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LLNL-TR-416987

NDA Batch 2002-13

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September 21, 2009

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NDA BATCH REPORT COVER SHEET

NDA Batch Number **2002-13**	Status: ~~NOT~~ **VALIDATED** DW 9/17/09
Testing Facility: **LLNL Plutonium Facility Segmented Gamma Scanner (SGS)**	

Waste Containers

~~LL85401314TRU~~	LL85501243TRU	LL85301244TRU	LL85101245TRU	
~~LL85101315TRU~~	LL85601332TRU	LL85001028TRU		LL85501243TRU Replicate

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LL85601332, Run 1064	10/14/02 ~~10-5-02~~		
~~LL85401314, Run 1065~~	~~10-5-02~~ K shipped during previous CCP campaign RKH 9/17/09		
LL85001028, Run 1066	10/14/02 ~~10-5-02~~	needs a NCAR, define scope of problem	
LL85301244, Run 1067	10/14/02 ~~10-5-02~~		
~~LL85101315, Run 1068~~	~~10-5-02~~ K shipped during previous CCP campaign RKH 9/17/09		
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NCAR 02-1000168	10/22/02		
Site Project QA Officer Summary	10/22/02		

* NDA Batch Report Cover Sheet Changes Made by Carolyn Moran 6/3/09.

NCAR was resolved on 10/22/02 and data were validated. DW 9/17/09

[1] SGS Data-Generation-Level Batch Data Report Review, Verification, and Validation Checklist

NDA Batch Narrative

Batch Number: **2002-13**	Status: **VALIDATED**

Quality Control Summary

QC sample results (daily background check drum and 100-gram SGS check drum) were within acceptance criteria established by WIPP's Quality Assurance Objectives for TRU Waste Characterization.

Replicate Summary

Replicate runs were performed on drum LL85501243TRU. Replicate measurement results are identical at the 95% confidence level as established by WIPP criteria.

Nonconformance

HWM NCAR No. 02-1000168 issued on 17-Oct-2002 regarding a partially dislodged Cd sheet filter on the HPGe coaxial detector. This physical geometry occurred on 01-Oct-2002 and was not corrected until 10-Oct-2002, during which period is inclusive of the present batch run of drums. Per discussions among the Independent Technical Reviewer, Expert Reviewer and the Technical QA Supervisor, as well as in consultation with John Fleissner, Technical Point of Contact from Canberra, the analytical results are technically reliable. All QC standard runs during this period were in control.

This NCAR was closed on 21-Oct-2002.

Technical Supervisor/QA Officer Comments

Data packet for SGS Batch 2002-13 generated using passive gamma-ray spectroscopy with the Pu Facility SGS unit is technically reasonable. All QC samples are in compliance with established control limits. The batch data packet has been reviewed for correctness, completeness, consistency and compliance with WIPP's Quality Assurance Objectives and determined to be acceptable.

An Expert Review was performed on the data packet between 08-Oct-02 and 11-Oct-02 to check for potential U-235 & Np-237 interferences for drums LL85601332, LL85401314, LL85001028, LL85301244 and LL85101315. No interference was attributed to U-235 & Np-237. Drums LL855011243, LL85101245 and LL85301244 had specific scan segments that showed Se gamma ray transmissions for the 136-keV gamma to be below 0.1%. These drums have high metal content causing the high gamma-ray attenuation, however the results as obtained are reliable. Finally, inconsistencies between Combined Segment NID and Summed Spectrum results for drums LL85501243, LL85101245, LL85401314, LL85301244 and LL85101315 have been satisfactorily addressed. These drums contain heavy metals and material inhomogeneities.

Technical Supervisor/QA Officer Printed Name

Signature: (Bryan B. Bandong)	Date: 21 October 2002

SGS DATA-GENERATION-LEVEL BATCH DATA REPORT REVIEW, VALIDATION, AND VERIFICATION CHECKLIST

2002-13 BBB 10/14/02

BATCH NUMBER: 2002-13 includes the following containers:

JW 10-10-02 LL85401314TRU BBB 10/14-02

~~LL85001028TRU~~ ~~LL85401214TRU~~ LL85501243TRU LL85301244TRU LL85101245TRU

LL85101315TRU LL85601332TRU LL85001028TRU* _____ LL85501243TRU (replicate) BBB 10/14/02

BBB 10/14/02 ~~Replicate~~ **100% of the radioassay data in the Batch Data Report must be reviewed.**

Yes/No (Y/N)	**Independent Technical Reviewer Checklist** Initial & date: JW 10/10/02
Y	The assay measurements are within the system calibration range for the factors of waste matrix, radionuclide identity, and activity.
	Data generation and reduction were conducted in a technically correct manner in accordance with the procedures for SGS operations (OP-B332-005) and expert review (WCP-41):
Y	A Gamma Waste Assay Report and Radioassay Data Sheet are present.
Y	A MGA report is present or expert review has provided isotopic ratios from SGS or AK.
Y	MGA and AK agree as to radiological composition or, if not, this has been resolved by expert review.
Y	If Pu-238 > 2% by weight of total Pu, expert review has addressed this and assigned a Pu-240 value.
Y	If Np-237 or U-235 is identified by MGA, expert review has addressed possible interferences.
Y	If Am-241 > 0.2% by weight of total Pu + Am, expert review has addressed possible interferences.
Y	If bulk density of waste > 0.6 g/ml, expert review has addressed the high density of the drum.
Y	If transmission in any segment < 0.1% for the Se-75 peaks at 136 keV or 265 keV, expert review has addressed the low transmission.
Y	If transmission < 1% for the Se-75 peak at 401 keV, expert review has addressed the low transmission.
Y	For dead time in any segment > 50%, expert review has addressed the high dead time.
Y	If the Pu-239 masses determined from the 414 keV peak and the 129 keV peak differ by a factor of ≥2.5, expert review has addressed possible matrix inhomogeneity.
Y	If Cs-137 is present, Sr-90 is reported at an activity ratio to Cs-137of 0.39 for Pu fission or at a ratio of 1 for U-235 fission or, if both Pu and U are present, the expert reviewer has determined the ratio.
Y	If any unusual nuclides are identified (other than the 10 required to be reported to WIPP), the expert reviewer has checked for interferences.
Y	If the Summed Spectrum report value for Pu-239 and the Combined Segment NID report for Pu-239 do not agree within 95% confidence limits (the same as for replicates of unknowns), expert review has addressed the difference.
Y	If both the SGS and MGA gamma isotopic ratios for Am-241, Pu-241, Np-237, Am-243, and U-235 to Pu-239 for the Summed Spectrum and Combined Segment NID reports do not agree, expert review has resolved this.
Y	If all reported radionuclide masses are not > 2.5 times the uncorrected MDAs reported on the Radioassay Data Sheet, expert review has calculated and applied transmission-corrected MDAs.
Y	Data are reported in the proper units and correct number of significant figures or more.
Y	☒Calculations have been verified by a valid calculation program (GWAS and/or MGA), and/or ☐I have conducted a spot check of verified calculation programs, and/or ☐I have made a 100% check of all hand calculations. (Mark all that apply.)
Y	I have reviewed the data, including manually input text, for transcription errors or no transcriptions were done. (Check, especially, container identification number, batch number, and gross and tare weights.)

* LL85001028TRU was added to this batch. This drum was run on the same date (October 5, 2002) as the rest of the drums in this batch. The drum data received & Independent Technical Review from Lennox Harris on 11-Oct-2002 and conforms to the provisions of the ITR Checklist.

– Bryan Bowley, 10/14/02

SGS DATA-GENERATION-LEVEL BATCH DATA REPORT
REVIEW, VALIDATION, AND VERIFICATION CHECKLIST

BATCH NUMBER: 2002-13 includes the following containers:

10-10-02 LL85401314TRU BBB 10/14/02

~~LL85001028TRU~~ ~~LL85401214TRU~~ LL85501243TRU LL85301244TRU LL85101245TRU

LL85101315TRU LL85601332TRU LL85001028TRU LL85501243TRU (replicate) 10/14/02

RJH 10-17-02

BBB 10/14/02 ~~Replicate~~ **100% of the radioassay data in the Batch Data Report must be reviewed.**

Y Source transmission for each segment of every measurement is either within the acceptable range or has been accepted by the expert reviewer.

Y The testing batch QA documentation is complete and includes raw data (including data on electronic storage media and copies of SGS logbook entries for the batch), calculation records (including the printed SGS measurement report, Radioassay Data Sheet, and, if done, the Expert Reviewer's report), references to calibration records (a Count Type of *55 Gallon Galv. Drum*, *Daily 20 g Drum Check*, or *Daily 100 g Drum Check* indicates an acceptable calibration), and QC sample results, namely, a Radioassay Data Sheet for a replicate of an unknown.

Y QC measurements, namely background and performance checks, were made at the beginning of each counting session in the batch and their records are present.

Y QC measurement results (background checks and performance checks by measurement of standards) are within established control limits per procedure for SGS operations (OP-B332-005). QC criteria that were not met have been documented with a closed and satisfactorily resolved WCP NCAR or Plutonium Facility CAR.

Y A replicate count of an unknown has been made once for every batch (which has a maximum of 20 waste containers) or once per week, whichever is more frequent.

Y Replicate assay QC measurements were properly performed and pass/fail criteria are within established control limits, as calculated below, per procedure WCP-55, and if not, the data have been appropriately qualified.

Let *A1* be the Pu-239 activity from the first replicate count, as recorded on the Radioassay Data Sheet, and *A2* the value from the second replicate count.

Calculate: $D = |A1 - A2| =$ 0.02

Calculate: $s = SQRT[(1.96\ s1)^2 + (1.96\ s2)^2] =$ 1.45

where *1.96 s1* and *1.96 s2* are the 1.96 σ counting statistics uncertainties associated with *A1* and *A2*. If $D < s$, the measurement results are the same at the 95% confidence level and the QC measurement passes.

Y I have marked the Passed item on the Radioassay Data Sheet(s) for QC replicates as either Yes or No.

Independent ~~Technical~~ Reviewer Signature — Date: 10-10-02

J. Russell Stimmel
Printed Name

~~Drum LL85001028 is removed from this batch for extensive expert review. JRS 10-10-02~~

Omit - Bryan Bowly 10/14/02

SGS DATA-GENERATION-LEVEL BATCH DATA REPORT REVIEW, VALIDATION, AND VERIFICATION CHECKLIST

RADIOASSAY BATCH NUMBER: 2002-13 includes the following containers:

LL85401314TRU	LL85501243TRU	LL85301244TRU	LL85101245TRU	LL85101315TRU
LL85601332TRU	LL85001028TRU			LL85501243TRU replicate

100% of the radioassay data in the Batch Data Report must be reviewed.

Yes/No (Y/N)

Technical Supervisor Review Checklist

Y The data are technically reasonable based on the gamma spectroscopy technique used by the SGS.

Y All data have received independent technical review.

Y The data were re-analyzed by the Expert Reviewer.

Date: 08-Oct-02 through 11-Oct-02 Reason: Check data for U-235/238 & Np-237. Some drums have low Se-76 136-keV gamma transmission for some segments. Some drums have inconsistent Combined Segment NID and Summed Spectrum results for Pu-239. (See also Batch Narrative for specific drums)

N The data required additional expert review.

Date: _____ Reason: _____

Y The testing batch QA documentation is complete and includes raw data, calculation records, references to calibration records, and QC sample results, namely, a replicate of an unknown.

Y Testing batch data correctly lists the testing facility name, testing batch number, drum numbers included in the batch, and signature releases of radioassay testing personnel.

Y A table of contents is present.

Y Background and performance check data and control charts for the relevant time period are present.

Y Separate Radioassay Data Sheets are attached for each waste container. The sheets include information on the method used, Item Description Code (LLNL TRUW Form number or waste stream number), date of examination, total Pu-239 FGEs (g) and associated uncertainty, total alpha activity and associated uncertainty (Ci), TRU activity (nCi/g) and associated uncertainty, listing of individual radioisotopes present (Ci) and associated uncertainties (Ci), thermal power (total decay heat) and associated uncertainty (W), QC replicate (yes/no), and Operator signature / date, expert reviewer (when applicable) signature / date.

Y Actions necessary for release of data: HWM NCAR No. 02-1000168 to be addressed by Dave Hiland

Actions completed: _____ **Signature** **21 October 2002** **Date**

_____ **Technical Supervisor Signature** **21 October 2002** **Date**

Bryan B. Bandong

(Printed Name)

SGS DATA-GENERATION-LEVEL BATCH DATA REPORT REVIEW, VALIDATION, AND VERIFICATION CHECKLIST

RADIOASSAY BATCH NUMBER: 2002-13 includes the following containers:

LL85401314TRU	LL85501243TRU	LL85301244TRU	LL85101245TRU	LL85101315TRU
LL85601332TRU	LL85001028TRU			LL85501243TRU replicate

100% of the radioassay data in the Batch Data Report must be reviewed.

Yes/No/Not Applicable (Y/N/NA)

QA Officer Review Checklist

NA Independent Technical and Technical Supervisory reviews have been performed as evidenced by the appropriate signature releases. *(Write "NA" if this checklist is filled out by the same person who filled out the Technical Supervisor Review Checklist.)*

NA The testing batch QA documentation is complete as appropriate for radioassay, as detailed in the Technical Supervisor checklist. *(Write "NA" if this checklist is filled out by the same person who filled out the Technical Supervisor Review Checklist.)*

Yes/No (Y/N)

Y Additionally, these data validation checklists (Independent Technical Review, Technical Supervisor review, and QA Officer review), when complete, are appended to the Batch Data Report.

Quality Assurance Objectives have been met:

Y The results fall within the ranges for which the Quality Assurance Objectives were verified for the SGS.

Y The MDC has been correctly determined for the waste matrix of this container. (Note that the MDA values for the radionuclides reported on Radioassay Data Sheets have not been corrected for transmission attenuation, unless the expert reviewer has done so and so stated.)

Y The value reported for TRU alpha activity concentration > MDC if the reported value > 100 nCi/g. *(LLW, where the reported concentration ≤100 nCi/g, may be reported as ≤MDC.)* *(In determining TRU alpha activity concentration, any radionuclides measured at ≤MDC are counted as zero activity or are input, using acceptable knowledge, from known ratios to a nuclide measured at > MDC.)*

Bryan B. Bandong

QA Officer Signature

21 October 2002
Date

Bryan B. Bandong
Printed Name

SGS DAILY LOGBOOK for WS-7715 in B-332/1377

DATE: 10/5/02 PAGE 1 of 1	PRIMARY OPERATOR'S NAME/INITIALS: LR LOSE P. CORDEIRA.
	SECONDARY OPERATOR(s)'S NAME/INITIALS: Tom / Tom Macar.
DAILY CHECKS/INITIALS: (Fill in on Page 1 only)	Daily Room Check complete [initials] Daily Scales Check complete [initials] Date/Time Dewars last filled 10/4/02 0020
	Previous Day's Background Check has been saved per OP-B332-005 Sect. 11.14 [initials] Annual Calibration Due Date: 8/10/02 (1)

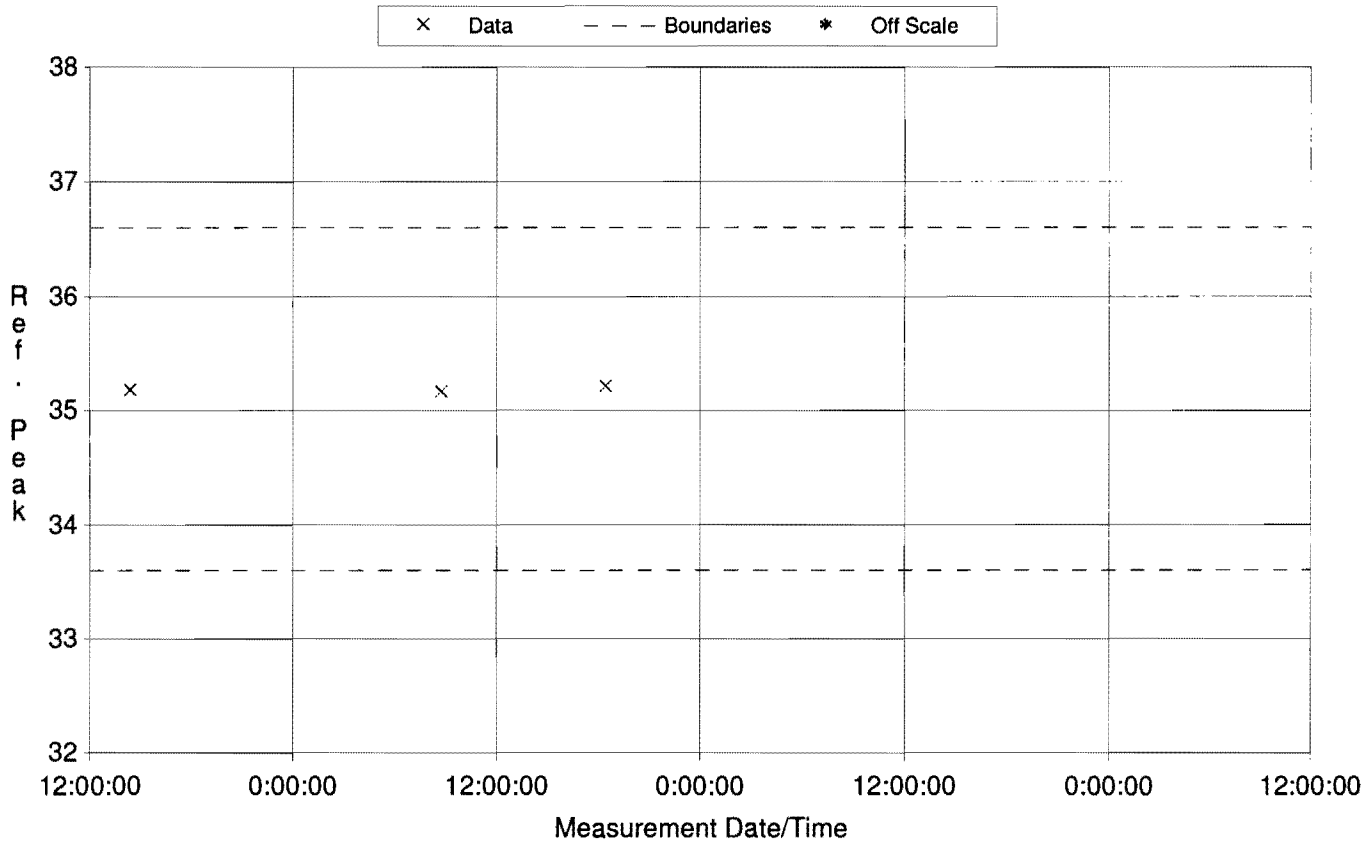
START TIME	END TIME	DRUM ID *	OPER.	Verifer **	SEQ. #	BATCH #	COMMENTS
7:41:14am	8:38:06	S100	[initials]	[initials]	1059	2002-13	89.1g CSNID 100g Source Drum
8:44:13	8:49:56	B1060	[initials]	[initials]	1060	2002-13	Background. OK [initials]
9:02:43	10:00:27	LL85501243	[initials]	[initials]	1061	2002-13	3.50E+01 CSNID
10:08:00	11:05:00	LL85501243R	[initials]	[initials]	1062	2002-13	3.57E+01 "
11:27:24	12:24:25	LL85101245	[initials]	[initials]	1063	2002-13	6.18E+00 "
12:34:42	1:31:40	LL85601332	[initials]	[initials]	1064	2002-13	2.21E+01 "
1:47:47	2:44:45	LL8540 ~~1214~~ 1314 kg 10-15-02	[initials]	[initials]	1065	2002-13	3.18E+00 "
3:03:49	4:00:40	LL85001028	[initials]	[initials]	1066	2002-13	1.48E+00 "
4:12:38	5:09:34	LL85301244	[initials]	[initials]	1067	2002-13	5.89E+00 "
5:19:46pm	6:16:46pm	LL85101315	[initials]	[initials]	1068	2002-13	3.37E+01 "
6:25:19pm	6:28:46pm	B1069	[initials]	[initials]	1069	2002-13	Background. OK
6:36:11p	7:33:09p	S100	[initials]	[initials]	1070	2002-13	100g Source Drum OK CSNID = 87.7g
							Pu 239 CSNID
							NOTE: AS OF 10/1/02 THE SGS100 MEAN
							IS 88.89g WITH UPPER = 90.6g & LOWER = 87.2g
							(1) THIS IS NO LONGER REQ'D PER. D. HILAND 8/29/02

10/4/02

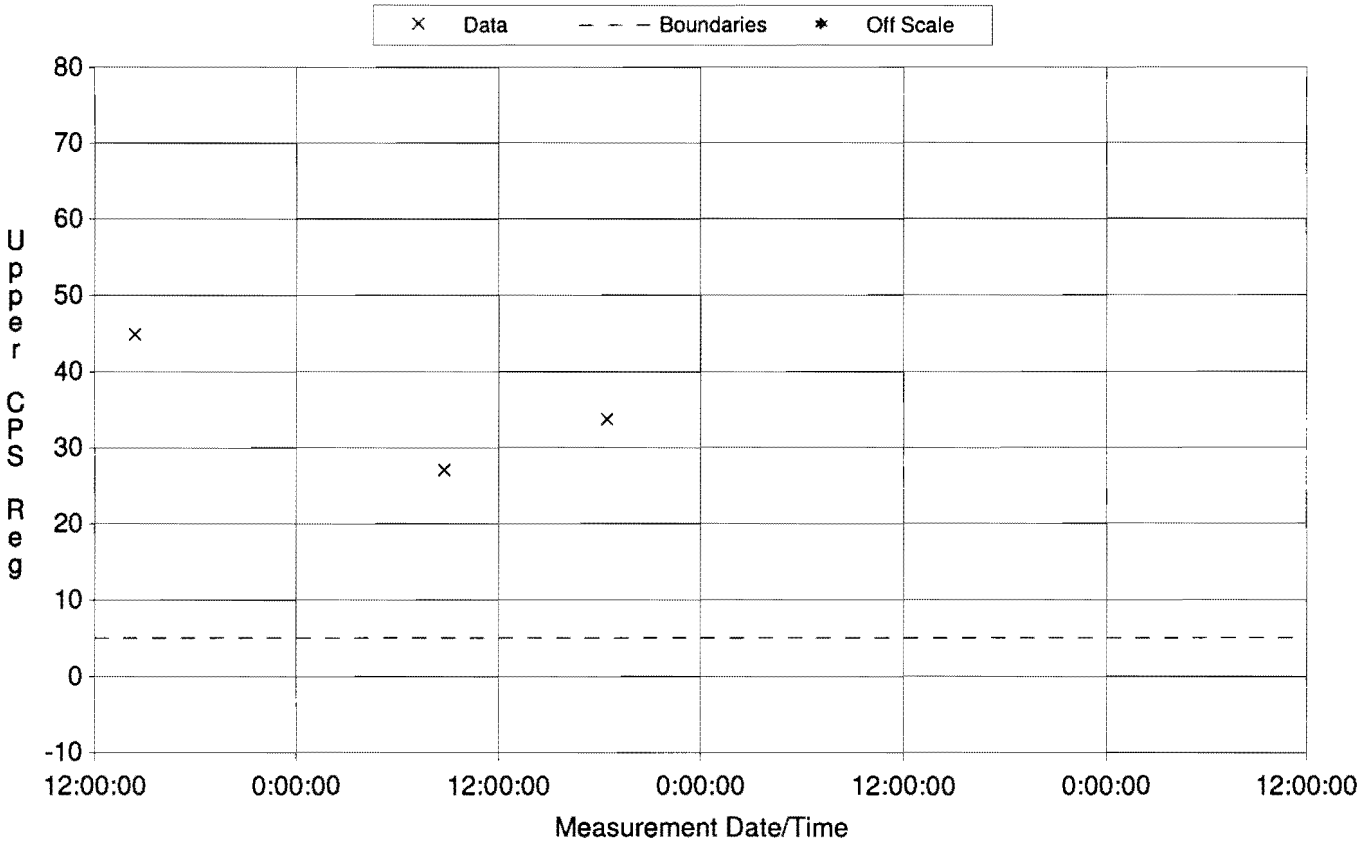
NOTES: * Options are: BCK (Backround), S100g (Standard), or Waste Drum No. (Omit "TRU" on LL drums.) *** Ref: OP-B332-005, Sect. 9.4

** Secondary Operator's initials req'd for all waste drums to verify that both the gross and tare wts are accurate and have been intered into the computer correctly.

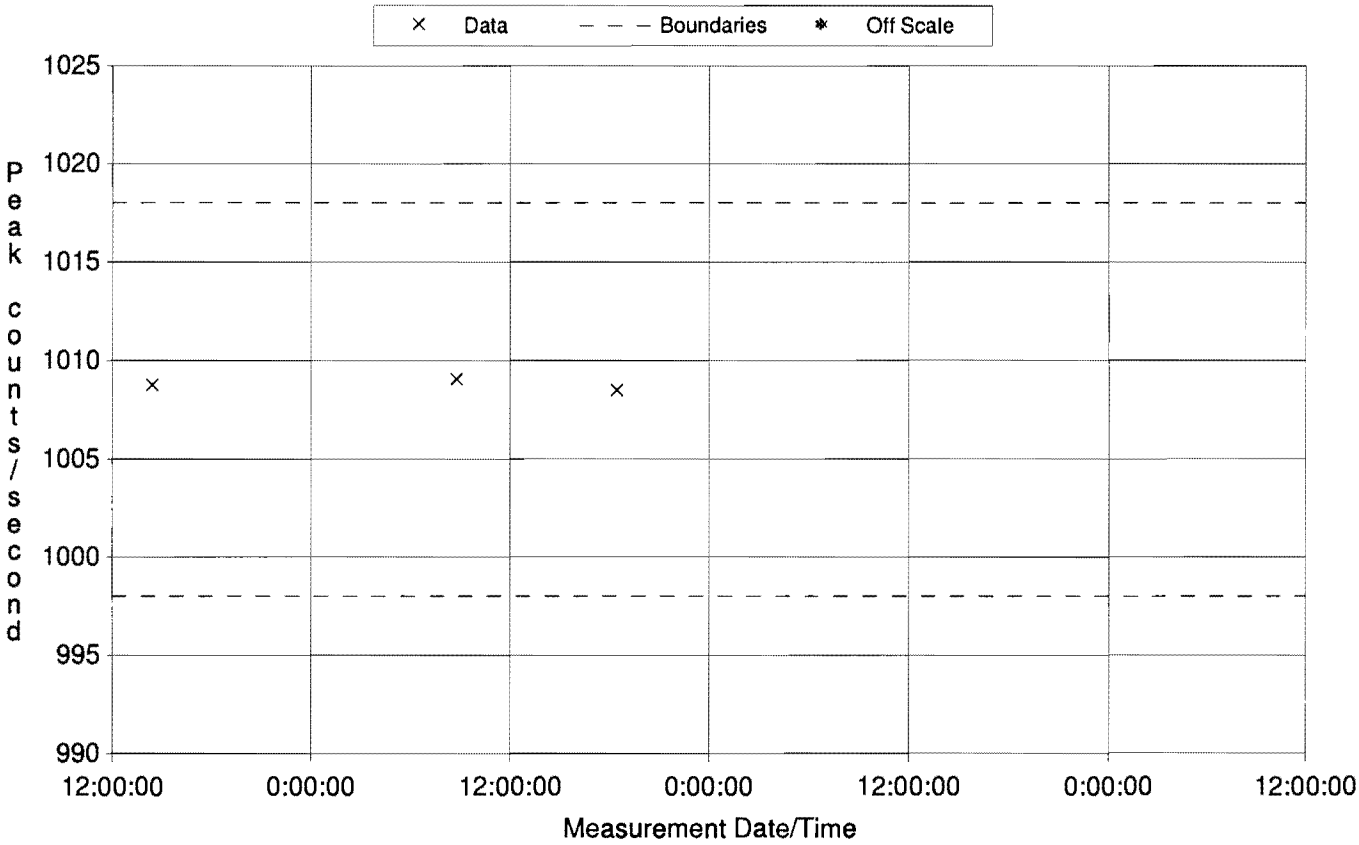
PFWM Review Name/Date: [signature] 10/7/02



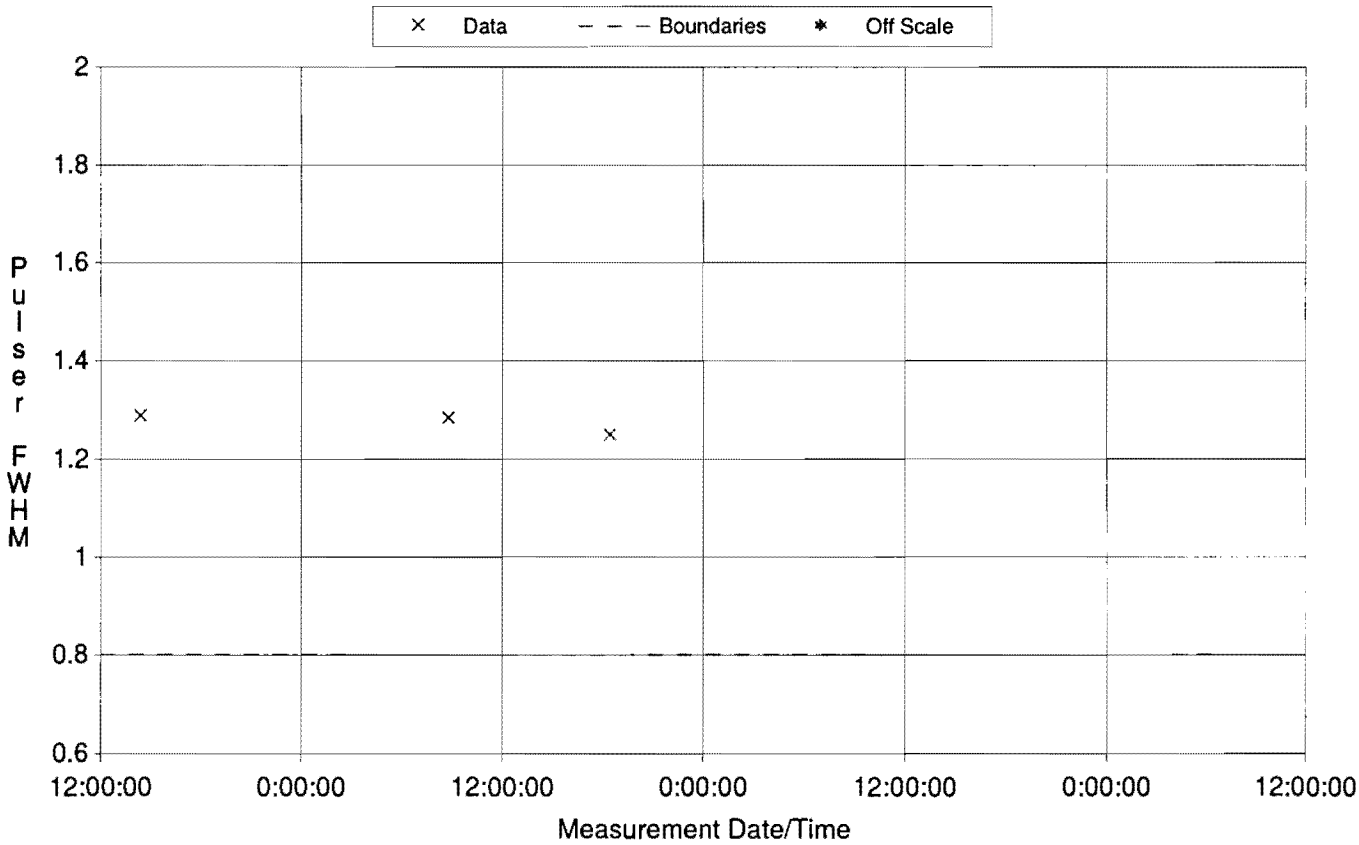
QA Filename : C:\WAS\CTRS\CTR1\ARR1\S11_BCK.QAF
Parameter Description : Ref. Peak (keV)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Lower/Upper Boundaries : 33.600 - 36.600



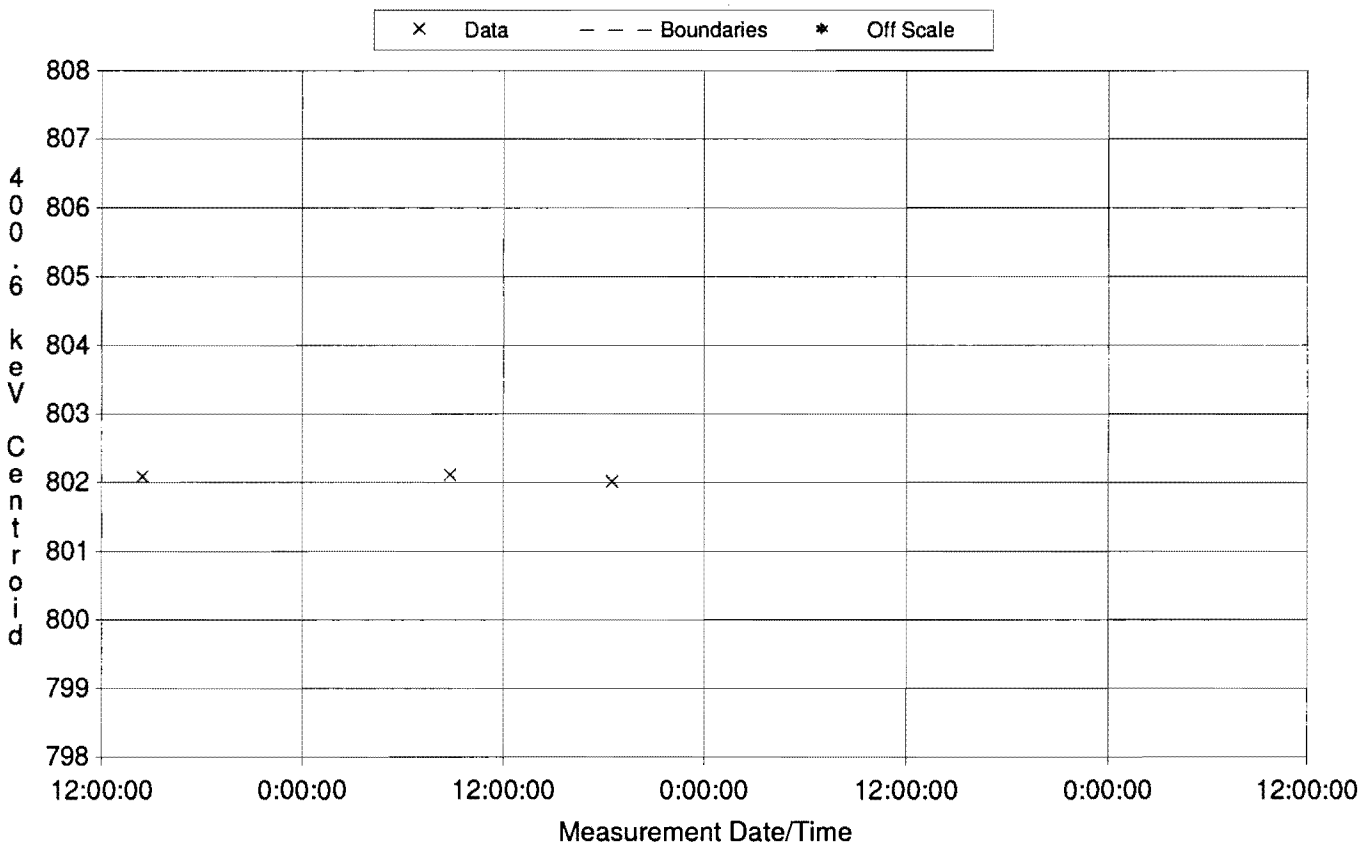
QA Filename : C:\WAS\CTRS\CTR1\ARR1\S11_BCK.QAF
Parameter Description : Upper CPS Reg (cps)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Lower/Upper Boundaries : 5.000 - 60.000



