0.02%

P-effective = 2.450 mW/g +/- 0.02%

* Uncertainties shown for Pu isotopes are one standard deviation, as found using the data reported by four labs which made the reference measurements on the sample in 1982.

CONSTANTS

Isotope	Decay Factor	Power
238-Pu	2.163E-05	0.56757
239-Pu	7.868E-08	1.9288E-03
240-Pu	2.892E-07	7.0824E-03
241-Pu	1.323E-04	3.4120E-03
242-Pu	5.043E-09	1.1590E-04
241-Am	4.377E-06	0.11420

MAILING LIST

Chris Oertel
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

J. G. Fleissner
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Jody Giacomoni
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Francis Hass
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Fred Lyons
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Jerald Zarret
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Mark Spivey
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Randy Kawamoto
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Jim Bradshaw
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Ralph C. Nelson
Rockwell International
Rocky Flats Plant
P. O. Box 464
Golden, Colorado 80401

Tom Ricketts
Los Alamos National Laboratory
P. O. Box 1663
Los Alamos, New Mexico 87545

William Sedlacek
Los Alamos National Laboratory
P. O. Box 1663
Los Alamos, New Mexico 87545

Thomas E. Sampson
Los Alamos National Laboratory
P. O. Box 1663
Los Alamos, New Mexico 87545

Aaron Goldman
Los Alamos National Laboratory
P. O. Box 1663
Los Alamos, New Mexico 87545

Bruce Erkilla
Los Alamos National Laboratory
P. O. Box 1663
Los Alamos, New Mexico 87545

Robert S. Marshall, MS E-508
Los Alamos National Laboratory
P. O. Box 1663
Los Alamos, New Mexico 87545

Faye Hsue, MS E-508
Los Alamos National Laboratory
P. O. Box 1663
Los Alamos, New Mexico 87545

Sharon Schumacher, L-347
Lawrence Livermore National Lab.
P. O. Box 808
Livermore, California 94550

Stephen Chin
Lawrence Livermore National Lab.
P. O. Box 808
Livermore, California 94550

David Bouse, MSIN T4-40
Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

Owen Kruger
Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

D. A. Puryear, MSIN T4-40
Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

R. A. Hamilton, MSIN T5-06
Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

Gary Kodman
Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

A. E. Schilling, MSIN T5-05
Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

W. C. Johnson
U. S. Department of Energy
Richland Operations Office
P. O. Box 550
Richland, Washington 99352

Richard Peavy
U. S. Department of Energy
Office of Safeguards & Security
Washington, D. C. 20545

Dr. C. D. Bingham, Director
New Brunswick Laboratory
9800 South Cass Avenue
Argonne, Illinois 60439

Jim Branscome
U. S. Department of Energy
DP342.3
G-442/GTN
Washington, D. C. 20545

Louis Perez
Albuquerque Operations Office
P. O. Box 5400
Albuquerque, New Mexico 87115

Cloyd Denard, 772-F
Savannah River Site
Westinghouse Savannah River Corp.
Aiken, South Carolina 29801

John Clark, 772-F
Savannah River Site
Westinghouse Savannah River Corp.
Aiken, South Carolina 29801

Linda Baker, 772-F
Savannah River Site
Westinghouse Savannah River Corp.
Aiken, South Carolina 29801

Bill Boyce, 772-F
Savannah River Site
Westinghouse Savannah River Corp.
Aiken, South Carolina 29801