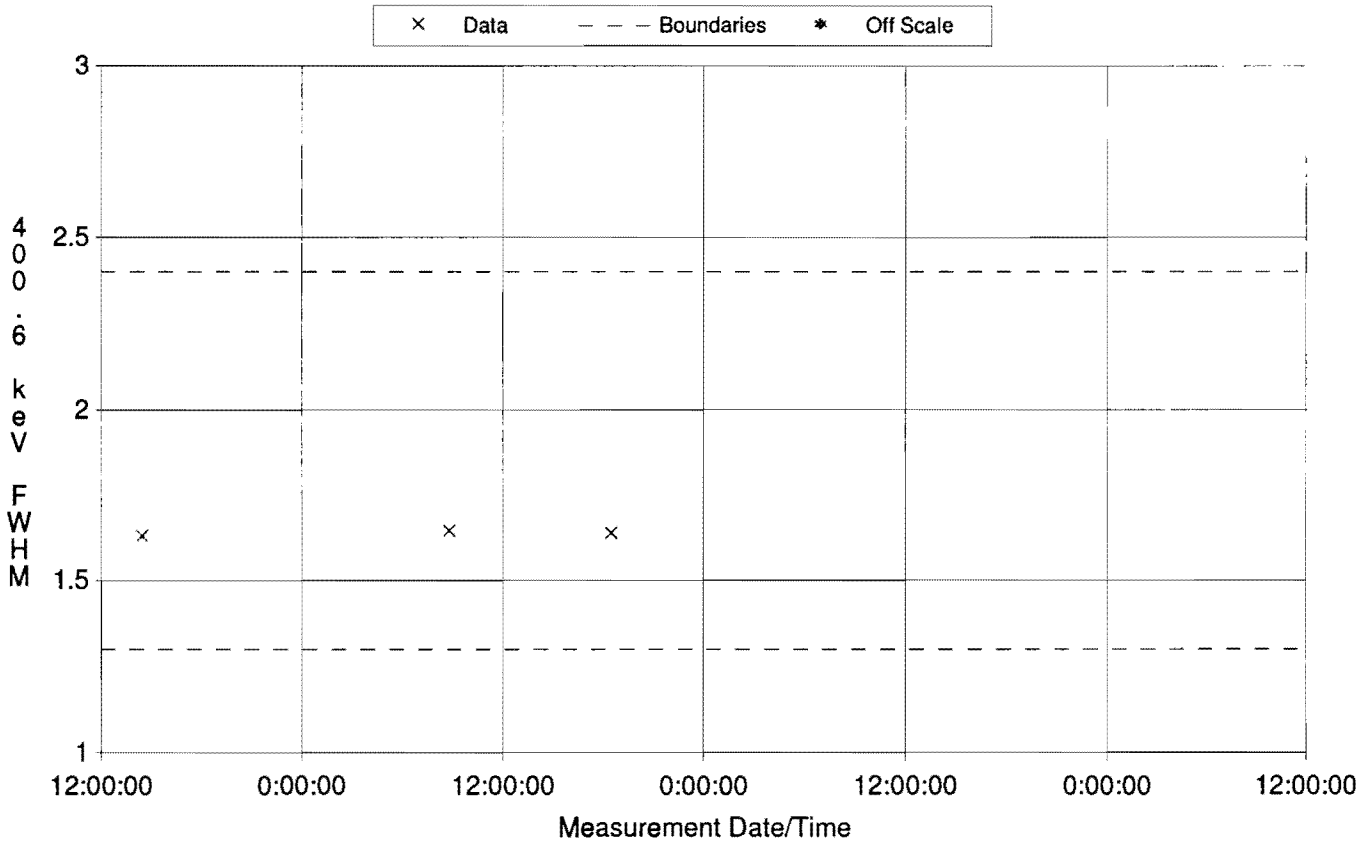
QA Filename : C:\WAS\CTRS\CTR1\ARR1\S11_BCK.QAF
Parameter Description : Peak counts/second (cps)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Lower/Upper Boundaries : 998.000 - 1018.000



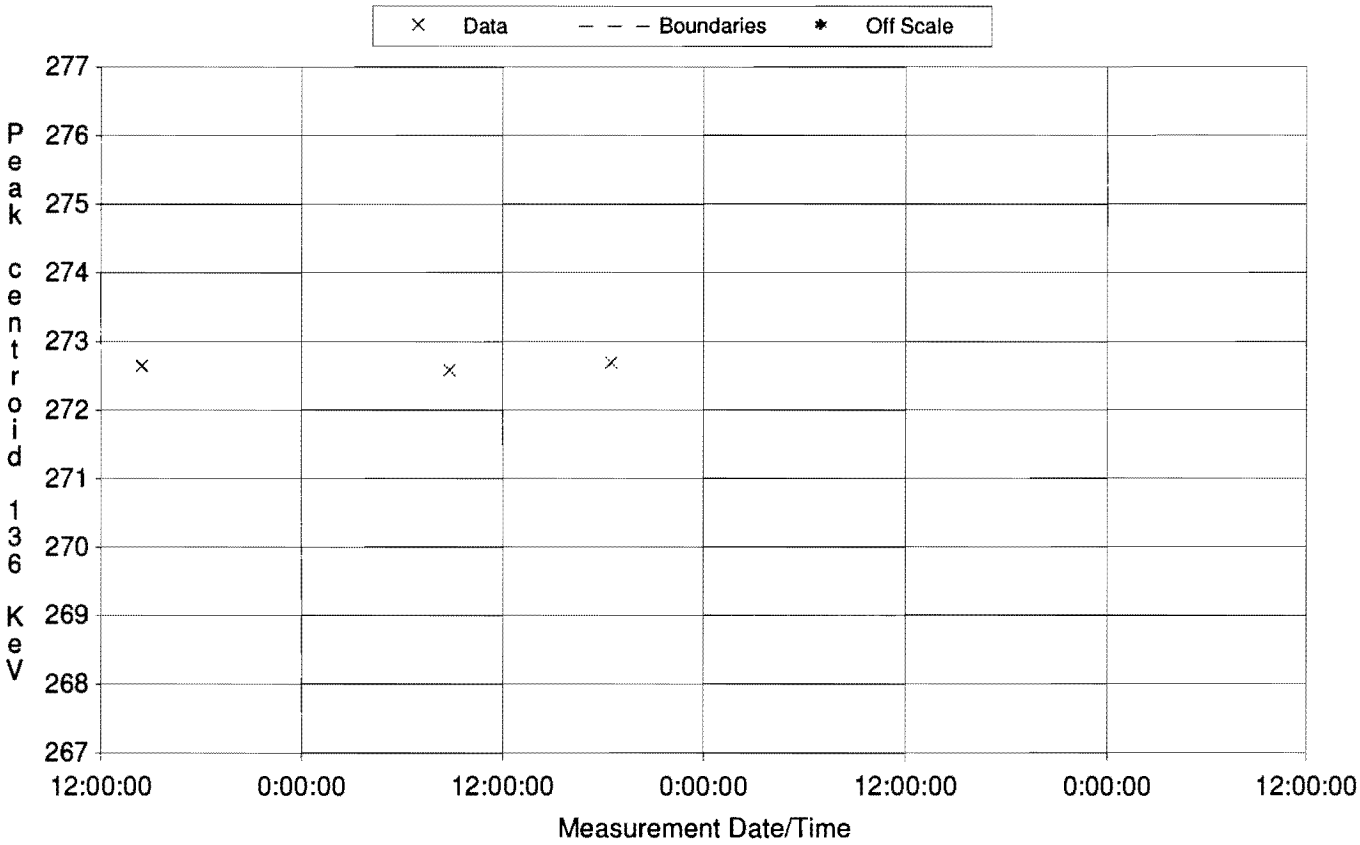
QA Filename : C:\WAS\CTRS\CTR1\ARR1\S11_BCK.QAF
Parameter Description : Pulser FWHM (keV)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Lower/Upper Boundaries : 0.800 - 1.800



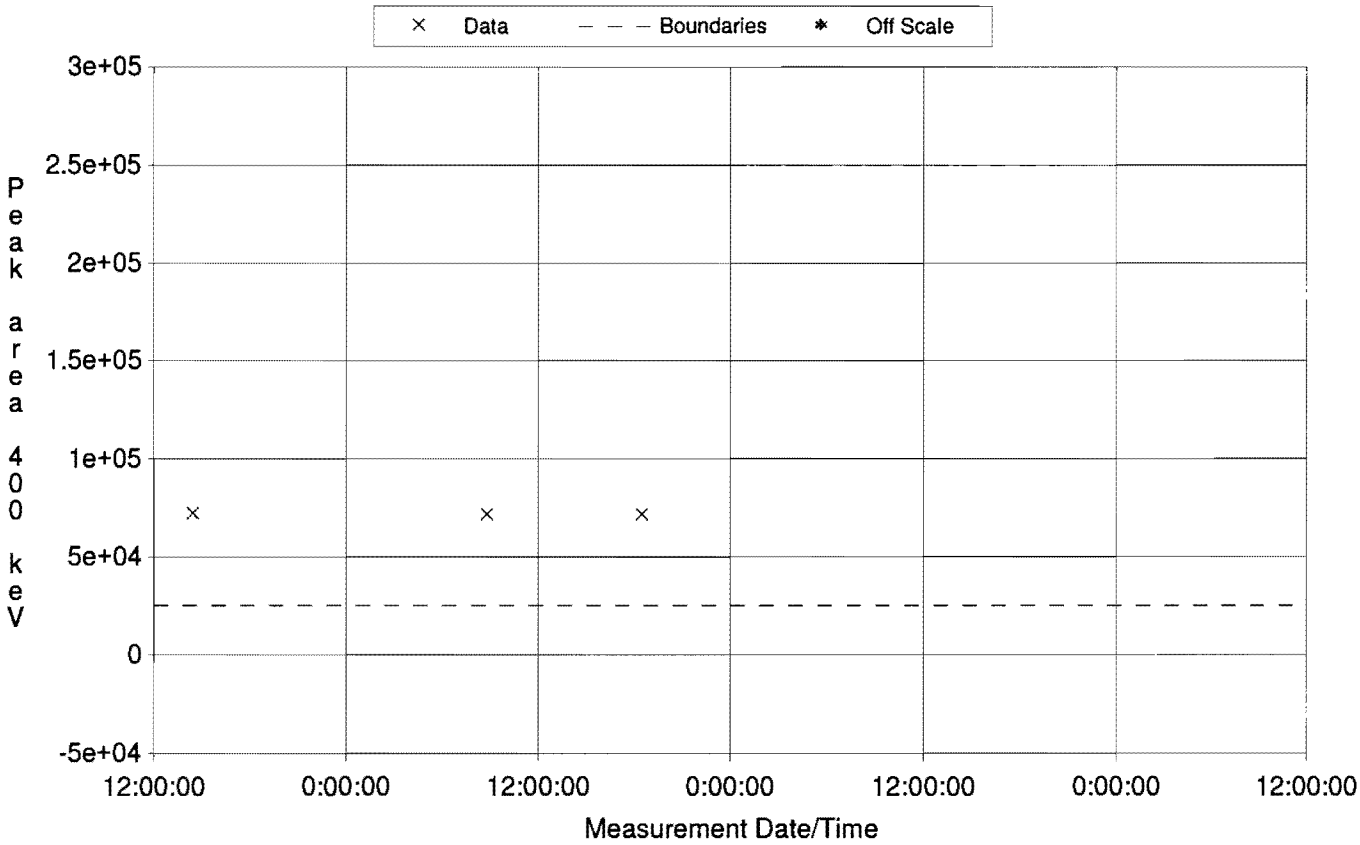
QA Filename : C:\WAS\CTRS\CTR1\ARR1\T11_BCK.QAF
Parameter Description : 400.6 keV Centroid (ch)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Lower/Upper Boundaries : 800.000 - 806.000



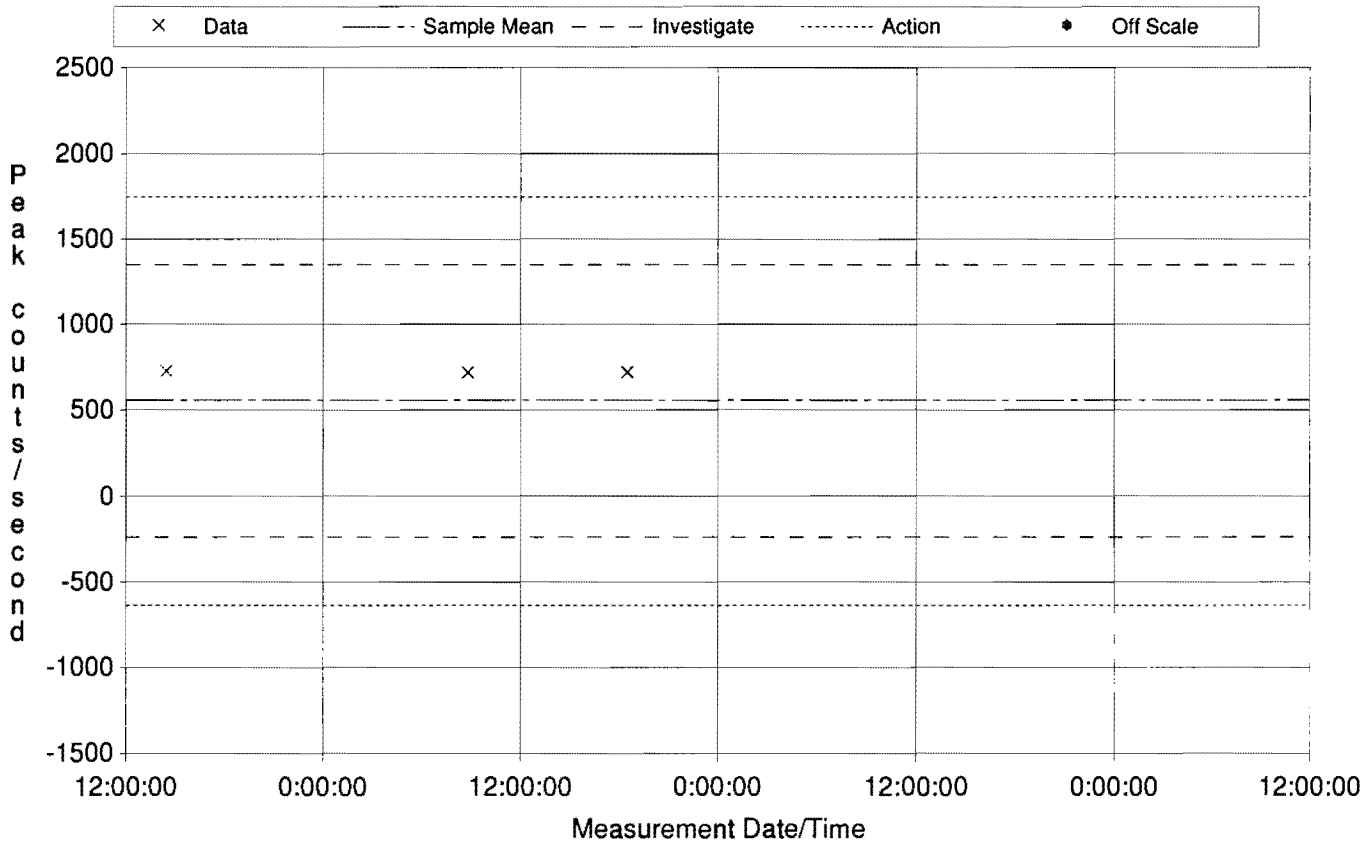
QA Filename : C:\WAS\CTRS\CTR1\ARR1\T11_BCK.QAF
Parameter Description : 400.6 keV FWHM (keV)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Lower/Upper Boundaries : 1.300 - 2.400



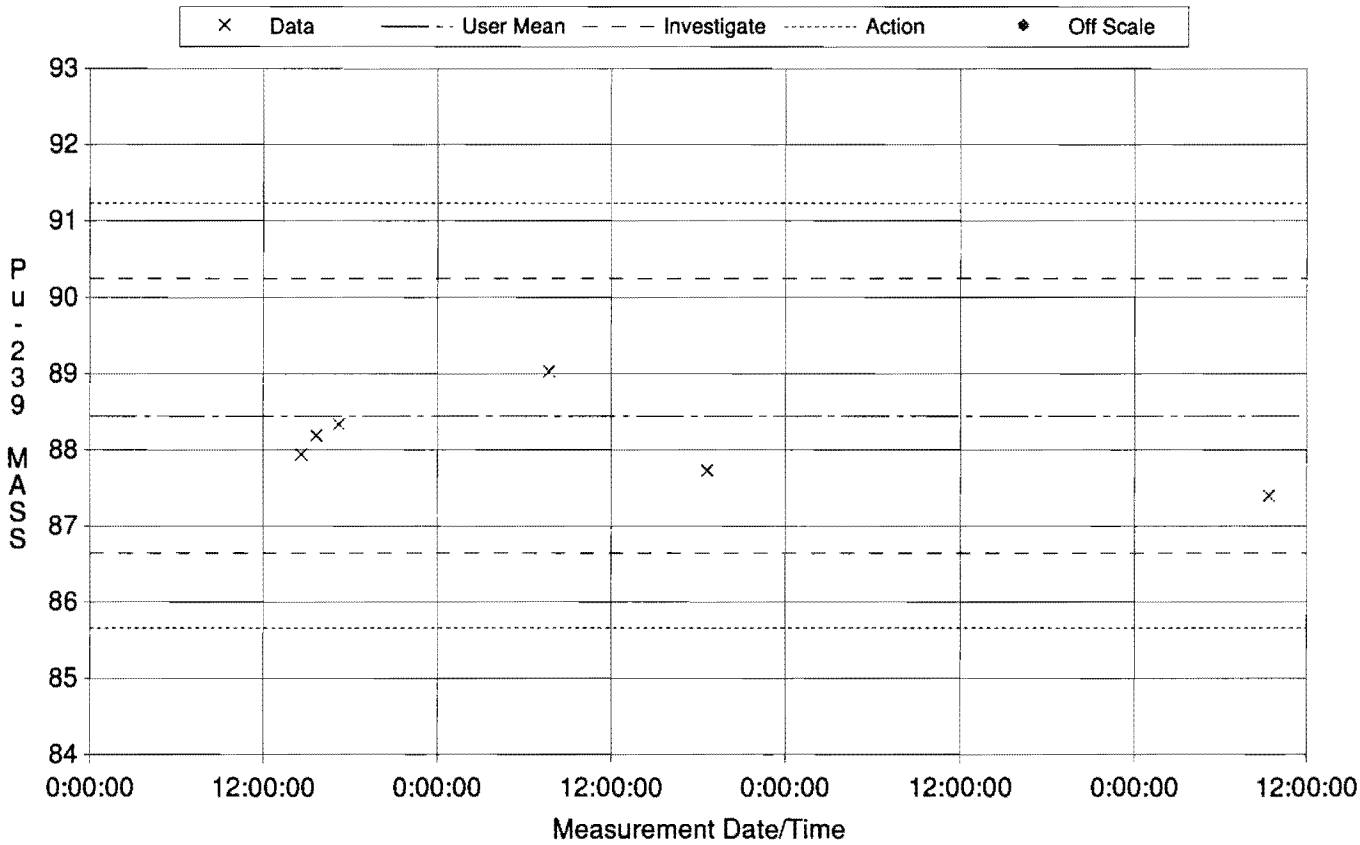
QA Filename : C:\WAS\CTRS\CTR1\ARR1\T11_BCK.QAF
Parameter Description : Peak centroid 136 KeV (ch)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Lower/Upper Boundaries : 269.000 - 275.000



QA Filename : C:\WAS\CTRS\CTR1\ARR1\T11_BCK.QAF
Parameter Description : Peak area 400 keV (counts)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Lower/Upper Boundaries : 25000.000 - 250000.000



QA Filename : C:\WAS\CTRS\CTR1\ARR1\T11_BCK.QAF
Parameter Description : Peak counts/second (cps)
Selection Dates : 10-04-02 12:00:00 PM - 10-07-02 12:00:00 PM
Sample Mean +-Std Dev : 554.777 +- 3.97e+02



QA Filename : C:\WAS\CTRS\CTR1\ARR1\A05_CAL.QAF
Parameter Description : Pu-239 MASS (grams)
Selection Dates : 10-04-02 12:00:00 AM - 10-07-02 12:00:00 PM
User Mean +-Std Dev : 88.440 +- 8.16e-01

```
*********************************************************************
*****                    M G A   R E P O R T                    *****
*********************************************************************
```

Report generated on: 10-05-02 8:37:51 AM

MGA version: MGA V9.5 CI

Spectrum ID: 11201059.CNF Sens : 30.0% LT: 46.8 Mins DT: 16.31
Measurement date: 10-05-02 Declared date: 10-05-02

Sample ID: S1001059 Detector: Total counts: 1.362E+07

Pu g/cm2 = 0.8629 Cd g/cm2 = 1.7880 FWHM at 122 keV = 637 eV
QFIT = 1.17 FWHM at 208 keV = 807 eV
NQFIT = 1.01

Isotope	Relative to Pu-239	%* Err	% Err	Relative to Pu-241	%* Err	Isotope analysis at Meas. date % weight	%Err	Decl. date % weight	%Err
Pu-238	0.000089	6.5	6.5	0.0366	6.5	0.00836	6.49	0.00836	6.49
Pu-239	1.000000	0.0	0.3	412.1546	0.5	94.22124	0.05	94.22124	0.05
Pu-240	0.058495	0.8	0.8	24.1090	0.9	5.51147	0.79	5.51147	0.79
Pu-241	0.002426	0.5	0.5	1.0000	0.0	0.22861	0.53	0.22861	0.53
Pu-242	(New alg.	)		0.1326	(10)	0.03032	(10)	0.03032	(10)
Am-241	0.004687	0.5	0.3	1.9319	0.5	0.44165	0.44	0.44165	0.44

Pu-240 effective (meas. date) = 5.583 +/- 0.85%
Am-241 separated about 22.297 +/- 0.140 years ago
Am/Pu-241 weight ratio = 1.93193 +/- 0.56%

Messages :

Lead x-rays detected.
Calculations in MGAABS didn't converge : results may be suspect.
Pu-241/Pu-239 efficiency changed in MGACAL by 1%.
17 MGA parameter(s) defaulted, starting from parameter 8.

Notes : * = Error in ratio
1.000 sigma errors

Gamma Waste Assay

Sample Information

File Name: C:\WAS\DATA\1100\11101059.S11
Sample ID: S1001059 Count Sequence Number: 1059
Assay Start: 10-05-02 7:41:14 AM
Description 1: 100g source drum
Description 2: 2002-13
Location: 7715
Comment:
Waste Type:
Weight: Gross: 54000.0 g Net: 22200.0 g
Density: 0.107 g /ml

Container Type: 55 Gal Galv
Container: Volume: 208000. ml Full: 100.0 %

System Configuration

Counter ID Number: SGS
Arrangement Description: SGS
Segments: Number: 16 Offset: 0
Scanning Platform: Start: 934 mm Delta: -51 mm
Count Type: Daily 100g Drum Check
Collimator/Geometry Setting: 0
Transmission Mode: Two pass
Transmission Source: 0

Errors quoted at 1.000 sigma
Reference Source Date: Reference Source Rate: 1.01E+03 cps
Geometric Correction Factor(SWCONTGCF): 0.760
Date of efficiency calibration approval: 4-16-2002 3:26:49 PM
Mu Factors response file: Lucite
Transmission Calib. Time: 4-16-2002 8:52:25 AM 315551

Reviewed by: _____ Date: _____

Segment Results

Segment: 1 Detector: DET01 (# 1) Position: 1

Elapsed Live Time: 113.17 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.318 +/- 0.0101
SE-75	264.65	0.000 +/- 0.0000	0.430 +/- 0.0031
SE-75	279.53	0.000 +/- 0.0000	0.439 +/- 0.0037
SE-75	400.65	0.000 +/- 0.0000	0.491 +/- 0.0046

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.77	1.21E+00 +/- 2.34E-01	2.69E+00	1.18E-07 +/- 1.43E-06
2	35.10	1.01E+03 +/- 4.80E+00	1.98E+00	2.61E-06 +/- 1.64E-05
3	59.82	2.40E+01 +/- 9.52E-01	1.66E+00	3.81E-05 +/- 7.42E-05
4	67.38	1.76E+00 +/- 3.94E-01	1.62E+00	5.67E-05 +/- 7.90E-05
5	158.21	9.98E-01 +/- 3.67E-01	1.47E+00	2.21E-04 +/- 2.92E-05
6	300.10	3.57E-01 +/- 2.25E-01	1.34E+00	2.04E-04 +/- 1.08E-05
7	400.66	1.90E-01 +/- 6.12E-02	1.29E+00	1.69E-04 +/- 1.25E-05
8	413.70	6.33E-02 +/- 4.09E-02	1.29E+00	1.65E-04 +/- 1.27E-05
9	1085.91	3.27E-02 +/- 2.34E-02	1.17E+00	7.49E-05 +/- 3.78E-06
10	1112.12	1.77E-02 +/- 1.25E-02	1.17E+00	7.35E-05 +/- 3.70E-06

Segment: 2 Detector: DET01 (# 1) Position: 2

Elapsed Live Time: 112.87 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.362 +/- 0.0107
SE-75	264.65	0.000 +/- 0.0000	0.483 +/- 0.0034
SE-75	279.53	0.000 +/- 0.0000	0.493 +/- 0.0041
SE-75	400.65	0.000 +/- 0.0000	0.540 +/- 0.0049

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.54	1.81E+00 +/- 2.70E-01	2.48E+00	7.16E-10 +/- 6.68E-09
2	35.10	1.01E+03 +/- 4.79E+00	1.85E+00	2.21E-07 +/- 1.06E-06
3	59.78	5.48E+01 +/- 1.15E+00	1.57E+00	2.24E-05 +/- 3.34E-05
4	67.50	3.11E+00 +/- 4.47E-01	1.54E+00	4.40E-05 +/- 4.66E-05
5	400.66	1.10E-01 +/- 7.06E-02	1.25E+00	2.59E-04 +/- 1.44E-05
6	413.70	8.52E-02 +/- 5.73E-02	1.25E+00	2.51E-04 +/- 1.46E-05
7	1408.01	1.75E-02 +/- 1.24E-02	1.13E+00	9.61E-05 +/- 6.36E-06

Segment: 3 Detector: DET01 (# 1) Position: 3

Elapsed Live Time: 111.93 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.323 +/- 0.0105
SE-75	264.65	0.000 +/- 0.0000	0.446 +/- 0.0032
SE-75	279.53	0.000 +/- 0.0000	0.459 +/- 0.0039
SE-75	400.65	0.000 +/- 0.0000	0.504 +/- 0.0047

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.74	4.75E+00 +/- 4.05E-01	2.66E+00	1.44E-08 +/- 1.36E-07
2	35.10	1.01E+03 +/- 4.83E+00	1.96E+00	1.07E-06 +/- 5.27E-06
3	59.73	1.35E+02 +/- 1.62E+00	1.65E+00	3.83E-05 +/- 5.89E-05
4	67.55	4.16E+00 +/- 5.59E-01	1.61E+00	6.54E-05 +/- 7.11E-05
5	75.31	1.84E+00 +/- 6.46E-01	1.58E+00	9.73E-05 +/- 7.46E-05

6	98.91	1.44E+01	+/-	9.55E-01	1.53E+00	2.01E-04	+/- 4.73E-05
7	103.32	5.35E+00	+/-	8.52E-01	1.53E+00	2.19E-04	+/- 3.95E-05
8	129.29	7.41E+00	+/-	6.58E-01	1.50E+00	3.02E-04	+/- 1.84E-05
9	148.57	1.51E+00	+/-	5.47E-01	1.47E+00	3.39E-04	+/- 3.24E-05
10	208.12	8.05E+00	+/-	5.22E-01	1.40E+00	3.66E-04	+/- 3.64E-05
11	255.76	4.62E-01	+/-	2.81E-01	1.35E+00	3.46E-04	+/- 2.30E-05
12	300.10	5.98E-01	+/-	3.40E-01	1.32E+00	3.20E-04	+/- 1.49E-05
13	332.83	1.17E+00	+/-	3.68E-01	1.30E+00	3.00E-04	+/- 1.35E-05
14	345.13	1.89E+00	+/-	3.18E-01	1.30E+00	2.93E-04	+/- 1.36E-05
15	375.10	5.60E+00	+/-	3.43E-01	1.29E+00	2.76E-04	+/- 1.43E-05
16	393.03	2.14E+00	+/-	2.09E-01	1.29E+00	2.67E-04	+/- 1.48E-05
17	413.70	5.66E+00	+/-	2.52E-01	1.28E+00	2.57E-04	+/- 1.52E-05
18	451.40	7.22E-01	+/-	1.09E-01	1.27E+00	2.40E-04	+/- 1.54E-05
19	662.42	2.32E-01	+/-	6.52E-02	1.22E+00	1.78E-04	+/- 1.02E-05
20	867.39	1.78E-02	+/-	1.26E-02	1.19E+00	1.45E-04	+/- 6.61E-06

Segment: 4 Detector: DET01 (# 1) Position: 4

Elapsed Live Time: 105.31 sec Elapsed Real Time: 115.00 sec

T R A N S M I S S I O N R E S U L T S

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.377 +/- 0.0124
SE-75	264.65	0.000 +/- 0.0000	0.513 +/- 0.0037
SE-75	279.53	0.000 +/- 0.0000	0.526 +/- 0.0045
SE-75	400.65	0.000 +/- 0.0000	0.578 +/- 0.0054

P E A K A N A L Y S I S R E S U L T S

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.51	1.63E+01	+/-	7.94E-01	2.41E+00	3.57E-06	+/-	4.94E-06
2	35.10	1.01E+03	+/-	4.97E+00	1.81E+00	2.00E-05	+/-	1.66E-05
3	49.98	3.11E+01	+/-	1.63E+00	1.60E+00	6.28E-05	+/-	3.00E-05
4	59.72	1.06E+03	+/-	5.41E+00	1.55E+00	9.88E-05	+/-	3.39E-05
5	67.35	7.77E+00	+/-	8.71E-01	1.52E+00	1.28E-04	+/-	3.44E-05
6	75.17	5.42E+00	+/-	8.62E-01	1.49E+00	1.59E-04	+/-	3.31E-05
7	98.86	1.46E+02	+/-	2.23E+00	1.45E+00	2.40E-04	+/-	2.42E-05
8	103.55	8.72E+01	+/-	2.21E+00	1.45E+00	2.53E-04	+/-	2.23E-05
9	111.27	2.49E+01	+/-	1.61E+00	1.44E+00	2.74E-04	+/-	1.97E-05
10	117.15	1.47E+01	+/-	1.23E+00	1.43E+00	2.88E-04	+/-	1.81E-05
11	129.29	9.90E+01	+/-	1.41E+00	1.42E+00	3.12E-04	+/-	1.61E-05
12	148.57	1.48E+01	+/-	1.06E+00	1.40E+00	3.40E-04	+/-	1.63E-05
13	161.12	1.89E+00	+/-	9.21E-01	1.38E+00	3.53E-04	+/-	1.73E-05
14	164.78	2.52E+00	+/-	8.99E-01	1.38E+00	3.56E-04	+/-	1.76E-05
15	189.61	4.00E+00	+/-	7.48E-01	1.35E+00	3.68E-04	+/-	1.91E-05

16	195.86	4.94E+00	+/-	8.71E-01	1.34E+00	3.69E-04	+/-	1.93E-05
17	208.15	1.04E+02	+/-	1.46E+00	1.33E+00	3.71E-04	+/-	1.94E-05
18	243.06	1.27E+00	+/-	7.93E-01	1.29E+00	3.66E-04	+/-	1.86E-05
19	255.47	4.77E+00	+/-	6.29E-01	1.28E+00	3.62E-04	+/-	1.80E-05
20	267.75	3.77E+00	+/-	4.49E-01	1.27E+00	3.58E-04	+/-	1.73E-05
21	297.51	2.24E+00	+/-	5.58E-01	1.26E+00	3.45E-04	+/-	1.56E-05
22	311.90	2.52E+00	+/-	5.55E-01	1.25E+00	3.38E-04	+/-	1.48E-05
23	320.87	2.00E+00	+/-	6.04E-01	1.25E+00	3.34E-04	+/-	1.43E-05
24	323.79	1.51E+00	+/-	4.32E-01	1.25E+00	3.32E-04	+/-	1.42E-05
25	332.78	2.77E+01	+/-	9.01E-01	1.24E+00	3.28E-04	+/-	1.37E-05
26	335.93	3.78E+00	+/-	7.06E-01	1.24E+00	3.26E-04	+/-	1.36E-05
27	345.09	2.89E+01	+/-	6.52E-01	1.24E+00	3.21E-04	+/-	1.32E-05
28	368.31	1.19E+01	+/-	5.45E-01	1.23E+00	3.10E-04	+/-	1.23E-05
29	375.11	7.52E+01	+/-	1.08E+00	1.23E+00	3.06E-04	+/-	1.21E-05
30	382.90	7.44E+00	+/-	5.00E-01	1.23E+00	3.02E-04	+/-	1.18E-05
31	393.00	2.82E+01	+/-	5.99E-01	1.22E+00	2.97E-04	+/-	1.16E-05
32	400.66	1.06E+00	+/-	2.93E-01	1.22E+00	2.94E-04	+/-	1.14E-05
33	413.70	7.45E+01	+/-	9.18E-01	1.22E+00	2.87E-04	+/-	1.11E-05
34	422.59	3.66E+00	+/-	3.58E-01	1.22E+00	2.83E-04	+/-	1.10E-05
35	443.98	5.16E-01	+/-	1.85E-01	1.21E+00	2.73E-04	+/-	1.07E-05
36	451.56	8.61E+00	+/-	3.38E-01	1.21E+00	2.70E-04	+/-	1.06E-05
37	618.80	6.74E-01	+/-	1.10E-01	1.18E+00	2.07E-04	+/-	9.44E-06
38	639.96	3.28E-01	+/-	1.19E-01	1.17E+00	2.01E-04	+/-	9.25E-06
39	645.82	2.75E-01	+/-	1.15E-01	1.17E+00	1.99E-04	+/-	9.20E-06
40	652.49	4.29E-01	+/-	1.33E-01	1.17E+00	1.98E-04	+/-	9.13E-06
41	662.42	3.53E+00	+/-	2.18E-01	1.17E+00	1.95E-04	+/-	9.03E-06
42	688.48	2.90E-01	+/-	9.99E-02	1.17E+00	1.88E-04	+/-	8.76E-06

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Corrected Peak Count Rate (CpS)
43	703.48	1.58E-01 +/- 6.85E-02	1.17E+00	1.84E-04 +/- 8.59E-06
44	722.05	1.86E+00 +/- 1.47E-01	1.16E+00	1.80E-04 +/- 8.37E-06
45	769.36	4.99E-01 +/- 9.10E-02	1.16E+00	1.69E-04 +/- 7.78E-06
46	778.90	3.64E-02 +/- 2.63E-02	1.16E+00	1.67E-04 +/- 7.66E-06
47	867.39	6.60E-02 +/- 3.37E-02	1.15E+00	1.50E-04 +/- 6.50E-06
48	1085.91	5.59E-02 +/- 2.28E-02	1.13E+00	1.20E-04 +/- 4.36E-06

Segment: 5 Detector: DET01 (# 1) Position: 5

Elapsed Live Time: 94.64 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.189 +/- 0.0018
SE-75	279.53	0.000 +/- 0.0000	0.215 +/- 0.0026
SE-75	400.65	0.000 +/- 0.0000	0.344 +/- 0.0039

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.47	3.18E+01 +/- 1.23E+00	4.10E+00	1.89E-06 +/- 2.71E-06
2	35.10	1.01E+03 +/- 5.24E+00	4.10E+00	1.48E-05 +/- 1.27E-05
3	49.86	8.38E+01 +/- 2.65E+00	4.10E+00	5.56E-05 +/- 2.74E-05
4	59.64	3.08E+03 +/- 1.37E+01	4.10E+00	9.35E-05 +/- 3.30E-05
5	67.34	1.29E+01 +/- 1.26E+00	4.10E+00	1.26E-04 +/- 3.45E-05
6	75.05	1.51E+01 +/- 1.51E+00	4.10E+00	1.59E-04 +/- 3.39E-05
7	98.74	3.20E+02 +/- 3.85E+00	4.10E+00	2.49E-04 +/- 2.52E-05
8	103.39	2.31E+02 +/- 3.32E+00	4.10E+00	2.64E-04 +/- 2.33E-05
9	111.10	5.56E+01 +/- 2.53E+00	4.10E+00	2.86E-04 +/- 2.04E-05
10	114.42	1.04E+01 +/- 2.50E+00	4.10E+00	2.94E-04 +/- 1.94E-05
11	116.89	3.56E+01 +/- 1.94E+00	4.10E+00	3.00E-04 +/- 1.87E-05
12	129.29	2.20E+02 +/- 2.36E+00	4.10E+00	3.26E-04 +/- 1.67E-05
13	146.33	5.59E+00 +/- 1.16E+00	3.27E+00	3.52E-04 +/- 1.70E-05
14	148.57	3.47E+01 +/- 1.53E+00	3.17E+00	3.54E-04 +/- 1.71E-05
15	160.96	4.36E+00 +/- 1.33E+00	2.79E+00	3.65E-04 +/- 1.83E-05
16	164.57	6.40E+00 +/- 1.18E+00	2.71E+00	3.68E-04 +/- 1.86E-05

17	171.49	1.22E+01	+/-	1.20E+00	2.58E+00	3.71E-04	+/-	1.92E-05
18	179.36	4.85E+00	+/-	1.23E+00	2.46E+00	3.74E-04	+/-	1.97E-05
19	189.24	9.32E+00	+/-	1.05E+00	2.33E+00	3.76E-04	+/-	2.02E-05
20	195.80	1.03E+01	+/-	1.23E+00	2.26E+00	3.76E-04	+/-	2.03E-05
21	207.97	2.49E+02	+/-	2.31E+00	2.14E+00	3.75E-04	+/-	2.04E-05
22	244.70	2.95E+00	+/-	8.77E-01	1.87E+00	3.63E-04	+/-	1.90E-05
23	255.29	1.17E+01	+/-	8.57E-01	1.81E+00	3.58E-04	+/-	1.84E-05
24	267.53	9.14E+00	+/-	6.45E-01	1.75E+00	3.52E-04	+/-	1.76E-05
25	285.72	1.06E+00	+/-	6.18E-01	1.68E+00	3.41E-04	+/-	1.64E-05
26	297.39	5.34E+00	+/-	7.58E-01	1.65E+00	3.35E-04	+/-	1.57E-05
27	311.90	7.12E+00	+/-	7.76E-01	1.62E+00	3.26E-04	+/-	1.48E-05
28	320.79	5.93E+00	+/-	8.47E-01	1.60E+00	3.21E-04	+/-	1.42E-05
29	323.67	3.61E+00	+/-	5.63E-01	1.60E+00	3.19E-04	+/-	1.41E-05
30	332.68	6.56E+01	+/-	1.40E+00	1.58E+00	3.14E-04	+/-	1.36E-05
31	335.81	9.89E+00	+/-	1.05E+00	1.57E+00	3.12E-04	+/-	1.34E-05
32	344.97	6.21E+01	+/-	9.94E-01	1.55E+00	3.07E-04	+/-	1.30E-05
33	368.25	2.72E+01	+/-	8.28E-01	1.51E+00	2.93E-04	+/-	1.21E-05
34	375.00	1.78E+02	+/-	1.70E+00	1.50E+00	2.90E-04	+/-	1.18E-05
35	380.08	1.49E+01	+/-	1.14E+00	1.49E+00	2.87E-04	+/-	1.17E-05
36	382.78	1.37E+01	+/-	8.10E-01	1.49E+00	2.85E-04	+/-	1.16E-05
37	392.86	6.48E+01	+/-	9.58E-01	1.47E+00	2.80E-04	+/-	1.13E-05
38	413.70	1.66E+02	+/-	1.52E+00	1.45E+00	2.69E-04	+/-	1.09E-05
39	422.59	8.16E+00	+/-	5.72E-01	1.45E+00	2.65E-04	+/-	1.07E-05
40	443.98	6.97E-01	+/-	2.45E-01	1.44E+00	2.54E-04	+/-	1.04E-05
41	451.36	1.97E+01	+/-	5.27E-01	1.43E+00	2.51E-04	+/-	1.03E-05
42	481.35	5.71E-01	+/-	2.16E-01	1.42E+00	2.38E-04	+/-	1.00E-05

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Corrected Peak Count Rate (CpS)
43	597.82	3.11E-01 +/- 1.10E-01	1.37E+00	1.96E-04 +/- 9.31E-06
44	619.04	1.75E+00 +/- 1.83E-01	1.36E+00	1.90E-04 +/- 9.15E-06
45	640.08	8.94E-01 +/- 1.82E-01	1.36E+00	1.84E-04 +/- 8.97E-06
46	645.96	6.25E-01 +/- 2.12E-01	1.36E+00	1.83E-04 +/- 8.92E-06
47	652.79	1.21E+00 +/- 1.85E-01	1.35E+00	1.81E-04 +/- 8.86E-06
48	662.42	7.10E+00 +/- 3.02E-01	1.35E+00	1.79E-04 +/- 8.77E-06
49	688.75	6.63E-01 +/- 1.27E-01	1.34E+00	1.72E-04 +/- 8.51E-06
50	721.99	4.59E+00 +/- 2.48E-01	1.33E+00	1.65E-04 +/- 8.16E-06
51	755.76	4.61E-01 +/- 7.79E-02	1.32E+00	1.58E-04 +/- 7.78E-06
52	769.28	9.34E-01 +/- 1.29E-01	1.32E+00	1.56E-04 +/- 7.62E-06
53	1408.01	1.02E-02 +/- 2.30E-02	1.22E+00	9.75E-05 +/- 6.10E-06

Segment: 6 Detector: DET01 (# 1) Position: 6

Elapsed Live Time: 92.99 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.178 +/- 0.0018
SE-75	279.53	0.000 +/- 0.0000	0.202 +/- 0.0025
SE-75	400.65	0.000 +/- 0.0000	0.316 +/- 0.0038

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.29	3.64E+01 +/- 1.13E+00	4.10E+00	6.96E-07 +/- 9.82E-07
2	26.43	4.08E+00 +/- 1.17E+00	4.10E+00	1.60E-06 +/- 1.94E-06
3	35.10	1.01E+03 +/- 5.28E+00	4.10E+00	8.04E-06 +/- 6.71E-06
4	49.70	8.65E+01 +/- 2.58E+00	4.10E+00	3.71E-05 +/- 1.80E-05
5	59.63	3.16E+03 +/- 1.42E+01	4.10E+00	6.91E-05 +/- 2.40E-05
6	67.30	1.38E+01 +/- 1.33E+00	4.10E+00	9.82E-05 +/- 2.65E-05
7	75.03	1.42E+01 +/- 1.60E+00	4.10E+00	1.29E-04 +/- 2.73E-05
8	98.74	3.63E+02 +/- 4.13E+00	4.10E+00	2.22E-04 +/- 2.25E-05
9	103.36	2.52E+02 +/- 3.53E+00	4.10E+00	2.38E-04 +/- 2.12E-05
10	111.05	5.83E+01 +/- 2.70E+00	4.10E+00	2.62E-04 +/- 1.90E-05
11	116.97	5.44E+01 +/- 2.27E+00	4.10E+00	2.80E-04 +/- 1.77E-05

12	129.29	2.52E+02	+/-	2.55E+00	4.10E+00	3.10E-04	+/-	1.61E-05
13	144.09	3.77E+00	+/-	1.46E+00	3.41E+00	3.38E-04	+/-	1.63E-05
14	146.32	7.08E+00	+/-	1.24E+00	3.30E+00	3.42E-04	+/-	1.65E-05
15	148.57	4.00E+01	+/-	1.62E+00	3.21E+00	3.45E-04	+/-	1.67E-05
16	164.53	9.10E+00	+/-	1.25E+00	2.75E+00	3.64E-04	+/-	1.82E-05
17	171.33	1.44E+01	+/-	1.34E+00	2.62E+00	3.69E-04	+/-	1.88E-05
18	178.94	7.57E+00	+/-	1.30E+00	2.50E+00	3.74E-04	+/-	1.93E-05
19	189.26	1.33E+01	+/-	1.11E+00	2.36E+00	3.78E-04	+/-	1.99E-05
20	195.75	1.28E+01	+/-	1.29E+00	2.29E+00	3.80E-04	+/-	2.01E-05
21	207.95	2.44E+02	+/-	2.60E+00	2.17E+00	3.81E-04	+/-	2.03E-05
22	244.70	3.79E+00	+/-	9.23E-01	1.90E+00	3.73E-04	+/-	1.92E-05
23	255.33	1.09E+01	+/-	9.05E-01	1.84E+00	3.69E-04	+/-	1.86E-05
24	267.51	1.15E+01	+/-	6.78E-01	1.78E+00	3.63E-04	+/-	1.78E-05
25	297.27	6.05E+00	+/-	7.94E-01	1.69E+00	3.47E-04	+/-	1.60E-05
26	311.90	8.52E+00	+/-	8.11E-01	1.66E+00	3.39E-04	+/-	1.51E-05
27	320.62	3.80E+00	+/-	7.97E-01	1.64E+00	3.34E-04	+/-	1.46E-05
28	323.76	4.49E+00	+/-	7.16E-01	1.63E+00	3.32E-04	+/-	1.44E-05
29	332.67	6.18E+01	+/-	1.44E+00	1.61E+00	3.27E-04	+/-	1.39E-05
30	344.97	7.21E+01	+/-	1.07E+00	1.59E+00	3.19E-04	+/-	1.33E-05
31	368.09	3.03E+01	+/-	9.17E-01	1.55E+00	3.06E-04	+/-	1.24E-05
32	374.99	1.99E+02	+/-	1.83E+00	1.54E+00	3.02E-04	+/-	1.21E-05
33	382.77	1.90E+01	+/-	9.56E-01	1.53E+00	2.98E-04	+/-	1.19E-05
34	392.79	7.10E+01	+/-	1.01E+00	1.51E+00	2.92E-04	+/-	1.16E-05
35	400.66	1.79E+00	+/-	4.70E-01	1.50E+00	2.88E-04	+/-	1.14E-05
36	413.70	1.91E+02	+/-	1.66E+00	1.49E+00	2.81E-04	+/-	1.11E-05
37	422.54	1.08E+01	+/-	6.29E-01	1.49E+00	2.76E-04	+/-	1.09E-05
38	443.98	7.19E-01	+/-	2.53E-01	1.48E+00	2.65E-04	+/-	1.06E-05
39	451.43	2.35E+01	+/-	5.82E-01	1.47E+00	2.62E-04	+/-	1.05E-05
40	618.89	2.00E+00	+/-	1.91E-01	1.40E+00	1.98E-04	+/-	9.17E-06
41	639.97	9.57E-01	+/-	2.08E-01	1.39E+00	1.92E-04	+/-	8.98E-06
42	645.79	6.99E-01	+/-	2.05E-01	1.39E+00	1.91E-04	+/-	8.93E-06

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Corrected Peak Count Rate (CpS)
43	652.45	9.12E-01 +/- 2.12E-01	1.38E+00	1.89E-04 +/- 8.87E-06
44	662.42	7.99E+00 +/- 3.21E-01	1.38E+00	1.86E-04 +/- 8.77E-06
45	688.31	7.76E-01 +/- 1.49E-01	1.37E+00	1.80E-04 +/- 8.51E-06
46	703.88	3.24E-01 +/- 1.10E-01	1.37E+00	1.76E-04 +/- 8.34E-06
47	721.89	4.11E+00 +/- 2.43E-01	1.36E+00	1.72E-04 +/- 8.14E-06
48	756.34	4.37E-01 +/- 1.01E-01	1.35E+00	1.65E-04 +/- 7.75E-06
49	769.21	1.29E+00 +/- 1.49E-01	1.35E+00	1.63E-04 +/- 7.60E-06

Segment: 7 Detector: DET01 (# 1) Position: 7

Elapsed Live Time: 99.20 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.231 +/- 0.0020
SE-75	279.53	0.000 +/- 0.0000	0.247 +/- 0.0027
SE-75	400.65	0.000 +/- 0.0000	0.361 +/- 0.0040

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.55	2.55E+01 +/- 1.04E+00	4.10E+00	8.88E-09 +/- 8.51E-08
2	35.10	1.01E+03 +/- 5.13E+00	4.10E+00	9.59E-07 +/- 4.73E-06
3	49.79	8.59E+01 +/- 2.49E+00	4.10E+00	1.47E-05 +/- 3.55E-05
4	59.65	2.32E+03 +/- 1.05E+01	4.10E+00	4.03E-05 +/- 6.23E-05
5	67.25	1.08E+01 +/- 1.10E+00	4.10E+00	6.92E-05 +/- 7.62E-05
6	75.13	1.41E+01 +/- 1.43E+00	4.10E+00	1.05E-04 +/- 8.11E-05
7	98.81	2.58E+02 +/- 3.03E+00	4.10E+00	2.21E-04 +/- 5.18E-05
8	103.44	1.50E+02 +/- 2.74E+00	4.10E+00	2.41E-04 +/- 4.29E-05
9	111.20	3.88E+01 +/- 2.10E+00	4.10E+00	2.73E-04 +/- 2.89E-05
10	116.96	2.08E+01 +/- 1.60E+00	4.10E+00	2.93E-04 +/- 2.10E-05
11	129.29	1.62E+02 +/- 1.97E+00	4.10E+00	3.30E-04 +/- 1.98E-05
12	144.16	2.97E+00 +/- 1.16E+00	3.27E+00	3.61E-04 +/- 3.18E-05
13	146.21	3.52E+01 +/- 1.35E+00	3.16E+00	3.65E-04 +/- 3.33E-05
14	148.57	2.09E+01 +/- 1.13E+00	3.05E+00	3.68E-04 +/- 3.49E-05
15	160.71	7.35E+00 +/- 1.08E+00	2.67E+00	3.82E-04 +/- 4.07E-05

16	164.61	5.69E+00	+/-	1.10E+00	2.58E+00	3.85E-04	+/-	4.19E-05
17	171.66	9.16E+00	+/-	1.01E+00	2.45E+00	3.90E-04	+/-	4.31E-05
18	179.22	5.24E+00	+/-	1.04E+00	2.33E+00	3.93E-04	+/-	4.34E-05
19	189.33	7.33E+00	+/-	8.93E-01	2.20E+00	3.94E-04	+/-	4.26E-05
20	195.79	9.67E+00	+/-	1.04E+00	2.13E+00	3.94E-04	+/-	4.14E-05
21	208.05	1.71E+02	+/-	1.88E+00	2.01E+00	3.91E-04	+/-	3.84E-05
22	237.96	1.23E+00	+/-	7.84E-01	1.80E+00	3.77E-04	+/-	2.91E-05
23	244.70	2.28E+00	+/-	6.17E-01	1.76E+00	3.73E-04	+/-	2.70E-05
24	255.38	5.83E+00	+/-	7.18E-01	1.70E+00	3.66E-04	+/-	2.40E-05
25	267.65	6.73E+00	+/-	5.43E-01	1.65E+00	3.58E-04	+/-	2.09E-05
26	297.42	3.67E+00	+/-	6.51E-01	1.59E+00	3.37E-04	+/-	1.59E-05
27	311.90	4.61E+00	+/-	6.50E-01	1.57E+00	3.27E-04	+/-	1.48E-05
28	320.79	3.78E+00	+/-	7.06E-01	1.55E+00	3.21E-04	+/-	1.45E-05
29	323.63	2.01E+00	+/-	4.69E-01	1.55E+00	3.20E-04	+/-	1.44E-05
30	332.70	4.43E+01	+/-	1.12E+00	1.53E+00	3.14E-04	+/-	1.44E-05
31	335.86	5.98E+00	+/-	8.64E-01	1.53E+00	3.12E-04	+/-	1.44E-05
32	345.08	4.36E+01	+/-	8.19E-01	1.51E+00	3.06E-04	+/-	1.46E-05
33	368.44	1.82E+01	+/-	6.86E-01	1.48E+00	2.92E-04	+/-	1.52E-05
34	375.09	1.12E+02	+/-	1.39E+00	1.47E+00	2.88E-04	+/-	1.54E-05
35	382.83	1.02E+01	+/-	6.31E-01	1.46E+00	2.83E-04	+/-	1.56E-05
36	392.89	4.29E+01	+/-	7.62E-01	1.45E+00	2.78E-04	+/-	1.59E-05
37	400.66	1.11E+00	+/-	3.65E-01	1.44E+00	2.74E-04	+/-	1.60E-05
38	413.70	1.14E+02	+/-	1.20E+00	1.43E+00	2.67E-04	+/-	1.63E-05
39	422.59	5.04E+00	+/-	4.45E-01	1.43E+00	2.62E-04	+/-	1.63E-05
40	451.55	1.36E+01	+/-	4.42E-01	1.41E+00	2.49E-04	+/-	1.63E-05
41	618.98	1.24E+00	+/-	1.39E-01	1.35E+00	1.92E-04	+/-	1.20E-05
42	645.86	5.12E-01	+/-	1.36E-01	1.34E+00	1.86E-04	+/-	1.11E-05

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Corrected Peak Count Rate (CpS)
43	652.50	9.39E-01 +/- 1.37E-01	1.34E+00	1.84E-04 +/- 1.09E-05
44	662.42	5.21E+00 +/- 2.59E-01	1.33E+00	1.82E-04 +/- 1.06E-05
45	722.05	2.84E+00 +/- 1.95E-01	1.32E+00	1.70E-04 +/- 9.04E-06
46	755.77	3.32E-01 +/- 6.48E-02	1.31E+00	1.64E-04 +/- 8.31E-06
47	1112.12	2.54E-02 +/- 1.91E-02	1.24E+00	1.20E-04 +/- 5.13E-06

Segment: 8 Detector: DET01 (# 1) Position: 8

Elapsed Live Time: 108.46 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.319 +/- 0.0110
SE-75	264.65	0.000 +/- 0.0000	0.470 +/- 0.0034
SE-75	279.53	0.000 +/- 0.0000	0.480 +/- 0.0041
SE-75	400.65	0.000 +/- 0.0000	0.535 +/- 0.0050

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.65	9.76E+00 +/- 6.17E-01	2.70E+00	5.60E-09 +/- 5.29E-08
2	35.10	1.01E+03 +/- 4.92E+00	1.97E+00	6.89E-07 +/- 3.37E-06
3	49.88	3.40E+01 +/- 1.60E+00	1.72E+00	1.19E-05 +/- 2.84E-05
4	59.74	7.64E+02 +/- 4.25E+00	1.65E+00	3.39E-05 +/- 5.17E-05
5	67.40	7.24E+00 +/- 7.30E-01	1.62E+00	5.95E-05 +/- 6.47E-05
6	75.19	4.67E+00 +/- 8.64E-01	1.59E+00	9.14E-05 +/- 7.00E-05
7	98.91	8.35E+01 +/- 1.71E+00	1.54E+00	1.99E-04 +/- 4.64E-05
8	103.48	4.00E+01 +/- 1.68E+00	1.53E+00	2.18E-04 +/- 3.87E-05
9	111.31	1.56E+01 +/- 1.17E+00	1.52E+00	2.49E-04 +/- 2.63E-05
10	117.09	6.05E+00 +/- 9.28E-01	1.52E+00	2.69E-04 +/- 1.94E-05
11	129.29	5.61E+01 +/- 1.07E+00	1.50E+00	3.05E-04 +/- 1.85E-05
12	148.57	1.06E+01 +/- 7.80E-01	1.47E+00	3.45E-04 +/- 3.27E-05
13	165.12	1.51E+00 +/- 6.95E-01	1.44E+00	3.64E-04 +/- 3.98E-05
14	171.52	2.99E+00 +/- 6.62E-01	1.43E+00	3.69E-04 +/- 4.10E-05
15	189.50	1.53E+00 +/- 5.85E-01	1.41E+00	3.76E-04 +/- 4.08E-05
16	195.94	3.25E+00 +/- 6.75E-01	1.40E+00	3.77E-04 +/- 3.99E-05
17	208.16	5.06E+01 +/- 1.03E+00	1.38E+00	3.76E-04 +/- 3.72E-05
18	255.57	2.27E+00 +/- 4.84E-01	1.32E+00	3.56E-04 +/- 2.37E-05
19	267.67	8.99E-01 +/- 4.11E-01	1.31E+00	3.50E-04 +/- 2.07E-05
20	297.63	1.09E+00 +/- 4.37E-01	1.30E+00	3.31E-04 +/- 1.56E-05

21	311.90	2.12E+00	+/-	4.29E-01	1.29E+00	3.23E-04	+/- 1.44E-05
22	332.80	1.30E+01	+/-	6.34E-01	1.28E+00	3.10E-04	+/- 1.38E-05
23	336.01	1.63E+00	+/-	4.93E-01	1.28E+00	3.08E-04	+/- 1.38E-05
24	345.10	1.41E+01	+/-	4.66E-01	1.28E+00	3.03E-04	+/- 1.38E-05
25	368.38	4.87E+00	+/-	3.93E-01	1.27E+00	2.90E-04	+/- 1.44E-05
26	375.16	3.31E+01	+/-	7.17E-01	1.27E+00	2.86E-04	+/- 1.46E-05
27	382.97	3.08E+00	+/-	3.54E-01	1.26E+00	2.82E-04	+/- 1.48E-05
28	393.04	1.28E+01	+/-	4.21E-01	1.26E+00	2.77E-04	+/- 1.50E-05
29	413.70	3.47E+01	+/-	6.10E-01	1.25E+00	2.66E-04	+/- 1.54E-05
30	422.58	1.54E+00	+/-	2.51E-01	1.25E+00	2.62E-04	+/- 1.55E-05
31	443.98	3.06E-01	+/-	1.16E-01	1.24E+00	2.53E-04	+/- 1.56E-05
32	451.58	3.74E+00	+/-	2.26E-01	1.24E+00	2.49E-04	+/- 1.56E-05
33	619.09	3.91E-01	+/-	8.26E-02	1.20E+00	1.93E-04	+/- 1.16E-05
34	662.42	1.57E+00	+/-	1.45E-01	1.20E+00	1.83E-04	+/- 1.03E-05
35	721.99	7.49E-01	+/-	9.61E-02	1.19E+00	1.70E-04	+/- 8.82E-06

Segment: 9 Detector: DET01 (# 1) Position: 9

Elapsed Live Time: 112.47 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.319 +/- 0.0104
SE-75	264.65	0.000 +/- 0.0000	0.486 +/- 0.0034
SE-75	279.53	0.000 +/- 0.0000	0.490 +/- 0.0041
SE-75	400.65	0.000 +/- 0.0000	0.555 +/- 0.0051

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	35.10	1.01E+03	+/-	4.80E+00	1.97E+00	1.75E-05	+/-	8.88E-05
2	50.03	7.47E+00	+/-	8.67E-01	1.72E+00	6.19E-05	+/-	1.52E-04
3	59.78	1.47E+02	+/-	1.62E+00	1.65E+00	1.01E-04	+/-	1.59E-04
4	67.58	5.46E+00	+/-	4.70E-01	1.62E+00	1.34E-04	+/-	1.49E-04
5	98.61	5.15E+00	+/-	8.36E-01	1.54E+00	2.51E-04	+/-	6.11E-05
6	103.38	1.65E+00	+/-	6.63E-01	1.53E+00	2.65E-04	+/-	4.84E-05
7	111.33	1.94E+00	+/-	5.72E-01	1.52E+00	2.86E-04	+/-	3.05E-05
8	129.29	2.27E+00	+/-	5.17E-01	1.50E+00	3.23E-04	+/-	1.97E-05
9	208.27	7.68E-01	+/-	3.68E-01	1.37E+00	3.66E-04	+/-	3.76E-05
10	279.54	4.94E-01	+/-	2.98E-01	1.30E+00	3.37E-04	+/-	1.85E-05
11	375.16	1.18E+00	+/-	1.97E-01	1.25E+00	2.86E-04	+/-	1.49E-05
12	400.66	1.75E-01	+/-	1.19E-01	1.24E+00	2.73E-04	+/-	1.56E-05
13	413.70	8.70E-01	+/-	1.29E-01	1.24E+00	2.67E-04	+/-	1.59E-05
14	662.42	1.27E-01	+/-	4.76E-02	1.19E+00	1.82E-04	+/-	1.04E-05
15	867.39	2.53E-02	+/-	2.08E-02	1.16E+00	1.46E-04	+/-	6.48E-06

16	1408.01	1.76E-02	+/-	1.24E-02	1.12E+00	1.05E-04	+/- 6.85E-06

Segment: 10 Detector: DET01 (# 1) Position: 10

Elapsed Live Time: 113.12 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.265 +/- 0.0096
SE-75	264.65	0.000 +/- 0.0000	0.432 +/- 0.0031
SE-75	279.53	0.000 +/- 0.0000	0.443 +/- 0.0038
SE-75	400.65	0.000 +/- 0.0000	0.500 +/- 0.0047

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.80E+00	2.17E+00	5.68E-06 +/- 4.74E-06
2	57.89	4.05E+01 +/- 1.15E+00	1.79E+00	5.75E-05 +/- 2.11E-05
3	59.80	3.52E+01 +/- 9.53E-01	1.78E+00	6.45E-05 +/- 2.22E-05
4	67.32	2.92E+00 +/- 3.82E-01	1.73E+00	9.44E-05 +/- 2.54E-05
5	300.10	4.62E-01 +/- 1.88E-01	1.33E+00	3.54E-04 +/- 1.57E-05
6	964.13	3.45E-02 +/- 2.25E-02	1.18E+00	1.31E-04 +/- 5.40E-06
7	1112.12	8.85E-03 +/- 1.61E-02	1.16E+00	1.20E-04 +/- 4.35E-06
8	1408.01	8.85E-03 +/- 8.85E-03	1.14E+00	1.08E-04 +/- 6.60E-06

Segment: 11 Detector: DET01 (# 1) Position: 11

Elapsed Live Time: 113.34 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.256 +/- 0.0093
SE-75	264.65	0.000 +/- 0.0000	0.400 +/- 0.0029
SE-75	279.53	0.000 +/- 0.0000	0.409 +/- 0.0036
SE-75	400.65	0.000 +/- 0.0000	0.468 +/- 0.0045

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	2.20E+00	6.75E-06 +/- 5.60E-06
2	59.85	2.51E+01 +/- 7.94E-01	1.80E+00	6.79E-05 +/- 2.32E-05
3	67.36	1.93E+00 +/- 3.42E-01	1.76E+00	9.75E-05 +/- 2.61E-05
4	185.71	5.39E-01 +/- 3.11E-01	1.51E+00	3.87E-04 +/- 1.99E-05
5	413.70	1.00E-01 +/- 4.69E-02	1.31E+00	2.75E-04 +/- 1.09E-05

Segment: 12 Detector: DET01 (# 1) Position: 12

Elapsed Live Time: 113.48 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.060 +/- 0.0053
SE-75	264.65	0.000 +/- 0.0000	0.120 +/- 0.0012
SE-75	279.53	0.000 +/- 0.0000	0.127 +/- 0.0016
SE-75	400.65	0.000 +/- 0.0000	0.166 +/- 0.0023

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	3.93E+00	7.63E-06 +/- 6.33E-06
2	59.81	1.25E+01 +/- 6.60E-01	2.92E+00	6.71E-05 +/- 2.31E-05
3	400.66	9.53E-02 +/- 5.90E-02	1.83E+00	2.86E-04 +/- 1.12E-05
4	778.90	2.40E-02 +/- 2.16E-02	1.57E+00	1.60E-04 +/- 7.32E-06
5	867.39	8.73E-03 +/- 8.73E-03	1.53E+00	1.45E-04 +/- 6.27E-06
6	964.13	3.49E-02 +/- 1.75E-02	1.49E+00	1.33E-04 +/- 5.22E-06
7	1408.01	8.73E-03 +/- 2.36E-02	1.39E+00	1.02E-04 +/- 6.34E-06

Segment: 13 Detector: DET01 (# 1) Position: 13

Elapsed Live Time: 113.62 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.139 +/- 0.0069
SE-75	264.65	0.000 +/- 0.0000	0.239 +/- 0.0019
SE-75	279.53	0.000 +/- 0.0000	0.243 +/- 0.0024
SE-75	400.65	0.000 +/- 0.0000	0.297 +/- 0.0032

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	21.01	1.85E-01 +/- 1.28E-01	4.10E+00	5.74E-07 +/- 9.42E-07
2	35.10	1.01E+03 +/- 4.77E+00	2.88E+00	1.10E-05 +/- 9.51E-06
3	59.75	6.03E+00 +/- 4.79E-01	2.24E+00	8.15E-05 +/- 2.89E-05
4	279.54	3.89E-01 +/- 1.57E-01	1.63E+00	3.52E-04 +/- 1.71E-05
5	662.42	3.48E-02 +/- 2.17E-02	1.40E+00	1.80E-04 +/- 8.87E-06
6	778.90	5.27E-02 +/- 3.26E-02	1.37E+00	1.54E-04 +/- 7.54E-06
7	964.13	2.83E-02 +/- 2.42E-02	1.32E+00	1.27E-04 +/- 5.29E-06
8	1001.03	2.61E-02 +/- 1.51E-02	1.31E+00	1.23E-04 +/- 4.91E-06
9	1085.91	2.61E-02 +/- 1.51E-02	1.30E+00	1.15E-04 +/- 4.30E-06

Segment: 14 Detector: DET01 (# 1) Position: 14

Elapsed Live Time: 113.71 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.614 +/- 0.0135
SE-75	264.65	0.000 +/- 0.0000	0.747 +/- 0.0051
SE-75	279.53	0.000 +/- 0.0000	0.758 +/- 0.0058
SE-75	400.65	0.000 +/- 0.0000	0.784 +/- 0.0066

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.37E+00	8.94E-06 +/- 4.41E-05
2	59.72	3.75E+00 +/- 3.70E-01	1.25E+00	8.10E-05 +/- 1.25E-04
3	129.29	5.03E-01 +/- 2.41E-01	1.20E+00	3.17E-04 +/- 1.90E-05
4	185.71	2.88E-01 +/- 1.93E-01	1.16E+00	3.64E-04 +/- 4.04E-05
5	244.70	2.86E-01 +/- 1.19E-01	1.13E+00	3.52E-04 +/- 2.62E-05
6	400.66	1.89E-01 +/- 4.32E-02	1.10E+00	2.73E-04 +/- 1.53E-05
7	662.42	1.74E-02 +/- 1.23E-02	1.07E+00	1.83E-04 +/- 1.04E-05

Segment: 15 Detector: DET01 (# 1) Position: 15

Elapsed Live Time: 113.78 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.709 +/- 0.0142
SE-75	264.65	0.000 +/- 0.0000	0.811 +/- 0.0055
SE-75	279.53	0.000 +/- 0.0000	0.818 +/- 0.0062
SE-75	400.65	0.000 +/- 0.0000	0.840 +/- 0.0070

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	1.25E+00	1.45E-08 +/- 6.96E-08
2	59.83	1.64E+00 +/- 2.77E-01	1.18E+00	1.13E-05 +/- 1.68E-05
3	400.66	1.11E-01 +/- 6.45E-02	1.07E+00	2.59E-04 +/- 1.48E-05
4	662.42	3.91E-02 +/- 2.60E-02	1.05E+00	1.74E-04 +/- 9.76E-06
5	964.13	1.75E-02 +/- 1.24E-02	1.04E+00	1.35E-04 +/- 5.77E-06
6	1333.21	6.50E-02 +/- 3.38E-02	1.04E+00	1.04E-04 +/- 5.42E-06
7	1408.01	1.75E-02 +/- 1.24E-02	1.03E+00	9.82E-05 +/- 6.51E-06

Segment: 16 Detector: DET01 (# 1) Position: 16

Instrument ID: SGS Can ID: S1001059 Count Sequence #: 1059

Elapsed Live Time: 113.77 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.671 +/- 0.0138
SE-75	264.65	0.000 +/- 0.0000	0.761 +/- 0.0051
SE-75	279.53	0.000 +/- 0.0000	0.762 +/- 0.0058
SE-75	400.65	0.000 +/- 0.0000	0.802 +/- 0.0067

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.30E+00	9.52E-10 +/- 5.35E-09
2	59.78	1.03E+00 +/- 2.53E-01	1.21E+00	3.44E-06 +/- 6.03E-06
3	129.29	4.67E-01 +/- 1.80E-01	1.16E+00	2.29E-04 +/- 1.54E-05
4	148.57	4.03E-01 +/- 2.07E-01	1.15E+00	2.78E-04 +/- 3.01E-05
5	279.54	1.39E-01 +/- 9.71E-02	1.11E+00	2.56E-04 +/- 1.50E-05
6	400.66	7.88E-02 +/- 4.79E-02	1.09E+00	1.86E-04 +/- 1.20E-05
7	413.70	5.79E-02 +/- 3.13E-02	1.09E+00	1.81E-04 +/- 1.21E-05
8	1085.91	3.48E-02 +/- 1.74E-02	1.05E+00	9.33E-05 +/- 4.42E-06

Summed Spectrum

Peak Locate Report

Sample ID: S1001059
Peak Locate Performed on: 10-05-02 8:37:52 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192
Peak Search Sensitivity: 5.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	47.15	0.1728	23.50	18.50
2	70.45	0.0436	35.14	290.01
3	99.78	0.2044	49.79	12.33
4	119.51	0.0483	59.65	219.73
5	134.98	0.1936	67.38	14.29
6	150.47	0.2399	75.12	9.13
7	197.84	0.0870	98.79	65.06
8	207.11	0.0872	103.42	56.21
9	222.58	0.1091	111.15	37.04
10	229.19	0.1589	114.45	23.13
11	234.20	0.1937	116.95	9.96
12	259.03	0.0750	129.35	89.56
13	288.57	0.2234	144.12	11.45
14	293.00	0.3653	146.33	7.49
15	297.58	0.1358	148.62	27.68
16	322.20	0.2276	160.92	5.79
17	329.66	0.1895	164.65	14.38
18	343.33	0.2640	171.48	7.38
19	358.75	0.2936	179.18	6.13
20	379.15	0.2434	189.37	9.76
21	392.07	0.1990	195.83	11.86
22	416.51	0.0670	208.04	101.55
23	511.24	0.1793	255.37	15.00
24	535.75	0.1800	267.61	15.10
25	595.36	0.2099	297.39	10.74
26	624.23	0.1794	311.82	13.49
27	642.12	0.2408	320.76	9.34
28	648.13	0.2368	323.76	8.12
29	666.04	0.0868	332.71	60.25
30	672.31	0.1381	335.84	26.75
31	690.69	0.0887	345.02	54.95
32	737.21	0.1402	368.26	18.70
33	750.81	0.0659	375.06	100.58
34	766.35	0.1237	382.82	33.38
35	786.48	0.0883	392.88	48.56
36	828.07	0.0654	413.66	101.84

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
37	845.93	0.1289	422.58	26.12
38	903.76	0.1074	451.47	35.51
39	1239.00	0.2150	618.97	9.29
40	1281.12	0.3026	640.01	5.41
41	1292.97	0.2158	645.93	9.05
42	1306.24	0.2379	652.56	6.98
43	1326.01	0.1345	662.44	22.17
44	1378.17	0.2610	688.50	5.38
45	1445.21	0.1497	721.99	16.69
46	1539.87	0.2307	769.29	7.43

Errors quoted at 1.000 sigma

Summed Spectrum

Peak Analysis Report

Sample ID: S1001059
Peak Analysis Performed on: 10-05-02 8:37:52 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	45-	50	47.15	23.50	1.34E+04	243.59	2.38E+04
2	67-	73	70.45	35.14	1.78E+06	1350.14	2.15E+04
3	96-	103	99.78	49.79	4.01E+04	565.69	1.29E+05
4	116-	122	119.51	59.65	1.09E+06	1179.70	1.57E+05
5	131-	138	134.98	67.38	7.75E+03	279.56	3.46E+04
6	146-	154	150.47	75.12	8.48E+03	358.97	5.55E+04
7	194-	201	197.84	98.79	1.28E+05	667.98	1.58E+05
8	203-	210	207.11	103.42	7.68E+04	622.98	1.37E+05
9	218-	226	222.58	111.15	1.96E+04	501.62	1.01E+05
10	226-	233	229.19	114.45	2.71E+03	492.27	1.18E+05
11	233-	238	234.20	116.95	1.08E+04	377.10	6.22E+04
12	255-	263	259.03	129.35	8.57E+04	426.73	4.49E+04
13	284-	292	288.57	144.12	8.02E+02	291.93	3.87E+04
14	292-	297	293.00	146.33	1.51E+03	242.35	3.25E+04
15	295-	304	297.58	148.62	1.25E+04	324.11	4.02E+04
16	318-	326	322.20	160.92	1.34E+03	284.51	3.67E+04
17	326-	333	329.66	164.65	2.81E+03	254.44	3.06E+04
18	339-	347	343.33	171.48	4.13E+03	260.54	2.97E+04
19	354-	363	358.75	179.18	2.15E+03	271.44	3.17E+04
20	374-	383	379.15	189.37	3.71E+03	266.37	2.98E+04
21	387-	396	392.07	195.83	4.05E+03	261.64	2.85E+04
22	412-	420	416.51	208.04	8.64E+04	401.33	3.42E+04
23	506-	515	511.24	255.37	3.61E+03	181.62	1.30E+04
24	532-	540	535.75	267.61	2.85E+03	162.55	1.10E+04
25	590-	600	595.36	297.39	1.89E+03	167.40	1.10E+04
26	619-	629	624.23	311.82	2.57E+03	165.61	1.04E+04
27	637-	647	642.12	320.76	1.89E+03	176.47	1.22E+04
28	647-	653	648.13	323.76	1.00E+03	126.12	7.30E+03
29	661-	671	666.04	332.71	2.25E+04	260.69	1.82E+04
30	671-	677	672.31	335.84	2.98E+03	198.46	1.14E+04
31	688-	695	690.69	345.02	2.24E+04	187.24	6.20E+03
32	732-	742	737.21	368.26	9.40E+03	160.28	6.76E+03
33	745-	756	750.81	375.06	5.78E+04	305.09	1.38E+04
34	766-	771	766.35	382.82	5.11E+03	146.50	4.29E+03
35	781-	791	786.48	392.88	2.23E+04	172.69	3.17E+03
36	822-	833	828.07	413.66	5.89E+04	255.43	2.52E+03
37	840-	851	845.93	422.58	2.96E+03	107.90	3.35E+03

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
38	898-	909	903.76	451.47	7.07E+03	100.50	1.21E+03
39	1232-	1245	1239.00	618.97	6.21E+02	37.02	2.72E+02
40	1275-	1287	1281.12	640.01	3.15E+02	36.09	3.66E+02
41	1287-	1299	1292.97	645.93	1.77E+02	39.61	5.18E+02
42	1300-	1312	1306.24	652.56	4.18E+02	35.75	3.27E+02
43	1319-	1332	1326.01	662.44	2.76E+03	63.51	4.64E+02
44	1371-	1384	1378.17	688.50	2.57E+02	27.95	1.88E+02
45	1438-	1451	1445.21	721.99	1.46E+03	45.62	2.22E+02
46	1533-	1546	1539.87	769.29	3.72E+02	26.06	1.09E+02

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Summed Spectrum

Nuclide Identification Report

Sample ID: S1001059
Nuclide Library Used: C:\WAS\NLIB\LLNL.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Pulser	1.000	35.10*	100.00	2.784E+05	6.941E+05
Np-237	0.763	300.10	6.63		
		311.90*	38.60	6.250E+00	4.057E-01
Pu-239	1.000	413.70*	0.00	4.445E+06	8.322E+04
Pu-239A	1.000	129.29*	0.01	1.402E+06	3.538E+04
Am-241	1.000	662.42*	0.00	1.118E+06	2.750E+04
Pu-241	1.000	148.57*	0.00	6.121E+06	1.840E+05

* = Energy line found in the spectrum.
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10-05-02 8:37:52 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	23.50	1.2164E+02	1.82
3	49.79	3.6355E+02	1.41
4	59.65	9.8585E+03	0.14
5	67.38	7.0200E+01	3.61
6	75.12	7.6761E+01	4.24
7	98.79	1.1624E+03	0.53
8	103.42	6.9525E+02	0.82
9	111.15	1.7763E+02	2.56
10	114.45	2.4513E+01	18.19
11	116.95	9.7909E+01	3.49
13	144.12	7.2642E+00	36.40
14	146.33	1.3694E+01	16.03
16	160.92	1.2155E+01	21.20
17	164.65	2.5422E+01	9.06
18	171.48	3.7408E+01	6.31
19	179.18	1.9440E+01	12.65
20	189.37	3.3567E+01	7.19
21	195.83	3.6673E+01	6.46
22	208.04	7.8267E+02	0.47
23	255.37	3.2708E+01	5.03
24	267.61	2.5809E+01	5.70
25	297.39	1.7125E+01	8.85
27	320.76	1.7085E+01	9.36
28	323.76	9.0539E+00	12.62
29	332.71	2.0419E+02	1.16
30	335.84	2.6982E+01	6.66
31	345.02	2.0308E+02	0.84
32	368.26	8.5154E+01	1.71
33	375.06	5.2343E+02	0.54
34	382.82	4.6264E+01	2.87
35	392.88	2.0186E+02	0.78
37	422.58	2.6823E+01	3.64
38	451.47	6.3995E+01	1.43
39	618.97	5.6282E+00	5.96
40	640.01	2.8521E+00	11.46
41	645.93	1.6011E+00	22.40
42	652.56	3.7854E+00	8.55
44	688.50	2.3264E+00	10.88
45	721.99	1.3229E+01	3.12
46	769.29	3.3688E+00	7.01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Combined Segment NID

NID Results Combiner Mode: Sum Activities

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		4.01E+07	+/-	2.09E+08		1.80E+03	+/-	9.42E+03
SE-75	<	4.12E-01	+/-	2.04E-02	<	1.86E-05	+/-	9.19E-07
EU-152x		4.99E-02	+/-	2.19E-02		2.25E-06	+/-	9.86E-07
U-233	<	1.69E+04	+/-	8.66E+02	<	7.62E-01	+/-	3.90E-02
U-235		1.42E-01	+/-	6.45E-02		6.42E-06	+/-	2.91E-06
Np-237		8.18E+00	+/-	5.24E-01		3.69E-04	+/-	2.36E-05
Pu-238	<	4.20E+04	+/-	2.04E+03	<	1.89E+00	+/-	9.17E-02
U-238		8.96E-01	+/-	5.19E-01		4.03E-05	+/-	2.34E-05
Pu-239		5.53E+06	+/-	1.34E+05		2.49E+02	+/-	6.04E+00
Pu-239A		3.81E+06	+/-	1.17E+05		1.72E+02	+/-	5.25E+00
Am-241		1.25E+06	+/-	4.19E+04		5.65E+01	+/-	1.89E+00
Pu-241		1.40E+07	+/-	5.38E+05		6.32E+02	+/-	2.43E+01

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	6.60E-02	+/-	2.99E-02
Np-237	1.16E-02	+/-	7.43E-04
U-238	2.67E+00	+/-	1.55E+00
Pu-239	8.90E+01	+/-	2.16E+00
Pu-239A	6.13E+01	+/-	1.88E+00
Am-241	3.66E-01	+/-	1.22E-02
Pu-241	1.36E-01	+/-	5.21E-03

Summed Spectrum

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		2.78E+05	+/-	6.94E+05		1.25E+01	+/-	3.13E+01
SE-75	<	9.09E-01	+/-	7.92E-03	<	4.09E-05	+/-	3.57E-07
EU-152x	<	4.26E-01	+/-	8.20E-03	<	1.92E-05	+/-	3.70E-07
U-233	<	4.03E+04	+/-	8.41E+02	<	1.82E+00	+/-	3.79E-02
U-235	<	1.34E+00	+/-	2.65E-02	<	6.04E-05	+/-	1.19E-06
Np-237		6.25E+00	+/-	4.06E-01		2.82E-04	+/-	1.83E-05
Pu-238	<	9.70E+04	+/-	1.41E+03	<	4.37E+00	+/-	6.36E-02
U-238	<	1.27E+01	+/-	2.03E-01	<	5.71E-04	+/-	9.13E-06
Pu-239		4.45E+06	+/-	8.32E+04		2.00E+02	+/-	3.75E+00
Pu-239A		1.40E+06	+/-	3.54E+04		6.32E+01	+/-	1.59E+00
Am-241		1.12E+06	+/-	2.75E+04		5.04E+01	+/-	1.24E+00
Pu-241		6.12E+06	+/-	1.84E+05		2.76E+02	+/-	8.29E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
Np-237	8.87E-03	+/-	5.76E-04
Pu-239	7.16E+01	+/-	1.34E+00
Pu-239A	2.26E+01	+/-	5.70E-01
Am-241	3.26E-01	+/-	8.03E-03
Pu-241	5.92E-02	+/-	1.78E-03

Final Non-Uniformity Results

Source Longitudinal Ratio:	0.000	+/-	0.0000
Matrix Longitudinal Ratio:	0.612	+/-	0.0178
Source Vertical Ratio:	0.000	+/-	0.0000
Matrix Vertical Ratio:	0.868	+/-	0.0098

NUDS could not find the transmission peak in one radial segment.
NUDS could not find the source peak in any radial segment.

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*********************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E        *****
*********************************************************************
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Last Results Report
10-05-02 8:49:56 AM

QA File: C:\WAS\CTRS\CTR1\ARR1\T11_BCK.QA
Sample ID: B1060
Sample Quantity: 1.0000E+00
Sample Date: 10-05-02 8:44:13 AM
Measurement Date: 10-05-02 8:47:39 AM
Elapsed Live Time: 100.0 seconds
Elapsed Real Time: 115.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags < LU : SD : UD : BS >
400.6 keV Centroid [0.00+/-0.00]	8.0208E+02	0.00 < : : : >
400.6 keV FWHM [0.00+/-0.00]	1.6403E+00	0.00 < : : : >
Peak centroid 136 KeV [0.00+/-0.00]	2.7255E+02	0.00 < : : : >
Peak area 400 keV [0.00+/-0.00]	7.0739E+04	0.00 < : : : >
Peak counts/second [0.00+/-0.00]	7.0739E+02	0.00 < : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-SIgma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)


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*********************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E        *****
*********************************************************************
```

Last Results Report
10-05-02 8:50:03 AM

QA File: C:\WAS\CTRS\CTR1\ARR1\S11_BCK.QA
Sample ID: B1060
Sample Quantity: 1.0000E+00
Sample Date: 10-05-02 8:44:13 AM
Measurement Date: 10-05-02 8:44:11 AM
Elapsed Live Time: 200.0 seconds
Elapsed Real Time: 201.9 seconds

Parameter Description	Value	Deviation/Flags

[Mean +/- Std. Dev.]		< LU : SD : UD : BS >
Ref. Peak	3.5149E+01	0.00
[0.00+/-0.00]		< : : : >
Upper CPS Reg	2.6835E+01	0.00
[0.00+/-0.00]		< : : : >
Peak counts/second	1.0089E+03	0.00
[0.00+/-0.00]		< : : : >
Pulser FWHM	1.2807E+00	0.00
[0.00+/-0.00]		< : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-SIgma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

RADIOASSAY DATA SHEET

Batch Number: 2002-13

Radio Assay Method: SGS

Procedure ID & Rev: OP-B332-005

Software Version: GWAS V2.3A RADA V2.1

DRUM INFORMATION

Drum Package ID: LL85501243TR
Sequence Number: 1061
Assay Date & Time: 10-05-2002 9:02:41 AM
Report Generated: 10-07-2002 8:34:41 AM
Drum Package GROSS Weight: 86.40 kg NET Weight: 56.30 kg

IDC Number: LL85501243 TRU

QC Replicate (Yes/No): NO Passed (Yes/No): _____

Operator Name (Printed): LEE CALDEIRA

Operator Signature: [signature] Date: 10/7/02

Independent Reviewer: [signature] Date: 10/10/02

Expert Reviewer: Kenneth Rasche Date: 10/8/02

Tech. Supv/QA Officer: [signature] Date: 10/14/02

ACTIVITY INFORMATION

Waste Classification: (TRU or LLW): TRU

Total Alpha Activity: 4.147E+00 +/- 1.120E+00 Ci

****
* I S O T O P I C I N F O R M A T I O N *
****

Isotope	Measured Mass (g)	Mass Uncertainty (g)
Pu-238	1.272E-02	5.434E-03
Pu-239	3.894E+01	1.643E+01
Pu-240	3.395E+00	1.434E+00
Pu-241	1.079E-01	4.559E-02
Pu-242	1.843E-02	8.578E-03
Am-241	2.095E-01	8.847E-02
*Am-243	N/A	N/A
*Np-237	N/A	N/A
*U-235	N/A	N/A
*U-238	N/A	N/A
*U-233	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 4.25E+01 +/- 1.65E+01 g

****
* M G A R E S U L T S *
****

NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	2.996E-02	3.35E+00
Pu-239	9.168E+01	9.08E-02
Pu-240	7.992E+00	1.03E+00
Pu-241	2.541E-01	8.80E-01
Pu-242	4.340E-02	1.00E+01
Am-241	4.933E-01	7.03E-01

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*******************************************
*  A C T I V I T Y   I N F O R M A T I O N *
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```

Procedure ID & Rev: OP-B332-005
Software Version: GWAS V2.3A RADA V2.1

Assay Date & Time: 10-05-2002 9:02:41 AM
Report Generated: 10-07-2002 8:34:43 AM

Drum Package ID: LL85501243TR
Sequence Number: 1061

Waste Classification (TRU or LLW): TRU

			Errors at 1.96 sigma	
Total Alpha Activity :	4.147E+00	+/-	1.120E+00	Ci
Total TRU Activity :	7.365E+04	+/-	1.989E+04	nCi/g
Pu-239 Equiv Activity:	4.347E+00	+/-	1.123E+00	Ci
Fissile Gram Equiv Mass:	3.927E+01	+/-	1.644E+01	g
Total Decay Heat:	1.322E-01	+/-	3.532E-02	W
TMU Value:	42.20 %			

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*******************************************
* I S O T O P I C   I N F O R M A T I O N *
*******************************************
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Isotope	Act (Ci)	1.96 Sigma Act Error (Ci)	Measured Mass (g)	1.96 Sigma Mass Error
Pu-238	2.20E-01	9.40E-02	1.27E-02	5.43E-03
Pu-239	2.42E+00	1.02E+00	3.89E+01	1.64E+01
Pu-240	7.81E-01	3.30E-01	3.39E+00	1.43E+00
Pu-241	1.12E+01	4.74E+00	1.08E-01	4.56E-02
Pu-242	7.32E-05	3.41E-05	1.84E-02	8.58E-03
Am-241	7.27E-01	3.07E-01	2.10E-01	8.85E-02
*Am-243	N/A	N/A	N/A	N/A
*Np-237	N/A	N/A	N/A	N/A
*U-235	N/A	N/A	N/A	N/A
*U-238	N/A	N/A	N/A	N/A
*U-233	N/A	N/A	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 4.25E+01 +/- 1.65E+01 g

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*********************************
*     M G A   R E S U L T S     *
*********************************
```

NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	2.996E-02	3.35E+00
Pu-239	9.168E+01	9.08E-02
Pu-240	7.992E+00	1.03E+00
Pu-241	2.541E-01	8.80E-01
Pu-242	4.340E-02	1.00E+01
Am-241	4.933E-01	7.03E-01

SGS Expert Review Checklist

Container Identification #: LL85501243TRU_____ Original Assay Date:10-05-2002_

1. *WCP-41, §6.1:* A MGA report ☒ is present or ☐ expert review has provided isotopic ratios from SGS or AK. Comment (if any): High Am-241 is also confirmed by GWAS.
2. *WCP-41, §6.1:* MGA and AK ☒ agree as to radiological composition or, if not, ☐ expert review has resolved this. Comment (if any):
3. *WCP-41, §6.2.1:* ☒ Pu-238 ≤ 2% by weight of total Pu or, if not, ☐ expert review has addressed this and assigned a Pu-240 value. Comment (if any):
4. *WCP-41, §6.2.2:* ☒ Neither Np-237 nor U-235 is identified by MGA or ☐ expert review has addressed possible interferences from these radionuclides.
   Comment (if any):
5. *WCP-41, §6.2.2.2:* ☒ Am-241 separation date is 1950 or later or ☐ expert review has addressed possible interferences. Comment (if any):
6. *WCP-41, §6.3.1.1.a:* ☒ Bulk density of waste ≤ 0.6 g/ml or ☐ expert review has addressed the high density of the drum. Comment (if any):
7. *WCP-41, §6.3.1.2.a:* ☐ Transmission in every segment ≥ 0.1% for the Se-75 peaks at 136 keV or 265 keV or ☒ expert review has addressed the low transmission.
   Comment (if any): The transmission is low in six segments both in this count and the replicate. The 265keV peak is barely Okay as are the other transmission peaks. Also, the Pu-239/Pu239a ratio is okay for all six segments.
8. *WCP-41, §6.3.1.2.a:* ☒ Transmission in every segment ≥ 1% for the Se-75 peak at 401 keV or ☐ expert review has addressed the low transmission. Comment (if any): See comment to #7.
9. *WCP-41, §6.3.1.3.b:* ☒ Dead time in every segment ≤ 50% or ☐ expert review has addressed the high dead time. Comment (if any):
10. *WCP-41, §6.3.1.3.c:* ☒ Pu-239 masses determined from the 414 keV peak and the 129 keV peak agree by a factor of < 2.5 or ☐ expert review has addressed possible matrix inhomogeneity. Comment (if any):
11. *WCP-41, §6.3.2.3:* Cs-137 (☐ has) (☒ has not) been identified by expert review. If it has, Sr-90 is reported ☐ at an activity ratio to Cs-137of 0.39 for Pu fission or ☐ at a ratio of 1 for U-235 fission or, ☐ if both Pu and U are present, the expert reviewer has determined the ratio. Comment (if any):
12. *WCP-41, §6.3.2.4:* ☒ No unusual nuclides are identified (none other than the 10 required to be reported to WIPP) or ☐ the expert reviewer has checked for interferences from unusual nuclides. Comment (if any):
13. *WCP-41, §6.3.3:* For waste drums (☐ NA for standards), ☐ the Summed Spectrum report value for Pu-239 and the Combined Segment NID report

Container Identification #: LL85501243TRU_____ Original Assay Date:10-05-2002_

for Pu-239 agree within 95% confidence limits (the same as for replicates of unknowns) or ☒ expert review has addressed the difference. Comment (if any): The combined NID and the summed NID do not agree as is predicted by the uniformity measurements.

14. *WCP-41, §6.4:* ☐ The SGS Summed Spectrum and Combined Segment NID reports agree as to the ratios by weight of several radionuclides, such as those of Am-241, Pu-241, Np-237, Am-243, and U-235 to Pu-239, and MGA results agree as to identifying these radionuclides or ☒ expert review has resolved this. Comment (if any): see comment to #13

15. *WCP-41, §6.6.1:* ☒ All reported radionuclide masses are above 2.5 times the uncorrected MDA or ☐ expert review has calculated transmission-corrected MDAs and taken appropriate action. Comment (if any):

16. *WCP-41, §6.6.2:* ☒ Any changes to reported quantities of individual radionuclides have been entered into the RADA program and a new radioassay data sheet has been produced, showing revised derivative quantities, and included in the batch data report, along with the marked up original. Comment (if any):

17. *CP-41, §6.7:* ☒ Counting statistics are adequate for normal passive count time of 120 seconds per segment or ☐ Counting statistics are adequate for long passive count time of 600 seconds per segment or ☐ expert review has rejected the count and ordered a longer count time. Comment (if any):

Kenneth Raschke	Kenneth Raschke	10/8/02
Expert Reviewer (print)	Signature	Date

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*********************************************************************
*****                      M G A   R E P O R T                  *****
*********************************************************************
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Report generated on: 10-05-02 10:00:13 AM

MGA version: MGA V9.5 CI

Spectrum ID: 11201061.CNF Sens : 30.0% LT: 53.9 Mins DT: 5.10
Measurement date: 10-05-02 Declared date: 10-05-02

Sample ID: LL85501243TRU Detector: Total counts: 5.199E+06

Pu g/cm2 = 0.0771 Cd g/cm2 = 1.6426 FWHM at 122 keV = 645 eV
QFIT = 1.00 FWHM at 208 keV = 823 eV
NQFIT = 1.00

Isotope	Relative to Pu-239	%* Err	% Err	Relative to Pu-241	%* Err	Isotope analysis at Meas. date % weight	%Err	Decl. date % weight	%Err
Pu-238	0.000327	3.4	3.3	0.1179	3.3	0.02996	3.35	0.02996	3.35
Pu-239	1.000000	0.0	0.6	360.7608	0.9	91.68053	0.09	91.68053	0.09
Pu-240	0.087172	1.1	1.0	31.4482	1.2	7.99197	1.03	7.99197	1.03
Pu-241	0.002772	0.9	0.7	1.0000	0.0	0.25413	0.88	0.25413	0.88
Pu-242	(New alg.	)		0.1708	(10)	0.04340	(10)	0.04340	(10)
Am-241	0.005380	0.7	0.5	1.9411	0.9	0.49328	0.70	0.49328	0.70

Pu-240 effective (meas. date) = 8.140 +/- 1.15%
Am-241 separated about 22.322 +/- 0.201 years ago
Am/Pu-241 weight ratio = 1.94106 +/- 0.89%

Messages :

Lead x-rays detected.
Calculations in MGAABS didn't converge : results may be suspect.
17 MGA parameter(s) defaulted, starting from parameter 8.

Notes : * = Error in ratio
1.000 sigma errors

Gamma Waste Assay

Sample Information

File Name: C:\WAS\DATA\1100\11101061.S11
Sample ID: LL85501243TRU Count Sequence Number: 1061
Assay Start: 10-05-02 9:02:43 AM
Description 1: unknown
Description 2: 2002-13
Location: 7715
Comment:
Waste Type:
Weight: Gross: 86400.0 g Net: 56300.0 g
Density: 0.271 g /ml

Container Type: 55 Gal Galv 66.3
Container: Volume: 208000. ml Full: 100.0 %

System Configuration

Counter ID Number: SGS
Arrangement Description: SGS
Segments: Number: 16 Offset: 0
Scanning Platform: Start: 934 mm Delta: -51 mm
Count Type: 55 Gal Galv 66.3
Collimator/Geometry Setting: 0
Transmission Mode: Two pass
Transmission Source: 0

Errors quoted at 1.000 sigma
Reference Source Date: Reference Source Rate: 1.01E+03 cps
Geometric Correction Factor(SWCONTGCF): 0.760
Date of efficiency calibration approval: 4-16-2002 3:26:49 PM
Mu Factors response file: Lucite
Transmission Calib. Time: 4-16-2002 10:03:42 AM 324888

Reviewed by: _____ Date: _____

Segment Results

Segment: 1 Detector: DET01 (# 1) Position: 1

Elapsed Live Time: 92.36 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.038 +/- 0.0007
SE-75	279.53	0.000 +/- 0.0000	0.038 +/- 0.0011
SE-75	400.65	0.000 +/- 0.0000	0.061 +/- 0.0016

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.22	4.80E+01 +/- 1.26E+00	4.10E+00	9.45E-08 +/- 1.18E-06
2	35.10	1.01E+03 +/- 5.47E+00	4.10E+00	2.61E-06 +/- 1.64E-05
3	49.27	1.98E+02 +/- 5.26E+00	4.10E+00	1.72E-05 +/- 5.41E-05
4	59.30	8.14E+03 +/- 3.54E+01	4.10E+00	3.69E-05 +/- 7.36E-05
5	98.47	9.38E+01 +/- 2.81E+00	4.10E+00	1.38E-04 +/- 4.14E-05
6	103.08	3.81E+01 +/- 2.67E+00	4.10E+00	1.49E-04 +/- 3.35E-05
7	110.87	1.31E+01 +/- 2.13E+00	4.10E+00	1.65E-04 +/- 2.15E-05
8	117.91	4.15E+01 +/- 2.07E+00	4.10E+00	1.78E-04 +/- 1.38E-05
9	129.29	6.98E+01 +/- 1.58E+00	4.10E+00	1.95E-04 +/- 1.38E-05
10	148.57	1.38E+01 +/- 1.14E+00	3.85E+00	2.15E-04 +/- 2.55E-05
11	160.50	2.09E+00 +/- 1.00E+00	3.65E+00	2.23E-04 +/- 2.99E-05
12	164.40	1.62E+00 +/- 9.57E-01	3.60E+00	2.24E-04 +/- 3.07E-05
13	207.77	6.48E+01 +/- 1.28E+00	3.13E+00	2.30E-04 +/- 2.82E-05
14	255.25	3.27E+00 +/- 5.66E-01	2.77E+00	2.20E-04 +/- 1.72E-05
15	267.08	2.41E+00 +/- 3.80E-01	2.71E+00	2.16E-04 +/- 1.49E-05
16	311.90	3.31E+00 +/- 5.17E-01	2.63E+00	2.00E-04 +/- 1.03E-05
17	322.81	2.50E+00 +/- 5.11E-01	2.60E+00	1.96E-04 +/- 1.02E-05
18	332.45	1.22E+01 +/- 7.27E-01	2.57E+00	1.92E-04 +/- 1.04E-05
19	344.77	1.24E+01 +/- 5.21E-01	2.54E+00	1.88E-04 +/- 1.07E-05
20	368.21	5.72E+00 +/- 5.15E-01	2.49E+00	1.80E-04 +/- 1.16E-05
21	374.76	3.30E+01 +/- 8.11E-01	2.47E+00	1.78E-04 +/- 1.18E-05
22	382.60	2.91E+00 +/- 4.51E-01	2.45E+00	1.75E-04 +/- 1.20E-05
23	392.56	1.29E+01 +/- 5.23E-01	2.43E+00	1.72E-04 +/- 1.23E-05
24	413.70	3.30E+01 +/- 7.02E-01	2.39E+00	1.65E-04 +/- 1.27E-05

25	422.30	1.52E+00	+/-	3.57E-01	2.37E+00	1.63E-04	+/-	1.29E-05
26	443.98	3.46E-01	+/-	2.26E-01	2.34E+00	1.57E-04	+/-	1.30E-05
27	451.22	4.39E+00	+/-	3.06E-01	2.32E+00	1.55E-04	+/-	1.30E-05
28	510.75	1.28E+00	+/-	1.90E-01	2.23E+00	1.40E-04	+/-	1.22E-05
29	652.05	4.76E-01	+/-	1.38E-01	2.06E+00	1.14E-04	+/-	8.41E-06
30	662.42	2.28E+00	+/-	1.99E-01	2.05E+00	1.12E-04	+/-	8.14E-06
31	721.80	1.19E+00	+/-	1.51E-01	1.99E+00	1.04E-04	+/-	6.73E-06
32	891.15	6.35E-02	+/-	4.33E-02	1.86E+00	8.76E-05	+/-	4.52E-06
33	1275.28	8.95E-01	+/-	1.10E-01	1.69E+00	6.64E-05	+/-	3.57E-06

Segment: 2 Detector: DET01 (# 1) Position: 2

Elapsed Live Time: 89.71 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.018 +/- 0.0005
SE-75	279.53	0.000 +/- 0.0000	0.018 +/- 0.0009
SE-75	400.65	0.000 +/- 0.0000	0.029 +/- 0.0011

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.23	5.59E+01	+/-	1.37E+00	4.10E+00	5.71E-10	+/-	5.43E-09
2	35.10	1.01E+03	+/-	5.59E+00	4.10E+00	2.21E-07	+/-	1.06E-06
3	49.35	2.51E+02	+/-	6.11E+00	4.10E+00	5.94E-06	+/-	1.42E-05
4	59.32	9.54E+03	+/-	4.21E+01	4.10E+00	2.14E-05	+/-	3.26E-05
5	98.43	1.00E+02	+/-	2.76E+00	4.10E+00	1.82E-04	+/-	4.28E-05
6	102.92	3.92E+01	+/-	2.65E+00	4.10E+00	2.04E-04	+/-	3.67E-05
7	110.93	6.27E+00	+/-	2.52E+00	4.10E+00	2.39E-04	+/-	2.56E-05
8	114.02	9.99E+00	+/-	2.07E+00	4.10E+00	2.52E-04	+/-	2.19E-05
9	118.04	4.48E+01	+/-	2.20E+00	4.10E+00	2.68E-04	+/-	1.82E-05
10	129.29	6.26E+01	+/-	1.63E+00	4.10E+00	3.07E-04	+/-	1.84E-05
11	148.57	1.26E+01	+/-	1.18E+00	3.98E+00	3.54E-04	+/-	3.27E-05
12	160.26	2.59E+00	+/-	1.10E+00	3.88E+00	3.72E-04	+/-	3.85E-05
13	207.78	5.41E+01	+/-	1.21E+00	3.53E+00	3.88E-04	+/-	3.72E-05
14	267.24	1.94E+00	+/-	3.80E-01	3.19E+00	3.52E-04	+/-	2.02E-05
15	311.90	3.40E+00	+/-	5.12E-01	3.10E+00	3.18E-04	+/-	1.39E-05
16	332.39	1.05E+01	+/-	6.82E-01	3.05E+00	3.03E-04	+/-	1.34E-05
17	335.46	1.55E+00	+/-	5.34E-01	3.04E+00	3.01E-04	+/-	1.34E-05
18	344.75	8.41E+00	+/-	5.61E-01	3.02E+00	2.94E-04	+/-	1.34E-05

19	368.23	4.50E+00	+/-	5.01E-01	2.96E+00	2.78E-04	+/-	1.39E-05
20	374.72	2.66E+01	+/-	7.59E-01	2.94E+00	2.74E-04	+/-	1.40E-05
21	382.54	2.08E+00	+/-	3.99E-01	2.92E+00	2.69E-04	+/-	1.42E-05
22	392.73	9.67E+00	+/-	4.77E-01	2.90E+00	2.63E-04	+/-	1.43E-05
23	413.70	2.57E+01	+/-	6.39E-01	2.85E+00	2.51E-04	+/-	1.46E-05
24	422.23	1.55E+00	+/-	3.44E-01	2.83E+00	2.47E-04	+/-	1.46E-05
25	443.98	2.84E-01	+/-	1.80E-01	2.78E+00	2.36E-04	+/-	1.45E-05
26	451.32	2.94E+00	+/-	2.98E-01	2.76E+00	2.32E-04	+/-	1.45E-05
27	582.89	4.84E-01	+/-	1.38E-01	2.51E+00	1.84E-04	+/-	1.14E-05
28	662.42	1.82E+00	+/-	1.83E-01	2.39E+00	1.65E-04	+/-	9.18E-06
29	721.98	1.18E+00	+/-	1.47E-01	2.32E+00	1.53E-04	+/-	7.86E-06
30	912.21	6.63E-02	+/-	4.49E-02	2.12E+00	1.28E-04	+/-	5.75E-06
31	1001.03	9.26E-02	+/-	6.22E-02	2.06E+00	1.20E-04	+/-	5.31E-06
32	1274.81	1.24E+00	+/-	1.33E-01	1.90E+00	1.02E-04	+/-	4.69E-06

Segment: 3 Detector: DET01 (# 1) Position: 3

Elapsed Live Time: 94.29 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.039 +/- 0.0067
SE-75	264.65	0.000 +/- 0.0000	0.052 +/- 0.0008
SE-75	279.53	0.000 +/- 0.0000	0.052 +/- 0.0012
SE-75	400.65	0.000 +/- 0.0000	0.073 +/- 0.0016

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.35	4.16E+01	+/-	1.13E+00	4.10E+00	1.16E-08	+/-	1.12E-07
2	26.44	7.86E+00	+/-	1.02E+00	4.10E+00	5.59E-08	+/-	4.46E-07
3	35.10	1.01E+03	+/-	5.38E+00	4.10E+00	1.07E-06	+/-	5.27E-06
4	49.61	1.93E+02	+/-	4.95E+00	3.55E+00	1.41E-05	+/-	3.43E-05
5	59.44	7.41E+03	+/-	3.20E+01	3.28E+00	3.74E-05	+/-	5.83E-05
6	98.64	5.93E+01	+/-	2.33E+00	2.86E+00	2.00E-04	+/-	4.77E-05
7	102.96	2.03E+01	+/-	2.23E+00	2.83E+00	2.18E-04	+/-	4.02E-05
8	111.00	9.28E+00	+/-	1.87E+00	2.79E+00	2.48E-04	+/-	2.70E-05
9	114.33	2.82E+00	+/-	1.52E+00	2.78E+00	2.59E-04	+/-	2.25E-05
10	118.45	1.82E+01	+/-	1.57E+00	2.76E+00	2.72E-04	+/-	1.83E-05
11	129.29	4.29E+01	+/-	1.28E+00	2.71E+00	3.02E-04	+/-	1.84E-05
12	148.57	9.19E+00	+/-	8.90E-01	2.66E+00	3.39E-04	+/-	3.24E-05
13	164.47	1.65E+00	+/-	7.48E-01	2.63E+00	3.56E-04	+/-	3.90E-05
14	207.85	3.22E+01	+/-	9.19E-01	2.57E+00	3.66E-04	+/-	3.65E-05
15	244.70	8.94E-01	+/-	4.37E-01	2.53E+00	3.52E-04	+/-	2.60E-05
16	255.38	9.05E-01	+/-	4.29E-01	2.52E+00	3.46E-04	+/-	2.31E-05

17	311.90	1.84E+00	+/-	4.00E-01	2.45E+00	3.13E-04	+/- 1.40E-05
18	332.44	4.98E+00	+/-	5.11E-01	2.41E+00	3.00E-04	+/- 1.35E-05
19	344.63	5.62E+00	+/-	4.22E-01	2.39E+00	2.93E-04	+/- 1.36E-05
20	374.69	1.40E+01	+/-	5.33E-01	2.34E+00	2.77E-04	+/- 1.43E-05
21	382.75	1.09E+00	+/-	3.00E-01	2.33E+00	2.72E-04	+/- 1.46E-05
22	392.77	5.05E+00	+/-	3.42E-01	2.31E+00	2.67E-04	+/- 1.48E-05
23	413.70	1.41E+01	+/-	4.47E-01	2.28E+00	2.57E-04	+/- 1.52E-05
24	443.98	2.05E-01	+/-	1.35E-01	2.23E+00	2.43E-04	+/- 1.54E-05
25	451.12	1.85E+00	+/-	2.07E-01	2.22E+00	2.40E-04	+/- 1.54E-05
26	509.87	1.62E+00	+/-	1.88E-01	2.14E+00	2.18E-04	+/- 1.45E-05
27	582.83	3.27E-01	+/-	1.17E-01	2.05E+00	1.96E-04	+/- 1.26E-05
28	662.42	1.23E+00	+/-	1.55E-01	1.97E+00	1.78E-04	+/- 1.02E-05
29	721.45	4.50E-01	+/-	9.95E-02	1.92E+00	1.66E-04	+/- 8.78E-06
30	778.90	1.07E-01	+/-	5.29E-02	1.87E+00	1.57E-04	+/- 7.69E-06
31	1274.58	9.02E-01	+/-	1.03E-01	1.64E+00	1.11E-04	+/- 4.96E-06

Segment: 4 Detector: DET01 (# 1) Position: 4

Elapsed Live Time: 99.85 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.247 +/- 0.0096
SE-75	264.65	0.000 +/- 0.0000	0.310 +/- 0.0025
SE-75	279.53	0.000 +/- 0.0000	0.318 +/- 0.0032
SE-75	400.65	0.000 +/- 0.0000	0.362 +/- 0.0040

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.53	1.93E+01	+/-	8.89E-01	3.19E+00	3.58E-06	+/-	4.95E-06
2	35.10	1.01E+03	+/-	5.14E+00	2.24E+00	2.00E-05	+/-	1.66E-05
3	49.74	1.63E+02	+/-	4.32E+00	1.92E+00	6.20E-05	+/-	2.98E-05
4	59.59	4.82E+03	+/-	2.06E+01	1.83E+00	9.83E-05	+/-	3.39E-05
5	98.67	4.15E+01	+/-	1.73E+00	1.68E+00	2.39E-04	+/-	2.43E-05
6	103.19	1.20E+01	+/-	1.65E+00	1.67E+00	2.52E-04	+/-	2.25E-05
7	110.99	8.24E+00	+/-	1.29E+00	1.66E+00	2.73E-04	+/-	1.97E-05
8	114.49	4.04E+00	+/-	1.16E+00	1.65E+00	2.82E-04	+/-	1.87E-05
9	118.69	4.60E+00	+/-	1.11E+00	1.65E+00	2.91E-04	+/-	1.77E-05
10	129.29	3.35E+01	+/-	1.00E+00	1.63E+00	3.12E-04	+/-	1.61E-05
11	148.57	3.69E+00	+/-	7.12E-01	1.61E+00	3.40E-04	+/-	1.63E-05
12	152.68	1.21E+00	+/-	4.32E-01	1.60E+00	3.45E-04	+/-	1.66E-05
13	164.65	1.12E+00	+/-	5.74E-01	1.59E+00	3.56E-04	+/-	1.76E-05
14	207.97	2.29E+01	+/-	6.86E-01	1.55E+00	3.71E-04	+/-	1.94E-05
15	267.50	6.93E-01	+/-	2.47E-01	1.51E+00	3.58E-04	+/-	1.73E-05

16	311.90	1.17E+00	+/-	3.09E-01	1.48E+00	3.38E-04	+/-	1.48E-05
17	332.67	3.26E+00	+/-	3.94E-01	1.47E+00	3.28E-04	+/-	1.37E-05
18	344.98	3.49E+00	+/-	3.23E-01	1.46E+00	3.21E-04	+/-	1.32E-05
19	368.34	1.35E+00	+/-	2.63E-01	1.45E+00	3.10E-04	+/-	1.23E-05
20	375.02	1.06E+01	+/-	4.09E-01	1.45E+00	3.06E-04	+/-	1.21E-05
21	383.11	6.80E-01	+/-	2.17E-01	1.44E+00	3.02E-04	+/-	1.18E-05
22	392.80	3.79E+00	+/-	2.43E-01	1.44E+00	2.98E-04	+/-	1.16E-05
23	413.70	1.03E+01	+/-	3.49E-01	1.43E+00	2.87E-04	+/-	1.11E-05
24	422.36	7.76E-01	+/-	1.61E-01	1.42E+00	2.83E-04	+/-	1.10E-05
25	451.18	1.47E+00	+/-	1.66E-01	1.41E+00	2.70E-04	+/-	1.06E-05
26	531.04	1.42E-01	+/-	6.15E-02	1.38E+00	2.37E-04	+/-	1.01E-05
27	662.42	4.91E-01	+/-	1.00E-01	1.33E+00	1.95E-04	+/-	9.03E-06
28	778.90	4.62E-02	+/-	3.85E-02	1.30E+00	1.67E-04	+/-	7.66E-06
29	1333.24	6.27E-02	+/-	3.84E-02	1.22E+00	9.83E-05	+/-	5.12E-06

Segment: 5 Detector: DET01 (# 1) Position: 5

Elapsed Live Time: 107.97 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.023 +/- 0.0005
SE-75	279.53	0.000 +/- 0.0000	0.024 +/- 0.0007
SE-75	400.65	0.000 +/- 0.0000	0.036 +/- 0.0010

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.60	7.43E+00	+/-	5.42E-01	4.10E+00	1.95E-06	+/-	2.78E-06
2	35.10	1.01E+03	+/-	4.92E+00	4.10E+00	1.48E-05	+/-	1.27E-05
3	49.69	4.79E+01	+/-	2.53E+00	4.10E+00	5.50E-05	+/-	2.72E-05
4	59.72	1.52E+03	+/-	7.32E+00	4.10E+00	9.38E-05	+/-	3.30E-05
5	67.45	2.72E+00	+/-	6.40E-01	4.10E+00	1.26E-04	+/-	3.45E-05
6	98.81	1.93E+01	+/-	9.77E-01	4.10E+00	2.49E-04	+/-	2.52E-05
7	103.56	5.68E+00	+/-	9.25E-01	4.10E+00	2.64E-04	+/-	2.32E-05
8	111.28	3.34E+00	+/-	7.64E-01	4.10E+00	2.86E-04	+/-	2.04E-05
9	129.29	1.94E+01	+/-	7.08E-01	4.10E+00	3.26E-04	+/-	1.67E-05
10	148.57	2.88E+00	+/-	4.77E-01	3.95E+00	3.54E-04	+/-	1.71E-05
11	164.76	6.82E-01	+/-	3.70E-01	3.78E+00	3.68E-04	+/-	1.86E-05
12	171.43	1.09E+00	+/-	4.17E-01	3.71E+00	3.71E-04	+/-	1.92E-05
13	208.13	1.01E+01	+/-	4.81E-01	3.41E+00	3.75E-04	+/-	2.04E-05

14	279.54	3.74E-01	+/-	2.40E-01	3.00E+00	3.45E-04	+/- 1.68E-05
15	300.10	4.26E-01	+/-	2.30E-01	2.96E+00	3.33E-04	+/- 1.55E-05
16	311.90	1.13E+00	+/-	2.34E-01	2.93E+00	3.26E-04	+/- 1.48E-05
17	332.85	2.30E+00	+/-	2.73E-01	2.88E+00	3.14E-04	+/- 1.36E-05
18	345.12	2.12E+00	+/-	2.44E-01	2.85E+00	3.07E-04	+/- 1.30E-05
19	375.08	5.67E+00	+/-	2.98E-01	2.79E+00	2.90E-04	+/- 1.18E-05
20	382.83	3.22E-01	+/-	1.31E-01	2.78E+00	2.85E-04	+/- 1.16E-05
21	392.93	1.88E+00	+/-	1.88E-01	2.76E+00	2.80E-04	+/- 1.13E-05
22	413.70	4.92E+00	+/-	2.38E-01	2.72E+00	2.69E-04	+/- 1.09E-05
23	422.61	5.08E-01	+/-	1.22E-01	2.70E+00	2.65E-04	+/- 1.07E-05
24	451.52	8.46E-01	+/-	1.19E-01	2.63E+00	2.51E-04	+/- 1.03E-05
25	510.52	1.44E+00	+/-	1.39E-01	2.52E+00	2.26E-04	+/- 9.86E-06
26	662.42	3.09E-01	+/-	7.26E-02	2.29E+00	1.79E-04	+/- 8.77E-06
27	778.90	5.92E-02	+/-	3.94E-02	2.16E+00	1.54E-04	+/- 7.51E-06
28	867.39	4.37E-02	+/-	2.89E-02	2.08E+00	1.40E-04	+/- 6.44E-06
29	1408.01	2.76E-02	+/-	1.59E-02	1.79E+00	9.75E-05	+/- 6.10E-06
30	2616.49	1.29E-01	+/-	3.44E-02	1.61E+00	8.56E-05	+/- 2.98E-05

Segment: 6 Detector: DET01 (# 1) Position: 6

Elapsed Live Time: 111.82 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.013 +/- 0.0003
SE-75	279.53	0.000 +/- 0.0000	0.013 +/- 0.0005
SE-75	400.65	0.000 +/- 0.0000	0.023 +/- 0.0008

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.73	2.76E+00 +/- 3.42E-01	4.10E+00	7.89E-07 +/- 1.09E-06
2	35.10	1.01E+03 +/- 4.85E+00	4.10E+00	8.04E-06 +/- 6.71E-06
3	59.81	2.88E+02 +/- 2.51E+00	4.10E+00	6.97E-05 +/- 2.41E-05
4	67.67	2.80E+00 +/- 4.74E-01	4.10E+00	9.96E-05 +/- 2.66E-05
5	98.67	8.76E+00 +/- 8.14E-01	4.10E+00	2.22E-04 +/- 2.26E-05
6	111.14	3.53E+00 +/- 6.01E-01	4.10E+00	2.63E-04 +/- 1.90E-05
7	129.29	1.62E+01 +/- 5.89E-01	4.10E+00	3.10E-04 +/- 1.61E-05
8	148.57	1.34E+00 +/- 4.00E-01	4.02E+00	3.45E-04 +/- 1.67E-05
9	208.19	4.57E+00 +/- 3.84E-01	3.70E+00	3.81E-04 +/- 2.03E-05
10	279.54	3.96E-01 +/- 1.69E-01	3.42E+00	3.57E-04 +/- 1.71E-05

11	311.90	8.81E-01	+/-	2.23E-01	3.31E+00	3.39E-04	+/-	1.51E-05
12	332.88	1.27E+00	+/-	2.29E-01	3.24E+00	3.26E-04	+/-	1.39E-05
13	345.21	1.88E+00	+/-	2.20E-01	3.20E+00	3.19E-04	+/-	1.33E-05
14	375.14	4.39E+00	+/-	2.47E-01	3.12E+00	3.02E-04	+/-	1.21E-05
15	382.93	3.93E-01	+/-	1.31E-01	3.10E+00	2.97E-04	+/-	1.19E-05
16	393.03	1.57E+00	+/-	1.61E-01	3.07E+00	2.92E-04	+/-	1.16E-05
17	413.70	3.98E+00	+/-	2.16E-01	3.01E+00	2.81E-04	+/-	1.11E-05
18	451.67	5.21E-01	+/-	1.00E-01	2.92E+00	2.62E-04	+/-	1.05E-05
19	511.02	2.01E+00	+/-	1.46E-01	2.78E+00	2.36E-04	+/-	9.96E-06
20	867.39	3.36E-02	+/-	2.62E-02	2.26E+00	1.46E-04	+/-	6.40E-06
21	1275.03	6.37E-01	+/-	8.46E-02	1.98E+00	1.10E-04	+/-	4.84E-06

Segment: 7 Detector: DET01 (# 1) Position: 7

Elapsed Live Time: 112.36 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Some transmission peaks rejected.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.000 +/- 0.0000
SE-75	264.65	0.000 +/- 0.0000	0.016 +/- 0.0004
SE-75	279.53	0.000 +/- 0.0000	0.016 +/- 0.0006
SE-75	400.65	0.000 +/- 0.0000	0.029 +/- 0.0009

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.73	2.18E+00	+/-	2.92E-01	4.10E+00	9.89E-09	+/-	9.37E-08
2	35.10	1.01E+03	+/-	4.80E+00	4.10E+00	9.59E-07	+/-	4.73E-06
3	59.82	1.92E+02	+/-	1.98E+00	4.10E+00	4.09E-05	+/-	6.27E-05
4	98.72	6.68E+00	+/-	7.39E-01	4.10E+00	2.20E-04	+/-	5.20E-05
5	104.19	2.68E+00	+/-	4.72E-01	4.06E+00	2.44E-04	+/-	4.14E-05
6	111.44	2.10E+00	+/-	5.78E-01	4.00E+00	2.74E-04	+/-	2.85E-05
7	114.71	1.37E+00	+/-	4.70E-01	3.98E+00	2.86E-04	+/-	2.37E-05
8	129.29	1.59E+01	+/-	5.52E-01	3.88E+00	3.30E-04	+/-	1.98E-05
9	144.42	6.89E-01	+/-	3.61E-01	3.79E+00	3.62E-04	+/-	3.20E-05
10	148.57	6.04E-01	+/-	3.64E-01	3.76E+00	3.68E-04	+/-	3.49E-05
11	171.05	5.50E-01	+/-	3.06E-01	3.65E+00	3.89E-04	+/-	4.30E-05
12	208.21	4.45E+00	+/-	3.70E-01	3.49E+00	3.91E-04	+/-	3.83E-05
13	311.90	5.91E-01	+/-	1.87E-01	3.17E+00	3.27E-04	+/-	1.48E-05
14	333.02	1.29E+00	+/-	2.04E-01	3.10E+00	3.13E-04	+/-	1.44E-05
15	345.26	1.47E+00	+/-	1.90E-01	3.06E+00	3.06E-04	+/-	1.46E-05
16	375.11	3.95E+00	+/-	2.38E-01	2.96E+00	2.88E-04	+/-	1.54E-05

17	383.28	3.29E-01	+/-	1.31E-01	2.94E+00	2.83E-04	+/- 1.56E-05
18	393.29	1.50E+00	+/-	1.46E-01	2.91E+00	2.78E-04	+/- 1.59E-05
19	413.70	3.55E+00	+/-	1.99E-01	2.86E+00	2.67E-04	+/- 1.63E-05
20	451.48	4.67E-01	+/-	9.97E-02	2.77E+00	2.49E-04	+/- 1.63E-05
21	662.42	6.36E-02	+/-	4.33E-02	2.40E+00	1.82E-04	+/- 1.06E-05
22	1275.18	6.95E-01	+/-	8.17E-02	1.91E+00	1.08E-04	+/- 4.90E-06

Segment: 8 Detector: DET01 (# 1) Position: 8

Elapsed Live Time: 112.79 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.266 +/- 0.0084
SE-75	264.65	0.000 +/- 0.0000	0.319 +/- 0.0024
SE-75	279.53	0.000 +/- 0.0000	0.329 +/- 0.0030
SE-75	400.65	0.000 +/- 0.0000	0.375 +/- 0.0038

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.70	1.42E+00 +/- 2.62E-01	3.03E+00	5.76E-09 +/- 5.42E-08
2	35.10	1.01E+03 +/- 4.79E+00	2.16E+00	6.89E-07 +/- 3.37E-06
3	59.87	1.42E+02 +/- 1.65E+00	1.77E+00	3.42E-05 +/- 5.20E-05
4	98.75	6.97E+00 +/- 5.86E-01	1.64E+00	1.98E-04 +/- 4.67E-05
5	104.24	1.57E+00 +/- 4.05E-01	1.63E+00	2.21E-04 +/- 3.74E-05
6	111.36	2.24E+00 +/- 4.34E-01	1.62E+00	2.49E-04 +/- 2.62E-05
7	129.29	1.22E+01 +/- 4.63E-01	1.59E+00	3.05E-04 +/- 1.85E-05
8	148.57	8.85E-01 +/- 3.21E-01	1.58E+00	3.45E-04 +/- 3.27E-05
9	208.20	3.33E+00 +/- 3.16E-01	1.53E+00	3.76E-04 +/- 3.72E-05
10	244.70	2.93E-01 +/- 1.52E-01	1.51E+00	3.62E-04 +/- 2.67E-05
11	311.90	7.21E-01 +/- 1.73E-01	1.46E+00	3.23E-04 +/- 1.44E-05
12	333.18	1.30E+00 +/- 1.99E-01	1.45E+00	3.10E-04 +/- 1.38E-05
13	345.11	1.22E+00 +/- 1.67E-01	1.45E+00	3.03E-04 +/- 1.38E-05
14	375.17	2.72E+00 +/- 1.96E-01	1.43E+00	2.86E-04 +/- 1.46E-05
15	383.01	2.49E-01 +/- 9.98E-02	1.43E+00	2.82E-04 +/- 1.48E-05
16	393.04	1.08E+00 +/- 1.33E-01	1.42E+00	2.77E-04 +/- 1.50E-05
17	413.70	2.61E+00 +/- 1.77E-01	1.41E+00	2.66E-04 +/- 1.54E-05
18	451.49	4.51E-01 +/- 9.85E-02	1.40E+00	2.49E-04 +/- 1.56E-05
19	510.80	1.26E+00 +/- 1.30E-01	1.37E+00	2.26E-04 +/- 1.47E-05
20	662.42	6.83E-02 +/- 4.48E-02	1.32E+00	1.83E-04 +/- 1.03E-05
21	1275.17	3.39E-01 +/- 7.07E-02	1.22E+00	1.01E-04 +/- 4.77E-06
22	2617.56	2.71E-01 +/- 5.39E-02	1.16E+00	3.52E-05 +/- 3.11E-05

Segment: 9 Detector: DET01 (# 1) Position: 9

Elapsed Live Time: 112.74 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.228 +/- 0.0087
SE-75	264.65	0.000 +/- 0.0000	0.390 +/- 0.0028
SE-75	279.53	0.000 +/- 0.0000	0.400 +/- 0.0035
SE-75	400.65	0.000 +/- 0.0000	0.460 +/- 0.0044

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.79E+00	2.33E+00	1.75E-05 +/- 8.88E-05
2	50.08	1.17E+01 +/- 1.10E+00	1.98E+00	6.21E-05 +/- 1.52E-04
3	59.87	2.34E+02 +/- 1.95E+00	1.88E+00	1.01E-04 +/- 1.59E-04
4	67.34	9.23E-01 +/- 3.20E-01	1.83E+00	1.33E-04 +/- 1.50E-04
5	98.92	5.67E+00 +/- 5.21E-01	1.73E+00	2.52E-04 +/- 6.03E-05
6	129.29	8.84E+00 +/- 4.39E-01	1.67E+00	3.23E-04 +/- 1.97E-05
7	148.57	5.02E-01 +/- 2.96E-01	1.63E+00	3.48E-04 +/- 3.41E-05
8	208.29	3.44E+00 +/- 3.02E-01	1.50E+00	3.66E-04 +/- 3.76E-05
9	238.93	1.84E+00 +/- 2.41E-01	1.44E+00	3.56E-04 +/- 2.87E-05
10	244.70	2.73E-01 +/- 1.83E-01	1.43E+00	3.54E-04 +/- 2.70E-05
11	300.10	4.74E-01 +/- 1.74E-01	1.38E+00	3.26E-04 +/- 1.55E-05
12	311.90	3.60E-01 +/- 1.66E-01	1.37E+00	3.20E-04 +/- 1.45E-05
13	333.06	7.37E-01 +/- 1.88E-01	1.36E+00	3.08E-04 +/- 1.39E-05
14	338.28	5.63E-01 +/- 1.91E-01	1.36E+00	3.05E-04 +/- 1.40E-05
15	345.12	9.88E-01 +/- 1.66E-01	1.35E+00	3.01E-04 +/- 1.41E-05
16	375.13	2.26E+00 +/- 2.15E-01	1.34E+00	2.86E-04 +/- 1.49E-05
17	383.02	3.34E-01 +/- 1.07E-01	1.33E+00	2.82E-04 +/- 1.52E-05
18	393.18	8.22E-01 +/- 1.50E-01	1.33E+00	2.77E-04 +/- 1.55E-05
19	413.70	2.22E+00 +/- 1.90E-01	1.32E+00	2.67E-04 +/- 1.59E-05
20	451.58	2.39E-01 +/- 9.54E-02	1.31E+00	2.50E-04 +/- 1.61E-05
21	463.50	2.34E-01 +/- 9.88E-02	1.30E+00	2.45E-04 +/- 1.60E-05
22	510.83	9.38E-01 +/- 1.40E-01	1.29E+00	2.26E-04 +/- 1.52E-05
23	583.51	1.86E+00 +/- 1.52E-01	1.27E+00	2.03E-04 +/- 1.30E-05
24	662.42	2.06E-01 +/- 9.26E-02	1.25E+00	1.82E-04 +/- 1.04E-05
25	727.65	4.93E-01 +/- 9.07E-02	1.24E+00	1.68E-04 +/- 8.67E-06
26	911.41	1.25E+00 +/- 1.11E-01	1.21E+00	1.40E-04 +/- 6.14E-06
27	969.31	6.06E-01 +/- 1.17E-01	1.20E+00	1.33E-04 +/- 5.79E-06
28	2617.19	7.38E-01 +/- 8.06E-02	1.13E+00	9.33E-05 +/- 8.22E-05

Segment: 10 Detector: DET01 (# 1) Position: 10

Elapsed Live Time: 111.75 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.073 +/- 0.0056
SE-75	264.65	0.000 +/- 0.0000	0.165 +/- 0.0015
SE-75	279.53	0.000 +/- 0.0000	0.173 +/- 0.0020
SE-75	400.65	0.000 +/- 0.0000	0.226 +/- 0.0027

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.62	2.84E+00 +/- 3.41E-01	4.10E+00	3.91E-07 +/- 5.43E-07
2	35.10	1.01E+03 +/- 4.81E+00	3.67E+00	5.68E-06 +/- 4.74E-06
3	50.17	1.85E+01 +/- 1.16E+00	2.95E+00	3.31E-05 +/- 1.58E-05
4	59.83	6.71E+02 +/- 3.69E+00	2.75E+00	6.46E-05 +/- 2.22E-05
5	98.82	1.55E+01 +/- 6.87E-01	2.43E+00	2.31E-04 +/- 2.33E-05
6	103.40	4.40E+00 +/- 6.13E-01	2.41E+00	2.49E-04 +/- 2.20E-05
7	111.25	3.07E+00 +/- 5.13E-01	2.38E+00	2.77E-04 +/- 1.99E-05
8	129.29	1.67E+01 +/- 5.30E-01	2.32E+00	3.30E-04 +/- 1.70E-05
9	148.57	1.85E+00 +/- 3.36E-01	2.24E+00	3.68E-04 +/- 1.75E-05
10	160.32	1.56E+00 +/- 3.22E-01	2.19E+00	3.83E-04 +/- 1.86E-05
11	208.19	7.02E+00 +/- 4.04E-01	2.00E+00	4.01E-04 +/- 2.09E-05
12	238.85	1.84E+00 +/- 2.41E-01	1.91E+00	3.91E-04 +/- 1.98E-05
13	311.90	4.16E-01 +/- 1.82E-01	1.77E+00	3.45E-04 +/- 1.50E-05
14	332.84	1.88E+00 +/- 2.41E-01	1.74E+00	3.31E-04 +/- 1.38E-05
15	345.12	1.52E+00 +/- 2.00E-01	1.73E+00	3.22E-04 +/- 1.32E-05
16	375.15	5.10E+00 +/- 2.65E-01	1.70E+00	3.03E-04 +/- 1.20E-05
17	383.03	3.29E-01 +/- 1.36E-01	1.69E+00	2.98E-04 +/- 1.18E-05
18	392.96	2.02E+00 +/- 1.71E-01	1.68E+00	2.91E-04 +/- 1.15E-05
19	413.70	4.63E+00 +/- 2.34E-01	1.66E+00	2.79E-04 +/- 1.11E-05
20	423.01	1.98E-01 +/- 1.15E-01	1.65E+00	2.74E-04 +/- 1.09E-05
21	451.85	6.16E-01 +/- 1.11E-01	1.63E+00	2.58E-04 +/- 1.05E-05
22	463.13	2.42E-01 +/- 1.01E-01	1.62E+00	2.52E-04 +/- 1.04E-05
23	511.27	9.10E-01 +/- 1.26E-01	1.59E+00	2.30E-04 +/- 1.00E-05
24	536.11	1.25E-01 +/- 7.55E-02	1.57E+00	2.20E-04 +/- 9.86E-06
25	583.32	1.45E+00 +/- 1.41E-01	1.55E+00	2.03E-04 +/- 9.53E-06
26	727.82	3.12E-01 +/- 7.31E-02	1.48E+00	1.65E-04 +/- 8.14E-06
27	911.50	1.27E+00 +/- 1.10E-01	1.42E+00	1.37E-04 +/- 5.97E-06
28	969.35	4.68E-01 +/- 1.06E-01	1.40E+00	1.31E-04 +/- 5.35E-06
29	1085.91	4.24E-02 +/- 2.82E-02	1.37E+00	1.21E-04 +/- 4.45E-06
30	2616.69	7.71E-01 +/- 8.27E-02	1.25E+00	1.33E-04 +/- 4.54E-05

Segment: 11 Detector: DET01 (# 1) Position: 11

Elapsed Live Time: 111.53 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.123 +/- 0.0068
SE-75	264.65	0.000 +/- 0.0000	0.249 +/- 0.0020
SE-75	279.53	0.000 +/- 0.0000	0.262 +/- 0.0026
SE-75	400.65	0.000 +/- 0.0000	0.316 +/- 0.0034

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.64	3.53E+00 +/- 3.57E-01	4.10E+00	5.39E-07 +/- 7.43E-07
2	35.10	1.01E+03 +/- 4.82E+00	3.03E+00	6.75E-06 +/- 5.60E-06
3	49.93	2.60E+01 +/- 1.26E+00	2.49E+00	3.53E-05 +/- 1.69E-05
4	59.84	8.17E+02 +/- 4.24E+00	2.34E+00	6.79E-05 +/- 2.32E-05
5	98.91	1.79E+01 +/- 7.26E-01	2.10E+00	2.29E-04 +/- 2.29E-05
6	103.43	5.12E+00 +/- 6.53E-01	2.08E+00	2.45E-04 +/- 2.16E-05
7	111.43	2.27E+00 +/- 5.46E-01	2.06E+00	2.72E-04 +/- 1.93E-05
8	114.87	1.95E+00 +/- 4.50E-01	2.05E+00	2.83E-04 +/- 1.85E-05
9	129.29	1.77E+01 +/- 5.89E-01	2.02E+00	3.21E-04 +/- 1.65E-05
10	148.57	2.06E+00 +/- 3.36E-01	1.95E+00	3.56E-04 +/- 1.70E-05
11	203.56	8.09E-01 +/- 3.07E-01	1.77E+00	3.89E-04 +/- 2.04E-05
12	208.22	8.57E+00 +/- 4.08E-01	1.75E+00	3.89E-04 +/- 2.04E-05
13	279.54	2.43E-01 +/- 1.55E-01	1.59E+00	3.58E-04 +/- 1.69E-05
14	311.90	7.00E-01 +/- 1.71E-01	1.57E+00	3.37E-04 +/- 1.49E-05
15	332.85	2.02E+00 +/- 2.37E-01	1.55E+00	3.24E-04 +/- 1.37E-05
16	345.17	1.81E+00 +/- 2.11E-01	1.54E+00	3.16E-04 +/- 1.31E-05
17	375.19	5.26E+00 +/- 2.75E-01	1.52E+00	2.97E-04 +/- 1.19E-05
18	383.12	3.99E-01 +/- 1.40E-01	1.51E+00	2.93E-04 +/- 1.17E-05
19	393.01	1.79E+00 +/- 1.60E-01	1.51E+00	2.87E-04 +/- 1.14E-05
20	413.70	5.31E+00 +/- 2.34E-01	1.49E+00	2.75E-04 +/- 1.09E-05
21	422.71	3.45E-01 +/- 1.10E-01	1.49E+00	2.70E-04 +/- 1.08E-05
22	662.42	2.30E-01 +/- 5.60E-02	1.38E+00	1.80E-04 +/- 8.65E-06
23	1112.12	3.55E-02 +/- 1.77E-02	1.28E+00	1.20E-04 +/- 4.37E-06

Segment: 12 Detector: DET01 (# 1) Position: 12

Elapsed Live Time: 112.37 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.268 +/- 0.0093
SE-75	264.65	0.000 +/- 0.0000	0.438 +/- 0.0031
SE-75	279.53	0.000 +/- 0.0000	0.448 +/- 0.0038
SE-75	400.65	0.000 +/- 0.0000	0.509 +/- 0.0047

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.63	2.19E+00 +/- 2.88E-01	3.02E+00	7.20E-07 +/- 9.93E-07
2	35.10	1.01E+03 +/- 4.81E+00	2.15E+00	7.63E-06 +/- 6.33E-06
3	49.90	1.80E+01 +/- 1.12E+00	1.85E+00	3.61E-05 +/- 1.73E-05
4	59.85	5.03E+02 +/- 3.01E+00	1.77E+00	6.73E-05 +/- 2.31E-05
5	98.90	1.07E+01 +/- 5.79E-01	1.64E+00	2.17E-04 +/- 2.20E-05
6	103.46	3.59E+00 +/- 5.53E-01	1.63E+00	2.32E-04 +/- 2.07E-05
7	111.43	9.56E-01 +/- 4.41E-01	1.61E+00	2.58E-04 +/- 1.86E-05
8	114.83	1.52E+00 +/- 3.60E-01	1.61E+00	2.68E-04 +/- 1.78E-05
9	129.29	1.17E+01 +/- 4.45E-01	1.59E+00	3.04E-04 +/- 1.59E-05
10	148.57	9.74E-01 +/- 2.87E-01	1.55E+00	3.39E-04 +/- 1.64E-05
11	208.19	4.93E+00 +/- 3.25E-01	1.43E+00	3.76E-04 +/- 1.99E-05
12	244.70	2.45E-01 +/- 1.57E-01	1.37E+00	3.70E-04 +/- 1.88E-05
13	311.90	6.13E-01 +/- 1.47E-01	1.32E+00	3.36E-04 +/- 1.48E-05
14	332.84	1.27E+00 +/- 1.82E-01	1.31E+00	3.24E-04 +/- 1.37E-05
15	345.05	1.18E+00 +/- 1.67E-01	1.30E+00	3.17E-04 +/- 1.31E-05
16	375.17	3.45E+00 +/- 2.17E-01	1.29E+00	3.00E-04 +/- 1.19E-05
17	382.81	9.33E-01 +/- 1.27E-01	1.29E+00	2.96E-04 +/- 1.17E-05
18	393.00	9.87E-01 +/- 1.27E-01	1.28E+00	2.90E-04 +/- 1.14E-05
19	413.70	3.33E+00 +/- 1.81E-01	1.27E+00	2.79E-04 +/- 1.09E-05
20	422.63	2.08E-01 +/- 8.62E-02	1.27E+00	2.75E-04 +/- 1.07E-05
21	662.42	1.62E-01 +/- 4.56E-02	1.21E+00	1.85E-04 +/- 8.58E-06
22	867.39	8.85E-03 +/- 8.85E-03	1.18E+00	1.45E-04 +/- 6.27E-06
23	1408.01	8.85E-03 +/- 8.85E-03	1.14E+00	1.02E-04 +/- 6.34E-06

Segment: 13 Detector: DET01 (# 1) Position: 13

Elapsed Live Time: 112.51 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.151 +/- 0.0074
SE-75	264.65	0.000 +/- 0.0000	0.293 +/- 0.0022
SE-75	279.53	0.000 +/- 0.0000	0.297 +/- 0.0028
SE-75	400.65	0.000 +/- 0.0000	0.362 +/- 0.0037

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.73	2.18E+00 +/- 2.65E-01	4.10E+00	1.28E-06 +/- 1.82E-06
2	35.10	1.01E+03 +/- 4.80E+00	2.79E+00	1.10E-05 +/- 9.51E-06
3	59.85	4.79E+02 +/- 2.89E+00	2.18E+00	8.19E-05 +/- 2.89E-05
4	98.78	8.18E+00 +/- 5.30E-01	1.97E+00	2.37E-04 +/- 2.43E-05
5	103.35	2.55E+00 +/- 4.68E-01	1.96E+00	2.52E-04 +/- 2.26E-05
6	111.30	2.04E+00 +/- 3.69E-01	1.94E+00	2.77E-04 +/- 2.00E-05
7	129.29	9.90E+00 +/- 4.09E-01	1.90E+00	3.21E-04 +/- 1.67E-05
8	148.57	6.46E-01 +/- 2.61E-01	1.84E+00	3.52E-04 +/- 1.72E-05
9	208.21	3.95E+00 +/- 2.86E-01	1.66E+00	3.80E-04 +/- 2.07E-05
10	244.70	3.88E-01 +/- 1.41E-01	1.58E+00	3.70E-04 +/- 1.94E-05
11	311.90	3.83E-01 +/- 1.34E-01	1.50E+00	3.33E-04 +/- 1.50E-05
12	332.82	8.83E-01 +/- 1.64E-01	1.49E+00	3.20E-04 +/- 1.38E-05
13	344.91	6.36E-01 +/- 1.41E-01	1.48E+00	3.13E-04 +/- 1.32E-05
14	375.15	2.20E+00 +/- 1.86E-01	1.45E+00	2.95E-04 +/- 1.20E-05
15	382.81	1.98E-01 +/- 1.20E-01	1.45E+00	2.91E-04 +/- 1.18E-05
16	392.99	9.72E-01 +/- 1.11E-01	1.44E+00	2.85E-04 +/- 1.15E-05
17	400.66	1.46E-01 +/- 7.88E-02	1.44E+00	2.81E-04 +/- 1.13E-05
18	413.70	2.20E+00 +/- 1.58E-01	1.43E+00	2.74E-04 +/- 1.10E-05
19	451.58	2.82E-01 +/- 6.93E-02	1.41E+00	2.55E-04 +/- 1.05E-05
20	1408.01	2.20E-02 +/- 1.61E-02	1.21E+00	9.60E-05 +/- 6.10E-06

Segment: 14 Detector: DET01 (# 1) Position: 14

Elapsed Live Time: 112.73 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.174 +/- 0.0075
SE-75	264.65	0.000 +/- 0.0000	0.284 +/- 0.0022
SE-75	279.53	0.000 +/- 0.0000	0.294 +/- 0.0028
SE-75	400.65	0.000 +/- 0.0000	0.353 +/- 0.0037

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.69	2.03E+00 +/- 2.53E-01	3.86E+00	6.91E-07 +/- 6.56E-06
2	35.10	1.01E+03 +/- 4.79E+00	2.63E+00	8.94E-06 +/- 4.41E-05
3	50.01	1.54E+01 +/- 9.94E-01	2.20E+00	4.46E-05 +/- 1.07E-04
4	59.85	4.12E+02 +/- 2.60E+00	2.08E+00	8.15E-05 +/- 1.25E-04
5	98.89	6.13E+00 +/- 4.68E-01	1.88E+00	2.39E-04 +/- 5.61E-05
6	103.41	3.10E+00 +/- 4.24E-01	1.87E+00	2.54E-04 +/- 4.53E-05
7	111.16	1.75E+00 +/- 3.42E-01	1.85E+00	2.76E-04 +/- 2.94E-05
8	129.29	7.31E+00 +/- 3.62E-01	1.82E+00	3.17E-04 +/- 1.90E-05
9	148.57	1.02E+00 +/- 2.31E-01	1.78E+00	3.44E-04 +/- 3.29E-05
10	208.14	3.37E+00 +/- 2.56E-01	1.65E+00	3.63E-04 +/- 3.64E-05
11	311.90	5.38E-01 +/- 1.18E-01	1.51E+00	3.18E-04 +/- 1.42E-05
12	333.01	5.86E-01 +/- 1.44E-01	1.49E+00	3.07E-04 +/- 1.37E-05
13	345.05	4.78E-01 +/- 9.65E-02	1.48E+00	3.01E-04 +/- 1.38E-05
14	375.17	1.96E+00 +/- 1.70E-01	1.46E+00	2.85E-04 +/- 1.46E-05
15	392.94	7.13E-01 +/- 1.00E-01	1.45E+00	2.77E-04 +/- 1.51E-05
16	400.66	1.26E-01 +/- 6.05E-02	1.45E+00	2.73E-04 +/- 1.53E-05
17	413.70	1.95E+00 +/- 1.42E-01	1.44E+00	2.67E-04 +/- 1.56E-05
18	452.02	2.97E-01 +/- 7.17E-02	1.42E+00	2.50E-04 +/- 1.58E-05
19	662.42	1.05E-01 +/- 3.87E-02	1.34E+00	1.83E-04 +/- 1.04E-05
20	1085.91	8.77E-03 +/- 8.77E-03	1.25E+00	1.18E-04 +/- 5.01E-06
21	1408.01	1.75E-02 +/- 1.24E-02	1.22E+00	9.39E-05 +/- 6.30E-06

Segment: 15 Detector: DET01 (# 1) Position: 15

Elapsed Live Time: 113.44 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.398 +/- 0.0109
SE-75	264.65	0.000 +/- 0.0000	0.568 +/- 0.0039
SE-75	279.53	0.000 +/- 0.0000	0.571 +/- 0.0046
SE-75	400.65	0.000 +/- 0.0000	0.626 +/- 0.0055

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	1.76E+00	1.45E-08 +/- 6.96E-08
2	59.84	1.36E+02 +/- 1.36E+00	1.51E+00	1.13E-05 +/- 1.68E-05
3	98.73	2.23E+00 +/- 3.33E-01	1.42E+00	1.82E-04 +/- 4.21E-05
4	129.29	2.43E+00 +/- 2.49E-01	1.40E+00	3.37E-04 +/- 1.99E-05
5	148.57	4.28E-01 +/- 1.78E-01	1.37E+00	3.93E-04 +/- 3.63E-05
6	208.34	9.56E-01 +/- 1.71E-01	1.29E+00	4.15E-04 +/- 3.97E-05
7	279.54	1.68E-01 +/- 9.59E-02	1.23E+00	3.51E-04 +/- 1.80E-05
8	311.90	3.30E-01 +/- 7.98E-02	1.22E+00	3.22E-04 +/- 1.42E-05
9	375.00	8.02E-01 +/- 9.78E-02	1.20E+00	2.75E-04 +/- 1.43E-05
10	400.66	1.48E-01 +/- 5.28E-02	1.19E+00	2.59E-04 +/- 1.48E-05
11	413.70	5.73E-01 +/- 9.25E-02	1.19E+00	2.52E-04 +/- 1.49E-05
12	1085.91	2.11E-02 +/- 1.70E-02	1.11E+00	1.24E-04 +/- 5.17E-06

Segment: 16 Detector: DET01 (# 1) Position: 16

Elapsed Live Time: 113.71 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.540 +/- 0.0122
SE-75	264.65	0.000 +/- 0.0000	0.642 +/- 0.0044
SE-75	279.53	0.000 +/- 0.0000	0.655 +/- 0.0051
SE-75	400.65	0.000 +/- 0.0000	0.692 +/- 0.0059

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	1.48E+00	9.52E-10 +/- 5.35E-09
2	59.82	2.22E+01 +/- 5.90E-01	1.33E+00	3.47E-06 +/- 6.06E-06
3	413.70	8.27E-02 +/- 4.30E-02	1.14E+00	1.81E-04 +/- 1.21E-05
4	778.90	2.39E-02 +/- 2.51E-02	1.10E+00	1.14E-04 +/- 6.23E-06
5	1085.91	2.61E-02 +/- 1.51E-02	1.09E+00	9.33E-05 +/- 4.42E-06
6	1408.01	8.70E-03 +/- 8.70E-03	1.07E+00	7.39E-05 +/- 5.32E-06

Summed Spectrum

Peak Locate Report

Sample ID: LL85501243TRU
Peak Locate Performed on: 10-05-02 10:00:13 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192
Peak Search Sensitivity: 5.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	47.01	0.1649	23.43	20.69
2	70.45	0.0445	35.14	277.06
3	99.39	0.1753	49.60	14.14
4	119.19	0.0383	59.49	332.77
5	197.62	0.1303	98.67	29.01
6	206.65	0.1571	103.19	18.31
7	222.38	0.1874	111.05	13.99
8	229.22	0.2642	114.46	7.94
9	236.79	0.2786	118.24	6.01
10	258.94	0.0985	129.31	50.11
11	297.51	0.2021	148.58	12.45
12	329.49	0.2796	164.56	6.89
13	391.58	0.3355	195.58	5.14
14	416.27	0.0980	207.91	48.42
15	511.36	0.2834	255.42	5.58
16	535.31	0.2728	267.39	5.37
17	624.41	0.1984	311.91	10.05
18	665.95	0.1394	332.66	23.03
19	690.51	0.1399	344.93	21.34
20	737.15	0.2309	368.23	8.42
21	750.56	0.1014	374.94	37.47
22	766.26	0.2054	382.78	11.97
23	786.34	0.1391	392.81	19.82
24	827.98	0.1017	413.61	41.90
25	845.71	0.2137	422.47	9.10
26	903.60	0.1719	451.39	13.70
27	1022.43	0.2048	510.76	7.52
28	1167.52	0.2005	583.25	8.70
29	1325.69	0.2000	662.28	9.01
30	1444.85	0.2343	721.81	5.89
31	1824.45	0.2125	911.47	7.64
32	2551.92	0.1800	1274.92	9.02
33	5237.85	0.1803	2616.86	7.50

Errors quoted at 1.000 sigma

Summed Spectrum

Peak Analysis Report

Sample ID: LL85501243TRU
Peak Analysis Performed on: 10-05-02 10:00:14 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	45-	50	47.01	23.43	1.39E+04	243.32	2.19E+04
2	67-	73	70.45	35.14	1.74E+06	1336.89	2.46E+04
3	96-	102	99.39	49.60	8.71E+04	1004.15	4.45E+05
4	115-	122	119.19	59.49	3.33E+06	2114.05	5.48E+05
5	193-	201	197.62	98.67	3.63E+04	519.22	1.10E+05
6	202-	210	206.65	103.19	8.55E+03	497.48	1.05E+05
7	218-	226	222.38	111.05	6.01E+03	414.48	7.68E+04
8	226-	233	229.22	114.46	3.69E+03	376.36	6.81E+04
9	233-	240	236.79	118.24	7.75E+03	333.35	4.36E+04
10	254-	262	258.94	129.31	3.42E+04	312.90	2.92E+04
11	293-	301	297.51	148.58	5.24E+03	216.26	1.94E+04
12	325-	333	329.49	164.56	4.42E+02	184.77	1.57E+04
13	387-	395	391.58	195.58	9.90E+02	150.83	1.02E+04
14	411-	420	416.27	207.91	2.08E+04	232.39	1.43E+04
15	506-	516	511.36	255.42	8.25E+02	117.25	5.42E+03
16	530-	540	535.31	267.39	8.17E+02	112.49	4.96E+03
17	619-	629	624.41	311.91	1.63E+03	102.44	3.72E+03
18	660-	670	665.95	332.66	4.13E+03	130.48	5.26E+03
19	688-	695	690.51	344.93	4.43E+03	93.93	2.14E+03
20	731-	742	737.15	368.23	1.88E+03	92.24	2.64E+03
21	745-	755	750.56	374.94	1.22E+04	139.10	3.00E+03
22	765-	771	766.26	382.78	9.42E+02	79.79	1.93E+03
23	781-	791	786.34	392.81	4.38E+03	88.51	1.45E+03
24	822-	833	827.98	413.61	1.15E+04	121.45	1.31E+03
25	840-	851	845.71	422.47	6.47E+02	63.22	1.32E+03
26	898-	909	903.60	451.39	1.52E+03	56.50	6.69E+02
27	1016-	1028	1022.43	510.76	1.64E+03	54.66	5.14E+02
28	1161-	1173	1167.52	583.25	5.95E+02	37.31	3.04E+02
29	1319-	1331	1325.69	662.28	6.81E+02	37.22	2.68E+02
30	1438-	1451	1444.85	721.81	2.98E+02	31.80	2.53E+02
31	1817-	1831	1824.45	911.47	3.32E+02	25.92	1.18E+02
32	2544-	2559	2551.92	1274.92	5.73E+02	27.56	6.21E+01
33	5227-	5245	5237.85	2616.86	2.97E+02	18.24	1.01E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Summed Spectrum

Nuclide Identification Report

Sample ID: LL85501243TRU
Nuclide Library Used: C:\WAS\NLIB\LLNL.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Pulser	1.000	35.10*	100.00	2.106E+06	4.239E+06
Np-237	0.764	300.10	6.63		
		311.90*	38.60	5.445E+00	3.434E-01
Pu-239	0.999	413.70*	0.00	1.174E+06	2.422E+04
Pu-239A	1.000	129.29*	0.01	8.134E+05	1.885E+04
Am-241	0.999	662.42*	0.00	3.575E+05	1.971E+04
Pu-241	1.000	148.57*	0.00	3.653E+06	1.583E+05

* = Energy line found in the spectrum.
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10-05-02 10:00:13 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	23.43	1.2919E+02	1.75
3	49.60	8.0732E+02	1.16
4	59.49	3.0862E+04	0.11
5	98.67	3.3685E+02	1.43
6	103.19	7.9269E+01	5.82
7	111.05	5.5732E+01	6.90
8	114.46	3.4246E+01	10.19
9	118.24	7.1900E+01	4.30
12	164.56	4.1004E+00	41.79
13	195.58	9.1789E+00	15.24
14	207.91	1.9249E+02	1.12
15	255.42	7.6485E+00	14.22
16	267.39	7.5795E+00	13.76
18	332.66	3.8337E+01	3.16
19	344.93	4.1040E+01	2.12
20	368.23	1.7477E+01	4.90
21	374.94	1.1323E+02	1.14
22	382.78	8.7354E+00	8.47
23	392.81	4.0653E+01	2.02
25	422.47	6.0024E+00	9.77
26	451.39	1.4053E+01	3.73
27	510.76	1.5187E+01	3.34
28	583.25	5.5210E+00	6.27
30	721.81	2.7665E+00	10.66
31	911.47	3.0769E+00	7.81
32	1274.92	5.3127E+00	4.81
33	2616.86	2.7534E+00	6.14

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Combined Segment NID

NID Results Combiner Mode: Sum Activities

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		4.66E+07	+/-	2.39E+08		8.28E+02	+/-	4.24E+03
SE-75	<	4.17E-01	+/-	2.95E-02	<	7.41E-06	+/-	5.25E-07
EU-152x	<	3.40E-01	+/-	2.59E-02	<	6.04E-06	+/-	4.60E-07
U-233	<	2.20E+04	+/-	1.94E+03	<	3.90E-01	+/-	3.45E-02
U-235	<	6.20E-01	+/-	8.56E-02	<	1.10E-05	+/-	1.52E-06
Np-237		9.77E+00	+/-	7.24E-01		1.73E-04	+/-	1.29E-05
Pu-238		1.62E+04	+/-	5.87E+03		2.88E-01	+/-	1.04E-01
U-238		5.13E+00	+/-	3.45E+00		9.11E-05	+/-	6.13E-05
Pu-239		2.18E+06	+/-	8.14E+04		3.87E+01	+/-	1.45E+00
Pu-239A		1.73E+06	+/-	5.64E+04		3.06E+01	+/-	1.00E+00
Am-241		6.44E+05	+/-	4.15E+04		1.14E+01	+/-	7.37E-01
Pu-241		8.32E+06	+/-	6.16E+05		1.48E+02	+/-	1.09E+01

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
Np-237	1.39E-02	+/-	1.03E-03
Pu-238	9.48E-04	+/-	3.43E-04
U-238	1.53E+01	+/-	1.03E+01
Pu-239	3.50E+01	+/-	1.31E+00
Pu-239A	2.78E+01	+/-	9.08E-01
Am-241	1.88E-01	+/-	1.21E-02
Pu-241	8.05E-02	+/-	5.96E-03

Summed Spectrum

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		2.11E+06	+/-	4.24E+06		3.74E+01	+/-	7.53E+01
SE-75	<	9.11E-01	+/-	6.48E-03	<	1.62E-05	+/-	1.15E-07
EU-152x	<	8.30E-01	+/-	1.28E-02	<	1.47E-05	+/-	2.28E-07
U-233	<	5.38E+04	+/-	9.86E+02	<	9.56E-01	+/-	1.75E-02
U-235	<	1.43E+00	+/-	2.72E-02	<	2.54E-05	+/-	4.83E-07
Np-237		5.44E+00	+/-	3.43E-01		9.67E-05	+/-	6.10E-06
Pu-238	<	1.19E+05	+/-	1.54E+03	<	2.11E+00	+/-	2.74E-02
U-238	<	2.50E+01	+/-	3.83E-01	<	4.43E-04	+/-	6.80E-06
Pu-239		1.17E+06	+/-	2.42E+04		2.08E+01	+/-	4.30E-01
Pu-239A		8.13E+05	+/-	1.89E+04		1.44E+01	+/-	3.35E-01
Am-241		3.58E+05	+/-	1.97E+04		6.35E+00	+/-	3.50E-01
Pu-241		3.65E+06	+/-	1.58E+05		6.49E+01	+/-	2.81E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
Np-237	7.73E-03	+/-	4.88E-04
Pu-239	1.89E+01	+/-	3.90E-01
Pu-239A	1.31E+01	+/-	3.03E-01
Am-241	1.04E-01	+/-	5.75E-03
Pu-241	3.53E-02	+/-	1.53E-03

Final Non-Uniformity Results

Source Longitudinal Ratio:	0.000	+/-	0.0000
Matrix Longitudinal Ratio:	0.942	+/-	0.3734
Source Vertical Ratio:	0.000	+/-	0.0000
Matrix Vertical Ratio:	0.982	+/-	0.0291

NUDS could not find the transmission peak in one radial segment.
NUDS could not find the source peak in any radial segment.

LAWRENCE LIVERMORE NATIONAL LABORATORY

WASTE DISPOSAL REQUISITION

W 223262

H1. Label/Waste Type:
- ☐ Non-Haz (N)
- ☐ RCRA Haz (H)
- ☐ CA Haz (C)
- ☐ NTS LLW (L)
- ☐ Low-Level (R)
- ☐ LLW Mixed (F)
- ☐ LLW Combined (S)
- ☒ TRU (T)
- ☐ TRU Mixed (X)

1. Container ID Number or Tank ID or for TRU Waste, TRU Waste Container Serial No.: Q-- LL85-501243 TRU--

H2. CCC: DS

H3. Storage Restrictions: Not acceptable at the following locations: ☑ 233 ☑ 514 ☐ 612 ☐ 693 ☐ 696 CWAA ☑ 169 ☑ 361 ☐ 612-4

2. Container Use/Acceptability: ☐ On-site use only; ☒ Acceptable for off-site use

Container Manufacturer Serial No./Batch No.: B520483 ☐ N/A

Employee No.: 553224 Initials: JM Date: 5-23-02

3. RMMA: ☒ Yes ☐ No

4. Waste Form: ☒ Solid ☐ Liquid ☐ Gas ☐ Sludge

H4. Hazardous Properties: ☐ Toxic ☐ Corrosive ☐ Ignitable ☐ Reactive

5. Outer Container Type: ☐ Box ☐ Sack ☐ Can ☐ SWB ☐ Carboy ☐ Tub ☒ Drum ☐ Bag ☐ Tank – Fixed ☐ Tank – Portable ☐ Transportainer

Other: _____

6. Outer Container Size/Vol: ☐ 1 gal ☒ 55 gal ☐ 67 cu ft ☐ 2 gal ☐ 85 gal ☐ 1×1×1.5 ☐ 5 gal ☐ 330 gal ☐ 2×4×7 ☐ 10 gal ☐ 660 gal ☐ 4×4×7 ☐ 12 gal ☐ 750 gal ☐ 1 cu yd ☐ 20 gal ☐ 1000 gal ☐ 8×8×20 ☐ 30 gal ☐ 5000 gal ☐ 8×8×40

Other: _____ ☐ gal _____ ☐ cu ft

7. Building No.: 332

8. Room No.: 1378

9. Location: AT GEN

10. Workplace Start Date: 06/13/02

11. Workplace End Date: 06/21/02

12. Account No.: 5481-50

13. Directorate: DNT

14. WEF/PKE/SAW/PIW: ☐ WEF ☒ PKE ☐ SAW ☐ PIW

Specify No.: 0245, 0247 ☐ N/A

15. Source Code: A940

16. Inner Containers: ☐ Yes ☒ No

17. Item No.	18. Spent or Unused (S/U)	19. Organic or Inorganic (O/I)	20. Waste Form (S,SL,L,G)	21. Waste Description (For multiple parcels, list Parcel Card Nos.)	22. Hazardous Constituents and Concentrations	23. Item Container Size	24. Quantity per Item Amount	Units	25. Analysis Sample No.	Physical Waste Data: 26. Aqueous Only pH	Normality	27. Flash Point
1			S	P052341 ✓		55 gal						
				P052342 ✓								
				P052300 ✓								

28. Does the waste contain radioactive components? ☒ Yes ☐ No ☐ To be analyzed (If yes or TBA, complete Page 3 as applicable to waste type.)

This section (Steps 29–30) is required for Hazardous Waste generated in a RMMA

29. Was the waste kept isolated from any operation that could have produced radioactive contamination (using a glove box, vent hood, etc.)? N/A 10/31/02 ☐ Yes ☐ No (If no, full rad analysis required)

30. Was the waste exposed to particle beams capable of inducing radioactivity by activation? ☐ Yes ☒ No (If yes, full rad analysis required)

31. ☐ Generator: I certify, to the best of my knowledge, that the information provided on this requisition is correct. I understand that I may be liable to State and Federal prosecution by intentionally providing false information. I have obtained this information by:
- ☐ Direct knowledge of the waste generating process ☐ Analytical Data
- ☐ Obtaining sufficient information from others knowledgeable of the waste generating process

☒ Container Custodian: I certify that the waste parcels identified on this form are contained in this waste container and have been packaged in accordance with the requirements specified in the appropriate LLNL TRU or Low-Level Waste Program Certification and Quality Assurance Program.

Generator or Container Custodian Name (Print – Last, First): Summers, Harry V.

Signature: Harry V. S

Employee No.:	L-Code:	Ext.:	Date:
000806	361	35810	06/21/02

H5. Inspected By: Signature: | Employee No.: | Date:

H6. Characterization Chemist Approval: ☐ Acceptable for Sampling _____ (Initials) Exempt: ☐ OP ☐ SA ☐ DE

Signature: ☐ WEF | Employee No.: | Date:

H7. RCA Approval: ☐ Overpack for final shipment to NTS ☐ Meets SCAL ☐ Decay Program _____ (Initials) ☐ NTS Certified _____ (Initials) ☐ WIPP Certified _____ (Initials) ☐ On-site Treatment

Signature: ☐ WEF | Employee No.: | Date:

☐ On Hold – Pending S&A

☐ Released

31A. Gross Weight: 86.4 kg; TARE = 30.1 kg

Radioactive page attached: ☒ Yes ☐ N/A

Continuation page(s) attached: ☐ Yes ☒ N/A

32. Waste Profile No., TRU Waste Form No., or Bin No.: 1, 2a, 2b

☐ HWM Use Only

LL-5344 (4/01)

WASTE DISPOSAL REQUISITION
RADIOACTIVE WASTE

REQUISITION No.: W 2 2 3 2 6 2

33. Moderators/Reflectors: Quantity of beryllium: 0 grams
Enriched in deuterium ☐ Yes ☒ No Carbon (e.g., graphite) 0 grams

34. Waste Package Seals (WPS)Applied: ☐ N/A ☒ Yes
WPS No(s): K782, L02746

35. MBA Quantity: ☐ Yes ☐ No

Items 36 to 39 are not required if Parcel Cards were used for documentation.

36. Method(s) used to identify radionuclides and/or determine activity: (Check all that apply)

☐ Process Knowledge ☐ Mass ☐ Mass Balance ☐ Liquid Scintillation Counting
☐ Alpha Spectrometry ☐ Tritium off gas measurement ☐ See attached methodology
☐ Dose-to-Curie ☐ Gamma Spectrometry ☐ High Sensitivity Neutron Instrument
☐ Segmented Gamma Scanner ☐ Other:
☐ AVLIS Method (☐ A ☐ B ☐ C)

See attached parcel cards

N/A 10/3/02

(Complete the following when a meter is used to determine activity):
Survey meter model: Serial Number:
Meter Reading: cpm, dpm, mR/hr (circle)
Calibration due date:
Check source jig No.: Detector response (± 30%) ☐ Satisfactory

40. Radiological Data: ☐ See attached sheet

Item	Radionuclide	Quantity	Units (Ci, g)	α / PE - Ci	Pu – Eq. gram

37. Does this waste contain any of the following?

Friable Asbestos: ☐ Yes ☐ No
PCBs: ☐ Yes ☐ No
Pyrophorics: ☐ Yes ☐ No
(e.g., uranium turnings that could spontaneously combust if exposed to air)
Explosives: ☐ Yes ☐ No
(e.g., TNT, PETN that exhibit explosive properties)
Chelating Agents: ☐ Yes ☐ No
(e.g., Radiac Wash, >1% by weight)
Compressed Gases: ☐ Yes ☐ No
(e.g., aerosol cans)
Free Liquids: ☐ Yes ☐ No
Classified Material: ☐ Yes ☐ No
Explanations/Comments:

Plutonium grades: ☒ Weapons ☐ Fuel ☐ Reactor ☐ Mixed ☐ Am enriched
☐ Enriched Uranium: ____% U-234 ____% U-235 ____% U-238

41. Weight (Note: If AVS Method C, mass, HSNI, SGS or activity per unit mass is used to determine the activity of the waste, a calibrated scale shall be used).
☐ Estimated Weight ☐ Weighed on Calibrated Scale Initials:

Gross Weight/Unit	Tare Weight/Unit	Scale Serial No.	Calibration Due Date

42. Rad. Survey (mR/hr):

βγ @ Contact	βγ @ 1 Meter	Neutron @ Contact

Swipe Data: ☐ Complies with on-site transfer requirements
☐ Complies with 10 CFR 835 criteria for unrestricted release

Performed By (print and signature):
Date: Employee No.: Ext:

Item 38 and 39 are only required for waste destined for NTS. This includes waste that will be treated prior to final disposal (e.g., LSC, and pyrophoric uranium turnings).

38. Packaging Procedure followed: ☐ WCP-8 ☐ Packaging Instruction No.:
☐ EX-404 ☐ Other (describe):

39. Verifier Certification: I verify that, to the best of my knowledge, the information supplied by the waste generator on this form is complete and accurate, and that by visual inspection the waste is accurately described.
Verifier Name (print and sign):
Employee No.: Date:

43. Container Type:
☒ DOT Type A
☐ DOT Type B
☐ Other

H15. Radiological Appendix:
☐ Liquid waste containing >1 Ci of Pu-Equivalent activity
☐ Contains > 10 grams fissionable material
RCA Initials:

WASTE DISPOSAL REQUISITION

REQUISITION No.: W 223262

H8.

Item	RCH Prefix	RCH	P	Origin Code	Form Code	EPA No.	DTSC No.	MSDS No.	Hazardous Properties T	C	I	R
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑

H9. **Hazardous Appendix**
Chemist Review
SCIL (Single Container Inventory Limits) Exceeded ❑ Yes ❑ No

pH results obtained by (*Check all that apply*) ❑ N/A

❑ Meter (Calibrated) ❑ Paper ❑ MSDS ❑ Analytical

Initial: _____

Employee No. _____ Date _____

CC Rule (*VOC's greater or less than 500 ppm level 1, 2, 3*) ❑ N/A:

❑ CC/> 500/A ❑ CC/< 500/A

❑ CC/> 500/B ❑ CC/< 500/B

A = Generator Knowledge B = Analytical Data

MPC: _____

❑ WEF CC initials: _____

H10. **RCO**

❑ Req tracking:

_____ Initials _____ Date

❑ TWMS:

_____ Initials _____ Date

H11.

❑ No disposal option:

Approved Exemption Request No. _____ Date _____

H12. NORM Rad Screening Conducted

❑ Yes ❑ No (N/A)

Employee No.: _____ Date: _____

Background Reading: _____ mR/hr

Reading on Item: _____ mR/hr

H13. RMMA Certification:

Shipping Emp. #: | CC

H14. WDAR #:

RADIOASSAY DATA SHEET

Batch Number: 2002-13

Radio Assay Method: SGS

Procedure ID & Rev: OP-B332-005

Software Version: GWAS V2.3A RADA V2.1

DRUM INFORMATION

Drum Package ID: LL85501243TR
Sequence Number: 1062
Assay Date & Time: 10-05-2002 10:07:58 AM
Report Generated: 10-07-2002 8:35:03 AM
Drum Package GROSS Weight: 86.40 kg NET Weight: 56.30 kg

IDC Number: LL8550 1243TRU

QC Replicate (Yes/No): YES Passed (Yes/No): Yes

Operator Name (Printed): LEE CALDEIRA

Operator Signature: [signature] Date: 10/7/02

Independent Reviewer: [signature] Date: 10/10/02

Expert Reviewer: Kenneth Baschke Date: 10/8/02

Tech. Supv/QA Officer: [signature] Date: 10/14/02

ACTIVITY INFORMATION

Waste Classification: (TRU or LLW): TRU

Total Alpha Activity: 4.168E+00 +/- 1.128E+00 Ci

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* I S O T O P I C I N F O R M A T I O N *
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Isotope	Measured Mass (g)	Mass Uncertainty (g)
Pu-238	1.325E-02	5.661E-03
Pu-239	3.921E+01	1.657E+01
Pu-240	3.393E+00	1.436E+00
Pu-241	1.058E-01	4.473E-02
Pu-242	1.832E-02	8.535E-03
Am-241	2.084E-01	8.811E-02
*Am-243	N/A	N/A
*Np-237	N/A	N/A
*U-235	N/A	N/A
*U-238	N/A	N/A
*U-233	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 4.27E+01 +/- 1.66E+01 g

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* M G A R E S U L T S *
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NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	3.100E-02	3.23E+00
Pu-239	9.174E+01	9.05E-02
Pu-240	7.939E+00	1.04E+00
Pu-241	2.475E-01	8.99E-01
Pu-242	4.287E-02	1.00E+01
Am-241	4.875E-01	7.09E-01

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* A C T I V I T Y   I N F O R M A T I O N *
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Procedure ID & Rev: OP-B332-005
Software Version: GWAS V2.3A RADA V2.1

Assay Date & Time: 10-05-2002 10:07:58 AM
Report Generated: 10-07-2002 8:35:05 AM

Drum Package ID: LL85501243TR
Sequence Number: 1062

Waste Classification (TRU or LLW): TRU

			Errors at 1.96 sigma	
Total Alpha Activity :	4.168E+00	+/-	1.128E+00	Ci
Total TRU Activity :	7.403E+04	+/-	2.003E+04	nCi/g
Pu-239 Equiv Activity:	4.363E+00	+/-	1.130E+00	Ci
Fissile Gram Equiv Mass:	3.953E+01	+/-	1.657E+01	g
Total Decay Heat:	1.329E-01	+/-	3.556E-02	W
TMU Value:	42.26 %			

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* I S O T O P I C   I N F O R M A T I O N *
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Isotope	Act (Ci)	1.96 Sigma Act Error (Ci)	Measured Mass (g)	1.96 Sigma Mass Error
Pu-238	2.29E-01	9.79E-02	1.32E-02	5.66E-03
Pu-239	2.44E+00	1.03E+00	3.92E+01	1.66E+01
Pu-240	7.80E-01	3.30E-01	3.39E+00	1.44E+00
Pu-241	1.10E+01	4.65E+00	1.06E-01	4.47E-02
Pu-242	7.27E-05	3.39E-05	1.83E-02	8.53E-03
Am-241	7.23E-01	3.06E-01	2.08E-01	8.81E-02
*Am-243	N/A	N/A	N/A	N/A
*Np-237	N/A	N/A	N/A	N/A
*U-235	N/A	N/A	N/A	N/A
*U-238	N/A	N/A	N/A	N/A
*U-233	N/A	N/A	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 4.27E+01 +/- 1.66E+01 g

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*     M G A   R E S U L T S     *
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NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	3.100E-02	3.23E+00
Pu-239	9.174E+01	9.05E-02
Pu-240	7.939E+00	1.04E+00
Pu-241	2.475E-01	8.99E-01
Pu-242	4.287E-02	1.00E+01
Am-241	4.875E-01	7.09E-01

SGS Expert Review Checklist

Container Identification #: LL85501243TRU_____ Original Assay Date:10-05-2002_

1. *WCP-41, §6.1:* A MGA report ☒ is present or ☐ expert review has provided isotopic ratios from SGS or AK. Comment (if any): High Am-241 is also confirmed by GWAS.
2. *WCP-41, §6.1:* MGA and AK ☒ agree as to radiological composition or, if not, ☐ expert review has resolved this. Comment (if any):
3. *WCP-41, §6.2.1:* ☒ Pu-238 ≤ 2% by weight of total Pu or, if not, ☐ expert review has addressed this and assigned a Pu-240 value. Comment (if any):
4. *WCP-41, §6.2.2:* ☒ Neither Np-237 nor U-235 is identified by MGA or ☐ expert review has addressed possible interferences from these radionuclides.
   Comment (if any):
5. *WCP-41, §6.2.2.2:* ☒ Am-241 separation date is 1950 or later or ☐ expert review has addressed possible interferences. Comment (if any):
6. *WCP-41, §6.3.1.1.a:* ☒ Bulk density of waste ≤ 0.6 g/ml or ☐ expert review has addressed the high density of the drum. Comment (if any):
7. *WCP-41, §6.3.1.2.a:* ☐ Transmission in every segment ≥ 0.1% for the Se-75 peaks at 136 keV or 265 keV or ☒ expert review has addressed the low transmission.
   Comment (if any): The transmission is low in six segments both in this count and the replicate. The 265keV peak is barely Okay as are the other transmission peaks. Also, the Pu-239/Pu239a ratio is okay for all six segments.
8. *WCP-41, §6.3.1.2.a:* ☒ Transmission in every segment ≥ 1% for the Se-75 peak at 401 keV or ☐ expert review has addressed the low transmission. Comment (if any): See comment to #7.
9. *WCP-41, §6.3.1.3.b:* ☒ Dead time in every segment ≤ 50% or ☐ expert review has addressed the high dead time. Comment (if any):
10. *WCP-41, §6.3.1.3.c:* ☒ Pu-239 masses determined from the 414 keV peak and the 129 keV peak agree by a factor of < 2.5 or ☐ expert review has addressed possible matrix inhomogeneity. Comment (if any):
11. *WCP-41, §6.3.2.3:* Cs-137 (☐ has) (☒ has not) been identified by expert review. If it has, Sr-90 is reported ☐ at an activity ratio to Cs-137of 0.39 for Pu fission or ☐ at a ratio of 1 for U-235 fission or, ☐ if both Pu and U are present, the expert reviewer has determined the ratio. Comment (if any):
12. *WCP-41, §6.3.2.4:* ☒ No unusual nuclides are identified (none other than the 10 required to be reported to WIPP) or ☐ the expert reviewer has checked for interferences from unusual nuclides. Comment (if any):
13. *WCP-41, §6.3.3:* For waste drums (☐ NA for standards), ☐ the Summed Spectrum report value for Pu-239 and the Combined Segment NID report

for Pu-239 agree within 95% confidence limits (the same as for replicates of unknowns) or ☒ expert review has addressed the difference. Comment (if any): The combined NID and the summed NID do not agree as is predicted by the uniformity measurements.

14. *WCP-41, §6.4:* ☐ The SGS Summed Spectrum and Combined Segment NID reports agree as to the ratios by weight of several radionuclides, such as those of Am-241, Pu-241, Np-237, Am-243, and U-235 to Pu-239, and MGA results agree as to identifying these radionuclides or ☒ expert review has resolved this. Comment (if any): see comment to #13

15. *WCP-41, §6.6.1:* ☒ All reported radionuclide masses are above 2.5 times the uncorrected MDA or ☐ expert review has calculated transmission-corrected MDAs and taken appropriate action. Comment (if any):

16. *WCP-41, §6.6.2:* ☒ Any changes to reported quantities of individual radionuclides have been entered into the RADA program and a new radioassay data sheet has been produced, showing revised derivative quantities, and included in the batch data report, along with the marked up original. Comment (if any):

17. *CP-41, §6.7:* ☒ Counting statistics are adequate for normal passive count time of 120 seconds per segment or ☐ Counting statistics are adequate for long passive count time of 600 seconds per segment or ☐ expert review has rejected the count and ordered a longer count time. Comment (if any):

Kenneth Raschke	Kenneth Raschke	10/8/02
Expert Reviewer (print)	Signature	Date

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*****                        M G A   R E P O R T                  *****
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Report generated on: 10-05-02 11:04:45 AM

MGA version: MGA V9.5 CI

Spectrum ID: 11201062.CNF Sens : 30.0% LT: 53.2 Mins DT: 5.05
Measurement date: 10-05-02 Declared date: 10-05-02

Sample ID: LL85501243TRU Detector: Total counts: 5.090E+06

Pu g/cm2 = 0.0847 Cd g/cm2 = 1.6610 FWHM at 122 keV = 639 eV
QFIT = 1.00 FWHM at 208 keV = 816 eV
NQFIT = 1.00

Isotope	Relative to Pu-239	%* Err	% Err	Relative to Pu-241	%* Err	Isotope analysis at Meas. date % weight	%Err	Decl. date % weight	%Err
Pu-238	0.000338	3.2	3.2	0.1253	3.2	0.03100	3.23	0.03100	3.23
Pu-239	1.000000	0.0	0.6	370.7405	0.9	91.74002	0.09	91.74002	0.09
Pu-240	0.086534	1.1	1.0	32.0818	1.2	7.93867	1.04	7.93867	1.04
Pu-241	0.002697	0.9	0.8	1.0000	0.0	0.24745	0.90	0.24745	0.90
Pu-242	(New alg.	)		0.1732	(10)	0.04287	(10)	0.04287	(10)
Am-241	0.005314	0.7	0.5	1.9702	0.9	0.48754	0.71	0.48754	0.71

Pu-240 effective (meas. date) = 8.089 +/- 1.15%
Am-241 separated about 22.567 +/- 0.204 years ago
Am/Pu-241 weight ratio = 1.97024 +/- 0.91%

Messages :

Lead x-rays detected.
Calculations in MGAABS didn't converge : results may be suspect.
17 MGA parameter(s) defaulted, starting from parameter 8.

Notes : * = Error in ratio
1.000 sigma errors

Gamma Waste Assay

Sample Information

File Name: C:\WAS\DATA\1100\11101062.S11
Sample ID: LL85501243TRU Count Sequence Number: 1062
Assay Start: 10-05-02 10:08:00 AM
Description 1: UNKNOWN REPLICATE
Description 2: 2002-13
Location: 7715
Comment:
Waste Type:
Weight: Gross: 86400.0 g Net: 56300.0 g
Density: 0.271 g /ml

Container Type: 55 Gal Galv 66.3
Container: Volume: 208000. ml Full: 100.0 %

System Configuration

Counter ID Number: SGS
Arrangement Description: SGS
Segments: Number: 16 Offset: 0
Scanning Platform: Start: 934 mm Delta: -51 mm
Count Type: 55 Gal Galv 66.3
Collimator/Geometry Setting: 0
Transmission Mode: Two pass
Transmission Source: 0

Errors quoted at 1.000 sigma
Reference Source Date: Reference Source Rate: 1.01E+03 cps
Geometric Correction Factor(SWCONTGCF): 0.760
Date of efficiency calibration approval: 4-16-2002 3:26:49 PM
Mu Factors response file: Lucite
Transmission Calib. Time: 4-16-2002 10:03:42 AM 324888

Reviewed by: [signature] Date: 10/5/02

Segment Results

Segment: 1 Detector: DET01 (# 1) Position: 1

Elapsed Live Time: 92.33 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.037 +/- 0.0007
SE-75	279.53	0.000 +/- 0.0000	0.039 +/- 0.0011
SE-75	400.65	0.000 +/- 0.0000	0.059 +/- 0.0016

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.25	4.74E+01 +/- 1.26E+00	4.10E+00	9.58E-08 +/- 1.19E-06
2	35.10	1.01E+03 +/- 5.47E+00	4.10E+00	2.61E-06 +/- 1.64E-05
3	49.42	2.12E+02 +/- 5.29E+00	4.10E+00	1.74E-05 +/- 5.44E-05
4	59.31	8.19E+03 +/- 3.57E+01	4.10E+00	3.69E-05 +/- 7.36E-05
5	98.50	8.79E+01 +/- 2.82E+00	4.10E+00	1.38E-04 +/- 4.13E-05
6	102.96	4.25E+01 +/- 2.68E+00	4.10E+00	1.48E-04 +/- 3.37E-05
7	110.88	1.35E+01 +/- 2.13E+00	4.10E+00	1.65E-04 +/- 2.15E-05
8	117.96	4.37E+01 +/- 2.07E+00	4.10E+00	1.78E-04 +/- 1.38E-05
9	129.29	7.20E+01 +/- 1.59E+00	4.10E+00	1.95E-04 +/- 1.38E-05
10	148.57	1.30E+01 +/- 1.14E+00	3.85E+00	2.15E-04 +/- 2.55E-05
11	164.49	1.92E+00 +/- 9.53E-01	3.61E+00	2.24E-04 +/- 3.07E-05
12	197.24	2.01E+00 +/- 8.29E-01	3.24E+00	2.31E-04 +/- 3.02E-05
13	207.79	6.71E+01 +/- 1.29E+00	3.14E+00	2.30E-04 +/- 2.82E-05
14	255.30	1.28E+00 +/- 4.80E-01	2.79E+00	2.20E-04 +/- 1.72E-05
15	267.27	2.57E+00 +/- 3.86E-01	2.72E+00	2.16E-04 +/- 1.48E-05
16	311.90	3.13E+00 +/- 5.21E-01	2.61E+00	2.00E-04 +/- 1.03E-05
17	332.48	1.30E+01 +/- 7.27E-01	2.57E+00	1.92E-04 +/- 1.04E-05
18	335.51	8.09E-01 +/- 5.93E-01	2.56E+00	1.91E-04 +/- 1.04E-05
19	344.71	1.24E+01 +/- 5.44E-01	2.54E+00	1.88E-04 +/- 1.07E-05
20	368.20	6.29E+00 +/- 5.09E-01	2.50E+00	1.80E-04 +/- 1.16E-05
21	374.70	3.23E+01 +/- 8.20E-01	2.49E+00	1.78E-04 +/- 1.18E-05
22	382.69	2.44E+00 +/- 4.33E-01	2.47E+00	1.75E-04 +/- 1.20E-05
23	392.62	1.31E+01 +/- 5.09E-01	2.45E+00	1.72E-04 +/- 1.23E-05
24	413.70	3.44E+01 +/- 7.00E-01	2.41E+00	1.65E-04 +/- 1.27E-05

25	422.26	2.15E+00	+/-	3.57E-01	2.40E+00	1.63E-04	+/-	1.29E-05
26	451.10	3.59E+00	+/-	3.12E-01	2.35E+00	1.55E-04	+/-	1.30E-05
27	618.89	2.78E-01	+/-	1.26E-01	2.12E+00	1.19E-04	+/-	9.33E-06
28	662.42	2.45E+00	+/-	2.00E-01	2.07E+00	1.12E-04	+/-	8.14E-06
29	721.88	1.09E+00	+/-	1.52E-01	2.01E+00	1.04E-04	+/-	6.73E-06

Segment: 2 Detector: DET01 (# 1) Position: 2

Elapsed Live Time: 89.57 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.018 +/- 0.0005
SE-75	279.53	0.000 +/- 0.0000	0.020 +/- 0.0009
SE-75	400.65	0.000 +/- 0.0000	0.030 +/- 0.0012

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.23	5.27E+01	+/-	1.37E+00	4.10E+00	5.70E-10	+/-	5.43E-09
2	35.10	1.01E+03	+/-	5.60E+00	4.10E+00	2.21E-07	+/-	1.06E-06
3	49.37	2.50E+02	+/-	6.15E+00	4.10E+00	5.95E-06	+/-	1.42E-05
4	59.32	9.62E+03	+/-	4.25E+01	4.10E+00	2.14E-05	+/-	3.26E-05
5	98.44	9.87E+01	+/-	2.77E+00	4.10E+00	1.82E-04	+/-	4.28E-05
6	102.95	4.52E+01	+/-	2.86E+00	4.10E+00	2.04E-04	+/-	3.67E-05
7	110.94	1.44E+01	+/-	2.52E+00	4.10E+00	2.39E-04	+/-	2.56E-05
8	114.40	1.27E+01	+/-	2.26E+00	4.10E+00	2.54E-04	+/-	2.15E-05
9	117.95	3.50E+01	+/-	2.00E+00	4.10E+00	2.68E-04	+/-	1.83E-05
10	129.29	6.65E+01	+/-	1.63E+00	4.10E+00	3.07E-04	+/-	1.84E-05
11	148.57	1.59E+01	+/-	1.18E+00	3.98E+00	3.54E-04	+/-	3.27E-05
12	159.80	3.36E+00	+/-	1.10E+00	3.88E+00	3.71E-04	+/-	3.83E-05
13	178.84	1.56E+00	+/-	9.06E-01	3.73E+00	3.87E-04	+/-	4.17E-05
14	207.71	5.42E+01	+/-	1.21E+00	3.53E+00	3.88E-04	+/-	3.72E-05
15	300.10	1.07E+00	+/-	4.98E-01	3.08E+00	3.27E-04	+/-	1.48E-05
16	311.90	3.49E+00	+/-	5.09E-01	3.05E+00	3.18E-04	+/-	1.39E-05
17	332.37	1.02E+01	+/-	6.92E-01	3.00E+00	3.03E-04	+/-	1.34E-05
18	335.48	1.11E+00	+/-	5.37E-01	3.00E+00	3.01E-04	+/-	1.34E-05
19	344.67	9.16E+00	+/-	5.79E-01	2.98E+00	2.94E-04	+/-	1.34E-05
20	374.72	2.67E+01	+/-	7.71E-01	2.92E+00	2.74E-04	+/-	1.40E-05
21	382.46	2.24E+00	+/-	3.65E-01	2.90E+00	2.69E-04	+/-	1.42E-05
22	392.60	1.02E+01	+/-	4.89E-01	2.88E+00	2.63E-04	+/-	1.43E-05

23	413.70	2.61E+01	+/-	6.39E-01	2.83E+00	2.51E-04	+/-	1.46E-05
24	426.10	6.31E-01	+/-	2.56E-01	2.80E+00	2.45E-04	+/-	1.46E-05
25	451.09	3.37E+00	+/-	2.92E-01	2.75E+00	2.32E-04	+/-	1.45E-05
26	510.61	2.18E+00	+/-	2.26E-01	2.63E+00	2.08E-04	+/-	1.34E-05
27	582.79	4.35E-01	+/-	1.11E-01	2.50E+00	1.84E-04	+/-	1.14E-05
28	652.59	3.93E-01	+/-	1.46E-01	2.39E+00	1.67E-04	+/-	9.43E-06
29	662.42	1.85E+00	+/-	2.04E-01	2.38E+00	1.65E-04	+/-	9.18E-06
30	721.58	9.00E-01	+/-	1.48E-01	2.30E+00	1.53E-04	+/-	7.86E-06
31	1274.87	1.04E+00	+/-	1.36E-01	1.89E+00	1.02E-04	+/-	4.70E-06

Segment: 3 Detector: DET01 (# 1) Position: 3

Elapsed Live Time: 93.99 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Some transmission peaks rejected.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.000 +/- 0.0000
SE-75	264.65	0.000 +/- 0.0000	0.050 +/- 0.0008
SE-75	279.53	0.000 +/- 0.0000	0.053 +/- 0.0012
SE-75	400.65	0.000 +/- 0.0000	0.076 +/- 0.0016

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.33	4.23E+01	+/-	1.12E+00	4.10E+00	1.15E-08	+/-	1.12E-07
2	35.10	1.01E+03	+/-	5.35E+00	4.10E+00	1.07E-06	+/-	5.27E-06
3	49.52	2.08E+02	+/-	5.28E+00	3.89E+00	1.40E-05	+/-	3.41E-05
4	59.43	7.43E+03	+/-	3.20E+01	3.58E+00	3.74E-05	+/-	5.83E-05
5	98.60	6.07E+01	+/-	2.33E+00	3.10E+00	2.00E-04	+/-	4.78E-05
6	103.05	2.24E+01	+/-	2.22E+00	3.07E+00	2.18E-04	+/-	4.00E-05
7	111.03	1.01E+01	+/-	1.88E+00	3.02E+00	2.48E-04	+/-	2.69E-05
8	114.31	5.08E+00	+/-	1.53E+00	3.01E+00	2.59E-04	+/-	2.25E-05
9	118.36	2.09E+01	+/-	1.48E+00	2.99E+00	2.72E-04	+/-	1.84E-05
10	129.29	4.19E+01	+/-	1.28E+00	2.94E+00	3.02E-04	+/-	1.84E-05
11	148.57	9.30E+00	+/-	8.96E-01	2.86E+00	3.39E-04	+/-	3.24E-05
12	179.11	1.23E+00	+/-	6.29E-01	2.76E+00	3.65E-04	+/-	4.08E-05
13	195.61	1.83E+00	+/-	6.55E-01	2.71E+00	3.67E-04	+/-	3.92E-05
14	207.83	3.14E+01	+/-	9.18E-01	2.68E+00	3.66E-04	+/-	3.65E-05
15	267.22	1.32E+00	+/-	2.89E-01	2.53E+00	3.40E-04	+/-	2.02E-05
16	311.90	2.97E+00	+/-	3.96E-01	2.44E+00	3.13E-04	+/-	1.40E-05
17	322.19	2.34E+00	+/-	3.61E-01	2.42E+00	3.06E-04	+/-	1.36E-05
18	332.53	4.73E+00	+/-	5.06E-01	2.40E+00	3.00E-04	+/-	1.35E-05

19	335.59	7.53E-01	+/-	4.01E-01	2.39E+00	2.98E-04	+/-	1.35E-05
20	344.84	4.76E+00	+/-	4.13E-01	2.37E+00	2.93E-04	+/-	1.36E-05
21	368.60	2.32E+00	+/-	3.67E-01	2.33E+00	2.80E-04	+/-	1.42E-05
22	374.80	1.52E+01	+/-	5.24E-01	2.32E+00	2.76E-04	+/-	1.43E-05
23	382.67	1.27E+00	+/-	3.65E-01	2.31E+00	2.72E-04	+/-	1.46E-05
24	392.64	5.24E+00	+/-	3.43E-01	2.29E+00	2.67E-04	+/-	1.48E-05
25	413.70	1.35E+01	+/-	4.38E-01	2.26E+00	2.57E-04	+/-	1.52E-05
26	422.53	3.81E-01	+/-	2.53E-01	2.24E+00	2.53E-04	+/-	1.53E-05
27	426.48	2.94E-01	+/-	1.72E-01	2.23E+00	2.51E-04	+/-	1.53E-05
28	451.25	1.77E+00	+/-	1.95E-01	2.20E+00	2.40E-04	+/-	1.54E-05
29	662.42	1.06E+00	+/-	1.59E-01	1.95E+00	1.78E-04	+/-	1.02E-05
30	722.02	4.84E-01	+/-	1.16E-01	1.90E+00	1.66E-04	+/-	8.77E-06
31	778.90	7.80E-02	+/-	5.83E-02	1.86E+00	1.57E-04	+/-	7.69E-06
32	1274.69	1.01E+00	+/-	1.11E-01	1.62E+00	1.11E-04	+/-	4.96E-06

Segment: 4 Detector: DET01 (# 1) Position: 4

Elapsed Live Time: 99.81 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.214 +/- 0.0095
SE-75	264.65	0.000 +/- 0.0000	0.313 +/- 0.0025
SE-75	279.53	0.000 +/- 0.0000	0.320 +/- 0.0032
SE-75	400.65	0.000 +/- 0.0000	0.369 +/- 0.0040

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.42	2.03E+01	+/-	8.92E-01	3.50E+00	3.50E-06	+/-	4.87E-06
2	35.10	1.01E+03	+/-	5.15E+00	2.40E+00	2.00E-05	+/-	1.66E-05
3	49.67	1.36E+02	+/-	3.92E+00	2.03E+00	6.17E-05	+/-	2.98E-05
4	59.59	4.87E+03	+/-	2.08E+01	1.93E+00	9.83E-05	+/-	3.39E-05
5	67.03	7.47E+00	+/-	1.11E+00	1.88E+00	1.27E-04	+/-	3.44E-05
6	98.75	4.14E+01	+/-	1.73E+00	1.76E+00	2.40E-04	+/-	2.42E-05
7	103.10	1.04E+01	+/-	1.66E+00	1.75E+00	2.52E-04	+/-	2.25E-05
8	111.09	6.37E+00	+/-	1.31E+00	1.74E+00	2.73E-04	+/-	1.97E-05
9	118.31	7.72E+00	+/-	1.14E+00	1.72E+00	2.90E-04	+/-	1.78E-05
10	129.29	3.34E+01	+/-	1.02E+00	1.71E+00	3.12E-04	+/-	1.61E-05
11	148.57	5.15E+00	+/-	5.20E-01	1.67E+00	3.40E-04	+/-	1.63E-05
12	207.92	2.15E+01	+/-	7.47E-01	1.58E+00	3.71E-04	+/-	1.94E-05
13	255.34	7.12E-01	+/-	3.25E-01	1.52E+00	3.62E-04	+/-	1.80E-05
14	267.45	6.84E-01	+/-	2.48E-01	1.50E+00	3.58E-04	+/-	1.73E-05
15	300.10	6.52E-01	+/-	2.29E-01	1.48E+00	3.44E-04	+/-	1.54E-05
16	311.90	1.44E+00	+/-	2.93E-01	1.47E+00	3.38E-04	+/-	1.48E-05

17	332.53	3.39E+00	+/-	3.99E-01	1.46E+00	3.28E-04	+/-	1.37E-05
18	344.97	3.87E+00	+/-	3.42E-01	1.45E+00	3.22E-04	+/-	1.32E-05
19	374.96	1.06E+01	+/-	4.08E-01	1.44E+00	3.06E-04	+/-	1.21E-05
M 20	380.14	1.23E+00	+/-	2.05E-01	1.44E+00	3.04E-04	+/-	1.19E-05
m 21	382.68	1.29E+00	+/-	1.98E-01	1.43E+00	3.03E-04	+/-	1.19E-05
22	392.91	3.60E+00	+/-	2.56E-01	1.43E+00	2.98E-04	+/-	1.16E-05
23	413.70	9.91E+00	+/-	3.48E-01	1.42E+00	2.87E-04	+/-	1.11E-05
24	443.98	2.71E-01	+/-	1.25E-01	1.40E+00	2.73E-04	+/-	1.07E-05
25	451.45	9.63E-01	+/-	1.65E-01	1.40E+00	2.70E-04	+/-	1.06E-05
26	583.14	3.55E-01	+/-	7.86E-02	1.35E+00	2.19E-04	+/-	9.72E-06
27	662.42	6.27E-01	+/-	1.13E-01	1.32E+00	1.95E-04	+/-	9.03E-06
28	722.09	2.87E-01	+/-	8.91E-02	1.31E+00	1.80E-04	+/-	8.37E-06
29	778.90	5.52E-02	+/-	3.35E-02	1.29E+00	1.67E-04	+/-	7.66E-06
30	1085.91	3.66E-02	+/-	2.69E-02	1.24E+00	1.20E-04	+/-	4.36E-06
31	1112.12	2.82E-02	+/-	2.43E-02	1.24E+00	1.17E-04	+/-	4.26E-06
32	1274.58	5.10E-01	+/-	7.85E-02	1.22E+00	1.03E-04	+/-	4.65E-06

Segment: 5 Detector: DET01 (# 1) Position: 5

Elapsed Live Time: 107.96 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.023 +/- 0.0005
SE-75	279.53	0.000 +/- 0.0000	0.025 +/- 0.0007
SE-75	400.65	0.000 +/- 0.0000	0.036 +/- 0.0010

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.64	8.45E+00	+/-	5.47E-01	4.10E+00	1.97E-06	+/-	2.80E-06
2	35.10	1.01E+03	+/-	4.92E+00	4.10E+00	1.48E-05	+/-	1.27E-05
3	49.95	5.78E+01	+/-	2.81E+00	4.10E+00	5.59E-05	+/-	2.74E-05
4	59.72	1.53E+03	+/-	7.35E+00	4.10E+00	9.38E-05	+/-	3.30E-05
5	67.55	2.78E+00	+/-	6.44E-01	4.10E+00	1.27E-04	+/-	3.45E-05
6	98.80	2.07E+01	+/-	9.79E-01	4.10E+00	2.49E-04	+/-	2.52E-05
7	103.57	7.58E+00	+/-	9.25E-01	4.10E+00	2.64E-04	+/-	2.32E-05
8	111.22	4.54E+00	+/-	7.49E-01	4.10E+00	2.86E-04	+/-	2.04E-05
9	129.29	2.05E+01	+/-	6.98E-01	4.10E+00	3.26E-04	+/-	1.67E-05
10	148.57	2.81E+00	+/-	4.72E-01	3.95E+00	3.54E-04	+/-	1.71E-05
11	208.15	9.93E+00	+/-	4.81E-01	3.41E+00	3.75E-04	+/-	2.04E-05

12	300.10	5.25E-01	+/-	2.28E-01	2.94E+00	3.33E-04	+/- 1.55E-05
13	311.90	1.32E+00	+/-	2.23E-01	2.91E+00	3.26E-04	+/- 1.48E-05
14	332.75	1.65E+00	+/-	2.79E-01	2.87E+00	3.14E-04	+/- 1.36E-05
15	345.14	1.95E+00	+/-	2.53E-01	2.85E+00	3.06E-04	+/- 1.30E-05
16	375.06	5.27E+00	+/-	2.98E-01	2.79E+00	2.90E-04	+/- 1.18E-05
17	382.76	7.39E-01	+/-	1.62E-01	2.78E+00	2.85E-04	+/- 1.16E-05
18	392.93	1.89E+00	+/-	1.70E-01	2.76E+00	2.80E-04	+/- 1.13E-05
19	413.70	5.34E+00	+/-	2.50E-01	2.72E+00	2.69E-04	+/- 1.09E-05
20	422.72	3.29E-01	+/-	9.91E-02	2.70E+00	2.65E-04	+/- 1.07E-05
21	662.42	2.21E-01	+/-	6.05E-02	2.29E+00	1.79E-04	+/- 8.77E-06
22	964.13	6.54E-02	+/-	3.17E-02	2.01E+00	1.28E-04	+/- 5.33E-06

Segment: 6 Detector: DET01 (# 1) Position: 6

Elapsed Live Time: 111.77 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.013 +/- 0.0003
SE-75	279.53	0.000 +/- 0.0000	0.014 +/- 0.0005
SE-75	400.65	0.000 +/- 0.0000	0.021 +/- 0.0008

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.52	3.27E+00 +/- 3.67E-01	4.10E+00	7.43E-07 +/- 1.04E-06
2	35.10	1.01E+03 +/- 4.82E+00	4.10E+00	8.04E-06 +/- 6.71E-06
3	49.51	8.62E+00 +/- 1.66E+00	4.10E+00	3.66E-05 +/- 1.79E-05
4	59.80	2.92E+02 +/- 2.52E+00	4.10E+00	6.97E-05 +/- 2.41E-05
5	98.76	9.78E+00 +/- 7.31E-01	4.10E+00	2.22E-04 +/- 2.25E-05
6	104.31	2.49E+00 +/- 5.15E-01	4.10E+00	2.41E-04 +/- 2.09E-05
7	111.16	2.39E+00 +/- 6.05E-01	4.10E+00	2.63E-04 +/- 1.90E-05
8	129.29	1.65E+01 +/- 5.83E-01	4.10E+00	3.10E-04 +/- 1.61E-05
9	148.57	1.42E+00 +/- 3.91E-01	4.02E+00	3.45E-04 +/- 1.67E-05
10	208.15	4.63E+00 +/- 3.81E-01	3.69E+00	3.81E-04 +/- 2.03E-05
11	244.70	4.17E-01 +/- 2.49E-01	3.53E+00	3.73E-04 +/- 1.92E-05
12	311.90	9.71E-01 +/- 2.21E-01	3.30E+00	3.39E-04 +/- 1.51E-05
13	332.85	1.50E+00 +/- 2.28E-01	3.25E+00	3.26E-04 +/- 1.39E-05
14	345.14	1.26E+00 +/- 2.19E-01	3.22E+00	3.19E-04 +/- 1.33E-05
15	375.07	3.98E+00 +/- 2.59E-01	3.15E+00	3.02E-04 +/- 1.21E-05
16	383.04	4.59E-01 +/- 1.30E-01	3.13E+00	2.97E-04 +/- 1.19E-05

17	393.09	1.56E+00	+/-	1.65E-01	3.11E+00	2.92E-04	+/- 1.16E-05
18	413.70	4.34E+00	+/-	2.19E-01	3.05E+00	2.81E-04	+/- 1.11E-05
19	423.21	2.73E-01	+/-	1.04E-01	3.03E+00	2.76E-04	+/- 1.09E-05
20	451.51	3.89E-01	+/-	1.01E-01	2.96E+00	2.62E-04	+/- 1.05E-05
21	510.74	1.98E+00	+/-	1.52E-01	2.82E+00	2.36E-04	+/- 9.96E-06
22	1112.12	7.10E-02	+/-	2.51E-02	2.09E+00	1.20E-04	+/- 4.28E-06
23	1275.07	7.01E-01	+/-	7.89E-02	2.00E+00	1.10E-04	+/- 4.84E-06

Segment: 7 Detector: DET01 (# 1) Position: 7

Elapsed Live Time: 112.39 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.016 +/- 0.0004
SE-75	279.53	0.000 +/- 0.0000	0.017 +/- 0.0006
SE-75	400.65	0.000 +/- 0.0000	0.026 +/- 0.0008

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.60	2.18E+00	+/-	2.94E-01	4.10E+00	9.14E-09	+/-	8.73E-08
2	35.10	1.01E+03	+/-	4.82E+00	4.10E+00	9.59E-07	+/-	4.73E-06
3	59.85	1.90E+02	+/-	1.98E+00	4.10E+00	4.10E-05	+/-	6.27E-05
4	98.78	1.02E+01	+/-	6.85E-01	4.10E+00	2.21E-04	+/-	5.19E-05
5	104.55	1.51E+00	+/-	5.09E-01	4.10E+00	2.46E-04	+/-	4.07E-05
6	111.26	3.17E+00	+/-	5.63E-01	4.10E+00	2.73E-04	+/-	2.88E-05
7	114.41	9.46E-01	+/-	5.26E-01	4.10E+00	2.84E-04	+/-	2.41E-05
8	129.29	1.63E+01	+/-	5.55E-01	4.10E+00	3.30E-04	+/-	1.98E-05
9	148.57	1.43E+00	+/-	3.64E-01	3.99E+00	3.68E-04	+/-	3.49E-05
10	196.40	5.77E-01	+/-	2.89E-01	3.66E+00	3.94E-04	+/-	4.13E-05
11	203.48	1.25E+00	+/-	3.23E-01	3.61E+00	3.92E-04	+/-	3.96E-05
12	208.15	4.72E+00	+/-	3.73E-01	3.59E+00	3.91E-04	+/-	3.84E-05
M 13	277.97	2.76E-01	+/-	8.28E-01	3.26E+00	3.51E-04	+/-	1.87E-05
m 14	280.46	1.88E-01	+/-	5.59E-01	3.26E+00	3.49E-04	+/-	1.82E-05
15	311.90	7.06E-01	+/-	1.90E-01	3.17E+00	3.27E-04	+/-	1.48E-05
16	332.96	1.45E+00	+/-	2.19E-01	3.12E+00	3.13E-04	+/-	1.44E-05
17	345.22	1.42E+00	+/-	2.03E-01	3.08E+00	3.06E-04	+/-	1.46E-05
18	375.18	3.65E+00	+/-	2.31E-01	3.01E+00	2.88E-04	+/-	1.54E-05
19	392.93	1.63E+00	+/-	1.46E-01	2.97E+00	2.78E-04	+/-	1.59E-05
20	413.70	3.47E+00	+/-	2.09E-01	2.92E+00	2.67E-04	+/-	1.63E-05

21	422.65	1.57E-01	+/-	1.11E-01	2.90E+00	2.62E-04	+/- 1.63E-05
22	443.98	1.21E-01	+/-	6.10E-02	2.85E+00	2.52E-04	+/- 1.64E-05
23	451.46	4.06E-01	+/-	8.66E-02	2.83E+00	2.49E-04	+/- 1.63E-05
24	511.17	1.74E+00	+/-	1.52E-01	2.70E+00	2.25E-04	+/- 1.53E-05
25	662.42	3.63E-02	+/-	2.74E-02	2.45E+00	1.82E-04	+/- 1.06E-05
26	1085.91	6.63E-02	+/-	3.02E-02	2.04E+00	1.23E-04	+/- 5.27E-06
27	1275.19	5.88E-01	+/-	7.87E-02	1.94E+00	1.08E-04	+/- 4.90E-06

Segment: 8 Detector: DET01 (# 1) Position: 8

Elapsed Live Time: 112.77 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.250 +/- 0.0084
SE-75	264.65	0.000 +/- 0.0000	0.319 +/- 0.0024
SE-75	279.53	0.000 +/- 0.0000	0.327 +/- 0.0030
SE-75	400.65	0.000 +/- 0.0000	0.369 +/- 0.0038

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	35.10	1.01E+03	+/-	4.79E+00	2.23E+00	6.89E-07	+/-	3.37E-06
2	59.83	1.36E+02	+/-	1.47E+00	1.82E+00	3.41E-05	+/-	5.19E-05
3	98.71	5.76E+00	+/-	6.36E-01	1.67E+00	1.98E-04	+/-	4.67E-05
4	104.29	2.10E+00	+/-	4.10E-01	1.66E+00	2.22E-04	+/-	3.74E-05
5	111.11	2.19E+00	+/-	4.75E-01	1.65E+00	2.48E-04	+/-	2.66E-05
6	129.29	1.17E+01	+/-	4.78E-01	1.63E+00	3.05E-04	+/-	1.85E-05
7	148.57	6.64E-01	+/-	2.62E-01	1.60E+00	3.45E-04	+/-	3.27E-05
8	208.25	3.14E+00	+/-	3.25E-01	1.54E+00	3.76E-04	+/-	3.72E-05
9	311.90	8.23E-01	+/-	1.58E-01	1.47E+00	3.23E-04	+/-	1.44E-05
10	332.97	9.25E-01	+/-	1.78E-01	1.46E+00	3.10E-04	+/-	1.38E-05
11	345.16	1.01E+00	+/-	1.65E-01	1.45E+00	3.03E-04	+/-	1.38E-05
12	375.13	2.76E+00	+/-	2.08E-01	1.44E+00	2.86E-04	+/-	1.46E-05
13	393.10	7.79E-01	+/-	1.32E-01	1.43E+00	2.77E-04	+/-	1.50E-05
14	400.66	2.49E-01	+/-	1.10E-01	1.43E+00	2.73E-04	+/-	1.52E-05
15	413.70	2.63E+00	+/-	1.87E-01	1.42E+00	2.66E-04	+/-	1.54E-05
16	511.00	1.11E+00	+/-	1.26E-01	1.38E+00	2.26E-04	+/-	1.47E-05
17	867.39	8.34E-02	+/-	3.84E-02	1.28E+00	1.45E-04	+/-	6.62E-06
18	1001.03	5.41E-02	+/-	3.27E-02	1.25E+00	1.28E-04	+/-	5.62E-06

Segment: 9 Detector: DET01 (# 1) Position: 9

Elapsed Live Time: 112.73 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.247 +/- 0.0088
SE-75	264.65	0.000 +/- 0.0000	0.394 +/- 0.0029
SE-75	279.53	0.000 +/- 0.0000	0.401 +/- 0.0035
SE-75	400.65	0.000 +/- 0.0000	0.456 +/- 0.0044

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.88	1.72E+00 +/- 2.67E-01	3.14E+00	2.70E-06 +/- 2.60E-05
2	35.10	1.01E+03 +/- 4.79E+00	2.24E+00	1.75E-05 +/- 8.88E-05
3	49.77	1.08E+01 +/- 1.10E+00	1.92E+00	6.10E-05 +/- 1.51E-04
4	59.85	2.36E+02 +/- 1.96E+00	1.83E+00	1.01E-04 +/- 1.59E-04
5	98.94	6.60E+00 +/- 5.26E-01	1.68E+00	2.52E-04 +/- 6.02E-05
6	111.38	1.28E+00 +/- 4.03E-01	1.66E+00	2.86E-04 +/- 3.05E-05
7	129.29	8.38E+00 +/- 4.44E-01	1.63E+00	3.23E-04 +/- 1.97E-05
8	148.57	7.09E-01 +/- 2.98E-01	1.59E+00	3.48E-04 +/- 3.41E-05
9	208.25	3.56E+00 +/- 3.16E-01	1.48E+00	3.66E-04 +/- 3.76E-05
10	238.75	2.57E+00 +/- 2.48E-01	1.43E+00	3.57E-04 +/- 2.88E-05
11	311.90	5.24E-01 +/- 1.62E-01	1.37E+00	3.20E-04 +/- 1.45E-05
12	332.79	9.87E-01 +/- 2.01E-01	1.36E+00	3.08E-04 +/- 1.39E-05
13	345.13	8.22E-01 +/- 1.44E-01	1.35E+00	3.01E-04 +/- 1.41E-05
14	375.13	2.16E+00 +/- 2.03E-01	1.34E+00	2.86E-04 +/- 1.49E-05
15	393.01	6.59E-01 +/- 1.49E-01	1.33E+00	2.77E-04 +/- 1.54E-05
16	413.70	1.81E+00 +/- 1.77E-01	1.32E+00	2.67E-04 +/- 1.59E-05
17	452.00	3.97E-01 +/- 1.11E-01	1.31E+00	2.50E-04 +/- 1.61E-05
18	510.96	9.91E-01 +/- 1.28E-01	1.29E+00	2.26E-04 +/- 1.52E-05
19	583.32	1.66E+00 +/- 1.51E-01	1.27E+00	2.03E-04 +/- 1.30E-05
20	662.42	1.46E-01 +/- 6.41E-02	1.25E+00	1.82E-04 +/- 1.04E-05
21	727.64	4.57E-01 +/- 9.10E-02	1.24E+00	1.68E-04 +/- 8.67E-06
22	860.82	2.33E-01 +/- 7.60E-02	1.22E+00	1.46E-04 +/- 6.54E-06
23	911.43	1.44E+00 +/- 1.24E-01	1.21E+00	1.40E-04 +/- 6.14E-06
24	968.93	5.99E-01 +/- 9.90E-02	1.20E+00	1.34E-04 +/- 5.79E-06
25	2616.46	6.94E-01 +/- 7.82E-02	1.13E+00	9.33E-05 +/- 8.21E-05

Segment: 10 Detector: DET01 (# 1) Position: 10

Instrument ID: SGS Can ID: LL85501243TRU Count Sequence #: 1062

Elapsed Live Time: 111.78 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.056 +/- 0.0059
SE-75	264.65	0.000 +/- 0.0000	0.167 +/- 0.0015
SE-75	279.53	0.000 +/- 0.0000	0.176 +/- 0.0020
SE-75	400.65	0.000 +/- 0.0000	0.226 +/- 0.0027

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.58	3.51E+00 +/- 3.55E-01	4.10E+00	3.86E-07 +/- 5.37E-07
2	35.10	1.01E+03 +/- 4.84E+00	4.00E+00	5.68E-06 +/- 4.74E-06
3	50.08	2.22E+01 +/- 1.25E+00	3.19E+00	3.29E-05 +/- 1.57E-05
4	59.86	6.81E+02 +/- 3.75E+00	2.97E+00	6.47E-05 +/- 2.22E-05
5	74.88	6.64E-01 +/- 4.06E-01	2.77E+00	1.27E-04 +/- 2.69E-05
6	98.90	1.57E+01 +/- 6.93E-01	2.60E+00	2.31E-04 +/- 2.33E-05
7	103.41	4.88E+00 +/- 6.33E-01	2.58E+00	2.49E-04 +/- 2.20E-05
8	111.37	3.76E+00 +/- 4.77E-01	2.55E+00	2.77E-04 +/- 1.98E-05
9	129.29	1.66E+01 +/- 5.33E-01	2.48E+00	3.30E-04 +/- 1.70E-05
10	148.57	1.72E+00 +/- 3.44E-01	2.37E+00	3.68E-04 +/- 1.75E-05
11	185.71	6.13E-01 +/- 2.77E-01	2.14E+00	4.00E-04 +/- 2.05E-05
12	208.25	7.41E+00 +/- 4.07E-01	2.04E+00	4.01E-04 +/- 2.09E-05
13	238.81	1.86E+00 +/- 2.51E-01	1.92E+00	3.92E-04 +/- 1.98E-05
14	244.70	3.63E-01 +/- 2.08E-01	1.90E+00	3.89E-04 +/- 1.95E-05
15	311.90	9.20E-01 +/- 1.79E-01	1.76E+00	3.45E-04 +/- 1.50E-05
16	332.85	1.32E+00 +/- 2.36E-01	1.74E+00	3.31E-04 +/- 1.38E-05
17	345.17	1.55E+00 +/- 2.07E-01	1.73E+00	3.22E-04 +/- 1.32E-05
18	368.39	6.55E-01 +/- 1.67E-01	1.70E+00	3.07E-04 +/- 1.23E-05
19	375.17	4.82E+00 +/- 2.85E-01	1.69E+00	3.03E-04 +/- 1.20E-05
20	383.10	4.14E-01 +/- 1.87E-01	1.69E+00	2.97E-04 +/- 1.18E-05
21	393.19	1.75E+00 +/- 1.71E-01	1.68E+00	2.91E-04 +/- 1.15E-05
22	413.70	4.29E+00 +/- 2.38E-01	1.66E+00	2.79E-04 +/- 1.11E-05
23	422.69	3.13E-01 +/- 1.01E-01	1.65E+00	2.74E-04 +/- 1.09E-05
24	451.87	4.64E-01 +/- 1.22E-01	1.63E+00	2.58E-04 +/- 1.05E-05
25	510.70	6.08E-01 +/- 1.23E-01	1.59E+00	2.31E-04 +/- 1.00E-05
26	583.32	1.71E+00 +/- 1.44E-01	1.55E+00	2.03E-04 +/- 9.53E-06
27	805.91	9.84E-02 +/- 4.08E-02	1.45E+00	1.51E-04 +/- 7.23E-06
28	910.94	1.07E+00 +/- 1.09E-01	1.42E+00	1.37E-04 +/- 5.98E-06
29	969.06	7.15E-01 +/- 9.38E-02	1.40E+00	1.31E-04 +/- 5.35E-06
30	1001.03	5.29E-02 +/- 3.37E-02	1.39E+00	1.28E-04 +/- 5.05E-06
31	2616.59	7.60E-01 +/- 8.72E-02	1.25E+00	1.33E-04 +/- 4.54E-05

Segment: 11 Detector: DET01 (# 1) Position: 11

Elapsed Live Time: 111.53 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.109 +/- 0.0069
SE-75	264.65	0.000 +/- 0.0000	0.249 +/- 0.0020
SE-75	279.53	0.000 +/- 0.0000	0.263 +/- 0.0026
SE-75	400.65	0.000 +/- 0.0000	0.316 +/- 0.0034

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.60	2.92E+00 +/- 3.42E-01	4.10E+00	5.32E-07 +/- 7.35E-07
2	35.10	1.01E+03 +/- 4.81E+00	3.18E+00	6.75E-06 +/- 5.60E-06
3	50.17	2.35E+01 +/- 1.18E+00	2.59E+00	3.60E-05 +/- 1.71E-05
4	59.85	8.19E+02 +/- 4.24E+00	2.43E+00	6.79E-05 +/- 2.32E-05
5	98.92	1.71E+01 +/- 7.25E-01	2.17E+00	2.29E-04 +/- 2.29E-05
6	103.43	9.18E+00 +/- 4.41E-01	2.15E+00	2.45E-04 +/- 2.16E-05
7	111.38	3.91E+00 +/- 4.96E-01	2.13E+00	2.72E-04 +/- 1.93E-05
8	129.29	2.01E+01 +/- 5.65E-01	2.08E+00	3.21E-04 +/- 1.65E-05
9	148.57	1.91E+00 +/- 3.39E-01	2.00E+00	3.56E-04 +/- 1.70E-05
10	171.66	1.06E+00 +/- 2.58E-01	1.90E+00	3.80E-04 +/- 1.90E-05
11	208.18	8.30E+00 +/- 4.18E-01	1.77E+00	3.89E-04 +/- 2.04E-05
12	244.70	4.14E-01 +/- 1.80E-01	1.67E+00	3.77E-04 +/- 1.91E-05
13	267.98	3.90E-01 +/- 1.47E-01	1.61E+00	3.65E-04 +/- 1.77E-05
14	300.10	2.72E-01 +/- 1.59E-01	1.57E+00	3.45E-04 +/- 1.56E-05
15	311.90	9.81E-01 +/- 1.71E-01	1.56E+00	3.37E-04 +/- 1.49E-05
16	332.77	2.08E+00 +/- 2.38E-01	1.55E+00	3.24E-04 +/- 1.37E-05
17	345.10	1.40E+00 +/- 1.94E-01	1.54E+00	3.16E-04 +/- 1.31E-05
18	368.64	3.47E-01 +/- 1.62E-01	1.52E+00	3.01E-04 +/- 1.22E-05
19	375.18	5.30E+00 +/- 2.76E-01	1.52E+00	2.97E-04 +/- 1.19E-05
20	383.00	5.85E-01 +/- 1.37E-01	1.51E+00	2.93E-04 +/- 1.17E-05
21	393.01	1.99E+00 +/- 1.65E-01	1.51E+00	2.87E-04 +/- 1.14E-05
22	413.70	5.13E+00 +/- 2.34E-01	1.49E+00	2.75E-04 +/- 1.09E-05
23	422.78	1.82E-01 +/- 1.05E-01	1.49E+00	2.70E-04 +/- 1.08E-05
24	451.60	6.78E-01 +/- 1.08E-01	1.47E+00	2.56E-04 +/- 1.03E-05
25	662.42	1.55E-01 +/- 5.55E-02	1.38E+00	1.80E-04 +/- 8.65E-06
26	910.98	1.82E-01 +/- 4.58E-02	1.31E+00	1.38E-04 +/- 5.90E-06
27	1085.91	4.72E-02 +/- 2.86E-02	1.28E+00	1.22E-04 +/- 4.46E-06

Segment: 12 Detector: DET01 (# 1) Position: 12

Elapsed Live Time: 112.36 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.271 +/- 0.0093
SE-75	264.65	0.000 +/- 0.0000	0.439 +/- 0.0031
SE-75	279.53	0.000 +/- 0.0000	0.444 +/- 0.0038
SE-75	400.65	0.000 +/- 0.0000	0.503 +/- 0.0047

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.60	2.33E+00 +/- 2.87E-01	3.00E+00	7.14E-07 +/- 9.85E-07
2	35.10	1.01E+03 +/- 4.80E+00	2.14E+00	7.63E-06 +/- 6.33E-06
3	49.97	1.78E+01 +/- 1.11E+00	1.84E+00	3.63E-05 +/- 1.74E-05
4	59.87	5.09E+02 +/- 3.02E+00	1.76E+00	6.73E-05 +/- 2.31E-05
5	98.92	9.92E+00 +/- 5.81E-01	1.63E+00	2.17E-04 +/- 2.20E-05
6	111.19	2.54E+00 +/- 4.31E-01	1.61E+00	2.57E-04 +/- 1.87E-05
7	129.29	1.14E+01 +/- 4.47E-01	1.58E+00	3.04E-04 +/- 1.59E-05
8	148.57	1.78E+00 +/- 2.81E-01	1.55E+00	3.39E-04 +/- 1.64E-05
9	208.23	5.08E+00 +/- 3.22E-01	1.43E+00	3.76E-04 +/- 1.99E-05
10	311.90	7.18E-01 +/- 1.42E-01	1.32E+00	3.36E-04 +/- 1.48E-05
11	332.77	1.25E+00 +/- 1.85E-01	1.31E+00	3.24E-04 +/- 1.37E-05
12	345.11	9.84E-01 +/- 1.58E-01	1.31E+00	3.17E-04 +/- 1.31E-05
13	367.77	4.29E-01 +/- 1.19E-01	1.30E+00	3.04E-04 +/- 1.22E-05
14	375.14	3.41E+00 +/- 2.13E-01	1.29E+00	3.00E-04 +/- 1.19E-05
15	392.92	1.17E+00 +/- 1.27E-01	1.29E+00	2.90E-04 +/- 1.14E-05
16	413.70	2.90E+00 +/- 1.80E-01	1.28E+00	2.79E-04 +/- 1.09E-05
17	422.59	2.20E-01 +/- 8.20E-02	1.28E+00	2.75E-04 +/- 1.07E-05
18	662.42	1.77E-01 +/- 4.84E-02	1.22E+00	1.85E-04 +/- 8.58E-06
19	778.90	2.64E-02 +/- 2.05E-02	1.20E+00	1.60E-04 +/- 7.32E-06
20	964.13	5.29E-02 +/- 2.16E-02	1.17E+00	1.33E-04 +/- 5.22E-06
21	1085.91	1.91E-02 +/- 1.84E-02	1.16E+00	1.21E-04 +/- 4.35E-06
22	1408.01	8.81E-03 +/- 8.81E-03	1.14E+00	1.02E-04 +/- 6.34E-06

Segment: 13 Detector: DET01 (# 1) Position: 13

Elapsed Live Time: 112.48 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.145 +/- 0.0074
SE-75	264.65	0.000 +/- 0.0000	0.292 +/- 0.0022
SE-75	279.53	0.000 +/- 0.0000	0.300 +/- 0.0028
SE-75	400.65	0.000 +/- 0.0000	0.358 +/- 0.0037

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.68	2.22E+00 +/- 2.71E-01	4.10E+00	1.26E-06 +/- 1.81E-06
2	35.10	1.01E+03 +/- 4.79E+00	2.83E+00	1.10E-05 +/- 9.51E-06
3	49.98	1.69E+01 +/- 1.05E+00	2.34E+00	4.64E-05 +/- 2.30E-05
4	59.86	4.87E+02 +/- 2.92E+00	2.21E+00	8.19E-05 +/- 2.89E-05
5	98.89	8.52E+00 +/- 5.27E-01	1.99E+00	2.37E-04 +/- 2.42E-05
6	103.53	2.63E+00 +/- 5.12E-01	1.98E+00	2.53E-04 +/- 2.25E-05
7	111.08	1.12E+00 +/- 3.81E-01	1.96E+00	2.76E-04 +/- 2.00E-05
8	129.29	9.31E+00 +/- 4.06E-01	1.92E+00	3.21E-04 +/- 1.67E-05
9	148.57	1.14E+00 +/- 2.62E-01	1.85E+00	3.52E-04 +/- 1.72E-05
10	208.16	3.77E+00 +/- 2.95E-01	1.67E+00	3.80E-04 +/- 2.07E-05
11	279.54	1.73E-01 +/- 1.21E-01	1.53E+00	3.52E-04 +/- 1.71E-05
12	311.90	4.98E-01 +/- 1.22E-01	1.50E+00	3.33E-04 +/- 1.50E-05
13	332.89	8.07E-01 +/- 1.66E-01	1.49E+00	3.20E-04 +/- 1.38E-05
14	345.18	9.61E-01 +/- 1.50E-01	1.48E+00	3.13E-04 +/- 1.32E-05
15	375.20	2.53E+00 +/- 1.91E-01	1.46E+00	2.95E-04 +/- 1.20E-05
16	393.21	9.22E-01 +/- 1.14E-01	1.44E+00	2.85E-04 +/- 1.15E-05
17	413.70	2.20E+00 +/- 1.57E-01	1.43E+00	2.74E-04 +/- 1.10E-05
18	451.67	2.90E-01 +/- 6.99E-02	1.41E+00	2.55E-04 +/- 1.05E-05
19	662.42	9.24E-02 +/- 4.28E-02	1.34E+00	1.80E-04 +/- 8.87E-06
20	964.13	3.26E-02 +/- 2.33E-02	1.27E+00	1.27E-04 +/- 5.29E-06
21	1408.01	2.05E-02 +/- 1.77E-02	1.21E+00	9.60E-05 +/- 6.10E-06

Segment: 14 Detector: DET01 (# 1) Position: 14

Elapsed Live Time: 112.75 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.172 +/- 0.0074
SE-75	264.65	0.000 +/- 0.0000	0.285 +/- 0.0022
SE-75	279.53	0.000 +/- 0.0000	0.294 +/- 0.0028
SE-75	400.65	0.000 +/- 0.0000	0.349 +/- 0.0036

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.57	1.90E+00 +/- 2.57E-01	3.90E+00	6.65E-07 +/- 6.35E-06
2	35.10	1.01E+03 +/- 4.81E+00	2.64E+00	8.94E-06 +/- 4.41E-05
3	50.09	1.54E+01 +/- 9.46E-01	2.20E+00	4.49E-05 +/- 1.07E-04
4	59.86	4.16E+02 +/- 2.63E+00	2.08E+00	8.16E-05 +/- 1.25E-04
5	99.00	6.36E+00 +/- 5.14E-01	1.89E+00	2.40E-04 +/- 5.58E-05
6	103.42	1.91E+00 +/- 4.31E-01	1.88E+00	2.54E-04 +/- 4.53E-05
7	111.12	1.24E+00 +/- 3.51E-01	1.86E+00	2.76E-04 +/- 2.95E-05
8	129.29	7.56E+00 +/- 3.83E-01	1.82E+00	3.17E-04 +/- 1.90E-05
9	148.57	6.81E-01 +/- 2.33E-01	1.78E+00	3.44E-04 +/- 3.29E-05
10	208.21	2.68E+00 +/- 2.63E-01	1.65E+00	3.63E-04 +/- 3.64E-05
11	300.10	2.24E-01 +/- 1.10E-01	1.52E+00	3.25E-04 +/- 1.51E-05
12	311.90	5.88E-01 +/- 1.24E-01	1.51E+00	3.18E-04 +/- 1.42E-05
13	332.99	8.09E-01 +/- 1.42E-01	1.50E+00	3.07E-04 +/- 1.37E-05
14	345.07	7.88E-01 +/- 1.30E-01	1.49E+00	3.01E-04 +/- 1.38E-05
15	375.13	1.91E+00 +/- 1.62E-01	1.47E+00	2.85E-04 +/- 1.46E-05
16	393.11	6.88E-01 +/- 9.36E-02	1.46E+00	2.76E-04 +/- 1.51E-05
17	400.66	1.02E-01 +/- 7.31E-02	1.45E+00	2.73E-04 +/- 1.53E-05
18	413.70	1.74E+00 +/- 1.44E-01	1.45E+00	2.67E-04 +/- 1.56E-05
19	451.70	1.86E-01 +/- 5.32E-02	1.43E+00	2.50E-04 +/- 1.58E-05
20	662.42	8.16E-02 +/- 3.90E-02	1.35E+00	1.83E-04 +/- 1.04E-05
21	778.90	2.93E-02 +/- 2.58E-02	1.31E+00	1.59E-04 +/- 7.64E-06
22	1001.03	1.92E-02 +/- 1.76E-02	1.27E+00	1.27E-04 +/- 5.50E-06

Segment: 15 Detector: DET01 (# 1) Position: 15

Elapsed Live Time: 113.43 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.423 +/- 0.0111
SE-75	264.65	0.000 +/- 0.0000	0.563 +/- 0.0039
SE-75	279.53	0.000 +/- 0.0000	0.575 +/- 0.0046
SE-75	400.65	0.000 +/- 0.0000	0.627 +/- 0.0055

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	1.70E+00	1.45E-08 +/- 6.96E-08
2	59.88	1.39E+02 +/- 1.37E+00	1.47E+00	1.13E-05 +/- 1.69E-05
3	98.97	2.50E+00 +/- 3.33E-01	1.39E+00	1.84E-04 +/- 4.18E-05
4	103.46	6.50E-01 +/- 3.03E-01	1.39E+00	2.10E-04 +/- 3.65E-05
5	129.29	2.34E+00 +/- 2.57E-01	1.37E+00	3.37E-04 +/- 1.99E-05
6	148.57	2.88E-01 +/- 1.74E-01	1.35E+00	3.93E-04 +/- 3.63E-05
7	208.33	1.04E+00 +/- 1.78E-01	1.28E+00	4.15E-04 +/- 3.97E-05
8	311.90	2.24E-01 +/- 9.53E-02	1.21E+00	3.22E-04 +/- 1.42E-05
9	345.42	4.38E-01 +/- 8.50E-02	1.20E+00	2.95E-04 +/- 1.37E-05
10	375.21	7.85E-01 +/- 1.01E-01	1.19E+00	2.74E-04 +/- 1.44E-05
11	400.66	1.68E-01 +/- 6.15E-02	1.19E+00	2.59E-04 +/- 1.48E-05
12	413.70	7.14E-01 +/- 9.02E-02	1.19E+00	2.52E-04 +/- 1.49E-05
13	662.42	6.97E-02 +/- 4.62E-02	1.15E+00	1.74E-04 +/- 9.76E-06

Segment: 16 Detector: DET01 (# 1) Position: 16

Elapsed Live Time: 113.71 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.531 +/- 0.0120
SE-75	264.65	0.000 +/- 0.0000	0.644 +/- 0.0044
SE-75	279.53	0.000 +/- 0.0000	0.653 +/- 0.0051
SE-75	400.65	0.000 +/- 0.0000	0.697 +/- 0.0060

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	1.49E+00	9.52E-10 +/- 5.35E-09
2	59.90	2.36E+01 +/- 6.41E-01	1.34E+00	3.51E-06 +/- 6.12E-06
3	129.29	3.34E-01 +/- 1.70E-01	1.26E+00	2.29E-04 +/- 1.54E-05
4	400.66	1.58E-01 +/- 6.48E-02	1.14E+00	1.86E-04 +/- 1.20E-05
5	413.70	8.05E-02 +/- 4.23E-02	1.14E+00	1.81E-04 +/- 1.21E-05
6	1085.91	2.61E-02 +/- 1.51E-02	1.08E+00	9.33E-05 +/- 4.42E-06

Summed Spectrum

Peak Locate Report

Sample ID: LL85501243TRU
Peak Locate Performed on: 10-05-02 11:04:46 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192
Peak Search Sensitivity: 5.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	46.96	0.1666	23.40	21.34
2	53.04	0.2084	26.44	12.03
3	70.46	0.0444	35.14	272.86
4	99.45	0.1765	49.63	12.66
5	119.19	0.0383	59.49	332.93
6	197.66	0.1315	98.70	29.71
7	206.55	0.1575	103.14	19.93
8	222.34	0.1883	111.02	13.20
9	229.26	0.2544	114.48	7.65
10	236.78	0.2731	118.24	7.02
11	258.96	0.0980	129.32	51.74
12	297.47	0.1970	148.56	13.89
13	329.62	0.2783	164.62	5.99
14	416.22	0.0975	207.89	48.31
15	477.79	0.2949	238.65	5.93
16	511.24	0.2927	255.36	5.61
17	535.44	0.2729	267.46	5.99
18	624.29	0.1921	311.85	12.93
19	665.90	0.1417	332.64	22.09
20	690.55	0.1399	344.95	21.20
21	736.64	0.2285	367.98	5.31
22	750.57	0.1021	374.94	38.03
23	766.14	0.1906	382.72	14.07
24	786.32	0.1392	392.80	19.86
25	827.96	0.1028	413.60	40.60
26	845.90	0.2166	422.56	9.12
27	903.44	0.1722	451.32	12.94
28	1022.60	0.2136	510.85	7.62
29	1167.43	0.2019	583.21	8.08
30	1325.75	0.1925	662.31	10.38
31	1445.03	0.2450	721.90	6.25
32	1824.08	0.2219	911.28	6.92
33	1939.61	0.2460	969.00	5.96
34	2551.94	0.1863	1274.93	8.45
35	5237.11	0.1819	2616.49	7.56

Errors quoted at 1.000 sigma

Summed Spectrum

Peak Analysis Report

Sample ID: LL85501243TRU
Peak Analysis Performed on: 10-05-02 11:04:46 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	43-	49	46.96	23.40	2.06E+04	239.73	1.67E+04
2	51-	56	53.04	26.44	3.59E+03	219.85	2.15E+04
3	67-	73	70.46	35.14	1.74E+06	1336.04	2.46E+04
4	96-	102	99.45	49.63	8.72E+04	1007.64	4.48E+05
5	115-	122	119.19	59.49	3.35E+06	2121.25	5.52E+05
6	193-	201	197.66	98.70	3.61E+04	519.76	1.10E+05
7	202-	210	206.55	103.14	9.35E+03	498.83	1.05E+05
8	218-	226	222.34	111.02	6.49E+03	415.66	7.69E+04
9	226-	233	229.26	114.48	3.52E+03	376.88	6.84E+04
10	233-	240	236.78	118.24	7.81E+03	333.60	4.35E+04
11	254-	262	258.96	129.32	3.47E+04	314.19	2.93E+04
12	293-	301	297.47	148.56	5.58E+03	216.39	1.92E+04
13	325-	333	329.62	164.62	6.87E+02	184.26	1.55E+04
14	411-	420	416.22	207.89	2.11E+04	233.81	1.44E+04
15	473-	482	477.79	238.65	7.48E+02	119.51	5.98E+03
16	506-	515	511.24	255.36	7.90E+02	109.70	4.97E+03
17	530-	540	535.44	267.46	7.97E+02	112.00	4.93E+03
18	619-	629	624.29	311.85	1.93E+03	101.03	3.47E+03
19	660-	670	665.90	332.64	4.17E+03	130.93	5.33E+03
20	688-	695	690.55	344.95	4.32E+03	93.28	2.13E+03
21	731-	741	736.64	367.98	1.82E+03	86.99	2.41E+03
22	745-	755	750.57	374.94	1.21E+04	139.37	3.07E+03
23	765-	771	766.14	382.72	1.05E+03	78.64	1.96E+03
24	781-	791	786.32	392.80	4.42E+03	88.20	1.41E+03
25	822-	833	827.96	413.60	1.15E+04	121.46	1.32E+03
26	840-	851	845.90	422.56	4.03E+02	64.55	1.48E+03
27	897-	908	903.44	451.32	1.34E+03	57.07	7.65E+02
28	1016-	1028	1022.60	510.85	1.75E+03	54.09	4.50E+02
29	1161-	1173	1167.43	583.21	6.05E+02	36.24	2.70E+02
30	1319-	1331	1325.75	662.31	6.51E+02	37.79	2.93E+02
31	1438-	1451	1445.03	721.90	2.24E+02	32.70	3.02E+02
32	1817-	1830	1824.08	911.28	3.49E+02	25.35	1.07E+02
33	1936-	1946	1939.61	969.00	1.80E+02	21.57	1.17E+02
34	2544-	2559	2551.94	1274.93	5.26E+02	27.80	8.22E+01
35	5227-	5246	5237.11	2616.49	3.13E+02	18.82	1.20E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Summed Spectrum

Nuclide Identification Report

Sample ID: LL85501243TRU
Nuclide Library Used: C:\WAS\NLIB\LLNL.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Pulser	1.000	35.10*	100.00	2.102E+06	4.230E+06
Np-237	0.763	300.10	6.63		
		311.90*	38.60	6.452E+00	3.397E-01
Pu-239	0.999	413.70*	0.00	1.174E+06	2.423E+04
Pu-239A	1.000	129.29*	0.01	8.268E+05	1.913E+04
Am-241	0.999	662.42*	0.00	3.426E+05	2.002E+04
Pu-241	1.000	148.57*	0.00	3.895E+06	1.596E+05

* = Energy line found in the spectrum.
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10-05-02 11:04:46 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	23.40	1.9157E+02	1.17
2	26.44	3.3329E+01	6.13
4	49.63	8.0996E+02	1.16
5	59.49	3.1110E+04	0.11
6	98.70	3.3517E+02	1.44
7	103.14	8.6792E+01	5.34
8	111.02	6.0221E+01	6.41
9	114.48	3.2695E+01	10.70
10	118.24	7.2519E+01	4.27
13	164.62	6.3825E+00	26.81
14	207.89	1.9555E+02	1.11
15	238.65	6.9422E+00	15.98
16	255.36	7.3383E+00	13.88
17	267.46	7.4021E+00	14.05
19	332.64	3.8725E+01	3.14
20	344.95	4.0096E+01	2.16
21	367.98	1.6924E+01	4.77
22	374.94	1.1265E+02	1.15
23	382.72	9.7815E+00	7.47
24	392.80	4.1042E+01	2.00
26	422.56	3.7402E+00	16.02
27	451.32	1.2412E+01	4.27
28	510.85	1.6203E+01	3.10
29	583.21	5.6204E+00	5.99
31	721.90	2.0811E+00	14.59
32	911.28	3.2430E+00	7.26
33	969.00	1.6715E+00	11.98
34	1274.93	4.8825E+00	5.29
35	2616.49	2.9063E+00	6.01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Combined Segment NID

NID Results Combiner Mode: Sum Activities

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		4.69E+07	+/-	2.41E+08		8.33E+02	+/-	4.28E+03
SE-75	<	4.14E-01	+/-	2.93E-02	<	7.35E-06	+/-	5.21E-07
EU-152x		2.49E-02	+/-	1.10E-02		4.43E-07	+/-	1.95E-07
U-233	<	2.17E+04	+/-	1.92E+03	<	3.86E-01	+/-	3.41E-02
U-235		1.55E-01	+/-	7.07E-02		2.76E-06	+/-	1.25E-06
Np-237		1.11E+01	+/-	7.16E-01		1.96E-04	+/-	1.27E-05
Pu-238	<	5.00E+04	+/-	6.27E+03	<	8.88E-01	+/-	1.11E-01
U-238		4.19E+00	+/-	1.67E+00		7.44E-05	+/-	2.98E-05
Pu-239		2.22E+06	+/-	8.47E+04		3.94E+01	+/-	1.50E+00
Pu-239A		1.80E+06	+/-	5.84E+04		3.20E+01	+/-	1.04E+00
Am-241		6.49E+05	+/-	4.32E+04		1.15E+01	+/-	7.66E-01
Pu-241		9.06E+06	+/-	6.21E+05		1.61E+02	+/-	1.10E+01

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	7.19E-02	+/-	3.27E-02
Np-237	1.57E-02	+/-	1.02E-03
U-238	1.25E+01	+/-	4.99E+00
Pu-239	3.57E+01	+/-	1.36E+00
Pu-239A	2.90E+01	+/-	9.40E-01
Am-241	1.90E-01	+/-	1.26E-02
Pu-241	8.76E-02	+/-	6.01E-03

Summed Spectrum

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		2.10E+06	+/-	4.23E+06		3.73E+01	+/-	7.51E+01
SE-75	<	9.06E-01	+/-	6.44E-03	<	1.61E-05	+/-	1.14E-07
EU-152x	<	8.51E-01	+/-	1.32E-02	<	1.51E-05	+/-	2.34E-07
U-233	<	5.40E+04	+/-	9.90E+02	<	9.60E-01	+/-	1.76E-02
U-235	<	1.43E+00	+/-	2.72E-02	<	2.54E-05	+/-	4.83E-07
Np-237		6.45E+00	+/-	3.40E-01		1.15E-04	+/-	6.03E-06
Pu-238	<	1.19E+05	+/-	1.54E+03	<	2.11E+00	+/-	2.73E-02
U-238	<	2.59E+01	+/-	3.97E-01	<	4.60E-04	+/-	7.06E-06
Pu-239		1.17E+06	+/-	2.42E+04		2.08E+01	+/-	4.30E-01
Pu-239A		8.27E+05	+/-	1.91E+04		1.47E+01	+/-	3.40E-01
Am-241		3.43E+05	+/-	2.00E+04		6.08E+00	+/-	3.56E-01
Pu-241		3.89E+06	+/-	1.60E+05		6.92E+01	+/-	2.84E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
Np-237	9.16E-03	+/-	4.82E-04
Pu-239	1.89E+01	+/-	3.90E-01
Pu-239A	1.33E+01	+/-	3.08E-01
Am-241	1.00E-01	+/-	5.85E-03
Pu-241	3.77E-02	+/-	1.54E-03

Final Non-Uniformity Results

Source Longitudinal Ratio:	0.000	+/-	0.0000
Matrix Longitudinal Ratio:	0.955	+/-	0.2377
Source Vertical Ratio:	0.000	+/-	0.0000
Matrix Vertical Ratio:	0.982	+/-	0.0288

NUDS could not find the transmission peak in one radial segment.
NUDS could not find the source peak in any radial segment.

LAWRENCE LIVERMORE NATIONAL LABORATORY

WASTE DISPOSAL REQUISITION

W 223262

H1. Label/Waste Type:
- ☐ Non-Haz (N)
- ☐ RCRA Haz (H)
- ☐ CA Haz (C)
- ☐ NTS LLW (L)
- ☐ Low-Level (R)
- ☐ LLW Mixed (F)
- ☐ LLW Combined (S)
- ☒ TRU (T)
- ☐ TRU Mixed (X)

1. Container ID Number or Tank ID or for TRU Waste, TRU Waste Container Serial No.: Q-- LL85-501243 TRU--

H2. CCC: DS

H3. Storage Restrictions
Not acceptable at the following locations:
☑ 233 ☑ 514 ☐ 612 ☐ 693 ☐ 696
CWAA ☑ 169 ☑ 361 ☐ 612-4

2. Container Use/Acceptability: ☐ On-site use only; ☒ Acceptable for off-site use
Container Manufacturer Serial No./Batch No. B520483 ☐ N/A
Employee No.: 553224 Initials: JM Date: 5-23-02

3. RMMA: ☑ Yes ☐ No

4. Waste Form: ☑ Solid ☐ Liquid ☐ Gas ☐ Sludge

H4. Hazardous Properties: ☐ Toxic ☐ Corrosive ☐ Ignitable ☐ Reactive

5. Outer Container Type: ☐ Box ☐ Sack ☐ Can ☐ SWB ☐ Carboy ☐ Tub ☑ Drum ☐ Bag ☐ Tank – Fixed ☐ Tank – Portable ☐ Transportainer
Other: _____

6. Outer Container Size/Vol:
☐ 1 gal ☒ 55 gal ☐ 67 cu ft
☐ 2 gal ☐ 85 gal ☐ 1 × 1 × 1.5
☐ 5 gal ☐ 330 gal ☐ 2 × 4 × 7
☐ 10 gal ☐ 660 gal ☐ 4 × 4 × 7
☐ 12 gal ☐ 750 gal ☐ 1 cu yd
☐ 20 gal ☐ 1000 gal ☐ 8 × 8 × 20
☐ 30 gal ☐ 5000 gal ☐ 8 × 8 × 40
Other: _____ ☐ gal _____ ☐ cu ft

7. Building No.: 332
8. Room No.: 1378
9. Location: AT GEN
10. Workplace Start Date: 06/13/02
11. Workplace End Date: 06/21/02
12. Account No.: 5481-50
13. Directorate: DNT
14. WEF/PKE/SAW/PIW: ☐ WEF ☒ PKE ☐ SAW ☐ PIW
Specify No.: 0245, 0247 ☐ N/A
15. Source Code: A940
16. Inner Containers ☐ Yes ☒ No

17. Item No.	18. Spent or Unused (S/U)	19. Organic or Inorganic (O/I)	20. Waste Form (S,SL,L,G)	21. Waste Description (For multiple parcels, list Parcel Card Nos.)	22. Hazardous Constituents and Concentrations	23. Item Container Size	24. Quantity per Item Amount	Units	25. Analysis Sample No.	Physical Waste Data: 26. Aqueous Only pH	Normality	27. Flash Point
1			S	P052341 ✓		55 gal						
				P052342 ✓								
				P052300 ✓								

28. Does the waste contain radioactive components? ☑ Yes ☐ No ☐ To be analyzed
(If yes or TBA, complete Page 3 as applicable to waste type.)

This section (Steps 29–30) is required for Hazardous Waste generated in a RMMA

29. Was the waste kept isolated from any operation that could have produced radioactive contamination (using a glove box, vent hood, etc.)? NA 10/9/02
☐ Yes ☐ No (If no, full rad analysis required)

30. Was the waste exposed to particle beams capable of inducing radioactivity by activation?
☐ Yes ☒ No (If yes, full rad analysis required)

31. ☐ Generator: I certify, to the best of my knowledge, that the information provided on this requisition is correct. I understand that I may be liable to State and Federal prosecution by intentionally providing false information. I have obtained this information by:
☐ Direct knowledge of the waste generating process ☐ Analytical Data
☐ Obtaining sufficient information from others knowledgeable of the waste generating process

☒ Container Custodian: I certify that the waste parcels identified on this form are contained in this waste container and have been packaged in accordance with the requirements specified in the appropriate LLNL TRU or Low-Level Waste Program Certification and Quality Assurance Program.

Generator or Container Custodian Name (Print – Last, First): Summers, Harry V.
Signature: Harry V. Summers
Employee No.: 000806 L-Code: 361 Ext.: 35810 Date: 06/21/02

H5. Inspected By: Signature: Employee No.: Date:

H6. Characterization Chemist Approval:
☐ Acceptable for Sampling _____ (Initials) Exempt: ☐ OP ☐ SA ☐ DE
Signature: ☐ WEF Employee No.: Date:

H7. RCA Approval: ☐ Overpack for final shipment to NTS ☐ Meets SCAL
☐ Decay Program _____ (Initials) ☐ NTS Certified _____ (Initials) ☐ WIPP Certified _____ (Initials)
☐ On-site Treatment
Signature: ☐ WEF Employee No.: Date:

32. Waste Profile No., TRU Waste Form No., or Bin No.: 1, 2a, 2b

☐ On Hold – Pending S&A

☐ Released

31A. Gross Weight 86.4 kg
TARE = 30.1 kg

Radioactive page attached: ☒ Yes ☐ N/A

Continuation page(s) attached: ☐ Yes ☒ N/A

☐ HWM Use Only

LL-5344 (4/01)

WASTE DISPOSAL REQUISITION
RADIOACTIVE WASTE

REQUISITION No.: W 2 2 3 2 b 2

33. Moderators/Reflectors: Quantity of beryllium: 0 grams
Enriched in deuterium ☐ Yes ☒ No Carbon (e.g., graphite) 0 grams

34. Waste Package Seals (WPS) Applied: ☐ N/A ☒ Yes
WPS No(s): K782, L02746

35. MBA Quantity: ☐ Yes ☐ No

Items 36 to 39 are not required if Parcel Cards were used for documentation.

36. Method(s) used to identify radionuclides and/or determine activity: (Check all that apply)

☐ Process Knowledge ☐ Mass ☐ Mass Balance ☐ Liquid Scintillation Counting
☐ Alpha Spectrometry ☐ Tritium off gas measurement ☐ See attached methodology
☐ Dose-to-Curie ☐ Gamma Spectrometry ☐ High Sensitivity Neutron Instrument
☐ Segmented Gamma Scanner ☐ Other: _____
☐ AVLIS Method (☐ A ☐ B ☐ C)

See attached parcel cards

N/A 10/3/02

(Complete the following when a meter is used to determine activity):
Survey meter model: _____ Serial Number: _____
Meter Reading: _____ cpm, dpm, mR/hr (circle)
Calibration due date: _____
Check source jig No.: _____ Detector response (± 30%) ☐ Satisfactory

40. Radiological Data: ☐ See attached sheet

Item	Radionuclide	Quantity	Units (Ci, g)	α / PE - Ci	Pu – Eq. gram

37. Does this waste contain any of the following?

Friable Asbestos: ☐ Yes ☐ No
PCBs: ☐ Yes ☐ No
Pyrophorics: ☐ Yes ☐ No
(e.g., uranium turnings that could spontaneously combust if exposed to air)
Explosives: ☐ Yes ☐ No
(e.g., TNT, PETN that exhibit explosive properties).
Chelating Agents: ☐ Yes ☐ No
(e.g., Radiac Wash, >1% by weight)
Compressed Gases: ☐ Yes ☐ No
(e.g., aerosol cans)
Free Liquids: ☐ Yes ☐ No
Classified Material: ☐ Yes ☐ No
Explanations/Comments:

Plutonium grades: ☒ Weapons ☐ Fuel ☐ Reactor ☐ Mixed ☐ Am enriched
☐ Enriched Uranium: ____% U-234 ____% U-235 ____% U-238

41. Weight (Note: If AVLIS Method C, mass, HSNI, SGS or activity per unit mass is used to determine the activity of the waste, a calibrated scale shall be used).
☐ Estimated Weight ☐ Weighed on Calibrated Scale Initials: _____

Gross Weight/Unit	Tare Weight/Unit	Scale Serial No.	Calibration Due Date

42. Rad. Survey (mR/hr):

βγ @ Contact	βγ @ 1 Meter	Neutron @ Contact

Swipe Data: ☐ Complies with on-site transfer requirements
☐ Complies with 10 CFR 835 criteria for unrestricted release

Item 38 and 39 are only required for waste destined for NTS. This includes waste that will be treated prior to final disposal (e.g., LSC, and pyrophoric uranium turnings).

38. Packaging Procedure followed: ☐ WCP-8 ☐ Packaging Instruction No.: _____
☐ EX-404 ☐ Other (describe):

Performed By (print and signature): _____
Date: Employee No.: Ext:

39. Verifier Certification: I verify that, to the best of my knowledge, the information supplied by the waste generator on this form is complete and accurate, and that by visual inspection the waste is accurately described.
Verifier Name (print and sign): _____
Employee No.: _____ Date: _____

43. Container Type:
☒ DOT Type A
☐ DOT Type B
☐ Other

H15. Radiological Appendix:
☐ Liquid waste containing >1 Ci of Pu-Equivalent activity
☐ Contains > 10 grams fissionable material
RCA Initials: _____

WASTE DISPOSAL REQUISITION

REQUISITION No.: W 223262

H8.

Item	RCH Prefix	RCH	P	Origin Code	Form Code	EPA No.	DTSC No.	MSDS No.	Hazardous Properties T	C	I	R
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑

H9. **Hazardous Appendix**
Chemist Review
SCIL (Single Container Inventory Limits) Exceeded ❑ Yes ❑ No

pH results obtained by (*Check all that apply*) ❑ N/A

❑ Meter (Calibrated) ❑ Paper ❑ MSDS ❑ Analytical

Initial: _____

Employee No. _____ Date _____

CC Rule (*VOC's greater or less than 500 ppm level 1, 2, 3*) ❑ N/A:

❑ CC/> 500/A ❑ CC/< 500/A

❑ CC/> 500/B ❑ CC/< 500/B

A = Generator Knowledge B = Analytical Data

MPC: _____

❑ WEF CC initials: _____

H10. **RCO**

❑ Req tracking:

_____ Initials _____ Date

❑ TWMS:

_____ Initials _____ Date

H11.

❑ No disposal option:

Approved Exemption Request No. _____ Date _____

H12. NORM Rad Screening Conducted

❑ Yes ❑ No (N/A)

Employee No.: _____ Date: _____

Background Reading: _____ mR/hr

Reading on Item: _____ mR/hr

H13. RMMA Certification:

Shipping Emp. #: | CC

H14. WDAR #:

RADIOASSAY DATA SHEET

Batch Number: 2002-13

Radio Assay Method: SGS

Procedure ID & Rev: OP-B332-005

Software Version: GWAS V2.3A RADA V2.1

DRUM INFORMATION

Drum Package ID: LL85101245TR
Sequence Number: 1063
Assay Date & Time: 10-05-2002 11:27:27 AM
Report Generated: 10-07-2002 8:35:23 AM
Drum Package GROSS Weight: 84.20 kg NET Weight: 54.10 kg

IDC Number: LL 85101245 TRU

QC Replicate (Yes/No): NO Passed (Yes/No): _____

Operator Name (Printed): LEE CALDEIRA

Operator Signature: [signature] Date: 10/7/02

Independent Reviewer: [signature] Date: 10/10/02

Expert Reviewer: Kenneth Rasche Date: 10/9/02

Tech. Supv/QA Officer: [signature] Date: 10/14/02

ACTIVITY INFORMATION

Waste Classification: (TRU or LLW): TRU

Total Alpha Activity: 5.847E-01 +/- 1.646E-01 Ci

****
* I S O T O P I C I N F O R M A T I O N *
****

Isotope	Measured Mass (g)	Mass Uncertainty (g)
Pu-238	4.301E-03	1.770E-03
Pu-239	6.182E+00	2.512E+00
Pu-240	4.385E-01	1.793E-01
Pu-241	1.374E-02	5.606E-03
Pu-242	1.794E-03	8.251E-04
Am-241	7.326E-03	3.007E-03
*Am-243	N/A	N/A
*Np-237	N/A	N/A
*U-235	N/A	N/A
*U-238	N/A	N/A
*U-233	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 6.64E+00 +/- 2.52E+00 g

****
* M G A R E S U L T S *
****

NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	6.476E-02	3.37E+00
Pu-239	9.310E+01	1.66E-01
Pu-240	6.603E+00	2.33E+00
Pu-241	2.069E-01	1.89E+00
Pu-242	2.701E-02	1.10E+01
Am-241	1.103E-01	2.99E+00

```
*******************************************
*  A C T I V I T Y   I N F O R M A T I O N *
*******************************************
```

Procedure ID & Rev: OP-B332-005
Software Version: GWAS V2.3A RADA V2.1

Assay Date & Time: 10-05-2002 11:27:27 AM
Report Generated: 10-07-2002 8:35:25 AM

Drum Package ID: LL85101245TR
Sequence Number: 1063

Waste Classification (TRU or LLW): TRU

			Errors at 1.96 sigma	
Total Alpha Activity :	5.847E-01	+/-	1.646E-01	Ci
Total TRU Activity :	1.081E+04	+/-	3.042E+03	nCi/g
Pu-239 Equiv Activity:	6.060E-01	+/-	1.645E-01	Ci
Fissile Gram Equiv Mass:	6.224E+00	+/-	2.512E+00	g
Total Decay Heat:	1.856E-02	+/-	5.176E-03	W
TMU Value:	40.63 %			

```
*********************************************
* I S O T O P I C   I N F O R M A T I O N *
*********************************************
```

Isotope	Act (Ci)	1.96 Sigma Act Error (Ci)	Measured Mass (g)	1.96 Sigma Mass Error
Pu-238	7.44E-02	3.06E-02	4.30E-03	1.77E-03
Pu-239	3.84E-01	1.56E-01	6.18E+00	2.51E+00
Pu-240	1.01E-01	4.12E-02	4.38E-01	1.79E-01
Pu-241	1.43E+00	5.83E-01	1.37E-02	5.61E-03
Pu-242	7.12E-06	3.28E-06	1.79E-03	8.25E-04
Am-241	2.54E-02	1.04E-02	7.33E-03	3.01E-03
*Am-243	N/A	N/A	N/A	N/A
*Np-237	N/A	N/A	N/A	N/A
*U-235	N/A	N/A	N/A	N/A
*U-238	N/A	N/A	N/A	N/A
*U-233	N/A	N/A	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 6.64E+00 +/- 2.52E+00 g

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*     M G A   R E S U L T S     *
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NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	6.476E-02	3.37E+00
Pu-239	9.310E+01	1.66E-01
Pu-240	6.603E+00	2.33E+00
Pu-241	2.069E-01	1.89E+00
Pu-242	2.701E-02	1.10E+01
Am-241	1.103E-01	2.99E+00

SGS Expert Review Checklist

Container Identification #: LL85101245TRU_____ Original Assay Date:10-5-2002__

1. *WCP-41, §6.1:* A MGA report ☒ is present or ☐ expert review has provided isotopic ratios from SGS or AK. Comment (if any):
2. *WCP-41, §6.1:* MGA and AK ☒ agree as to radiological composition or, if not, ☐ expert review has resolved this. Comment (if any):
3. *WCP-41, §6.2.1:* ☒ Pu-238 ≤ 2% by weight of total Pu or, if not, ☐ expert review has addressed this and assigned a Pu-240 value. Comment (if any):
4. *WCP-41, §6.2.2:* ☒ Neither Np-237 nor U-235 is identified by MGA or ☐ expert review has addressed possible interferences from these radionuclides.
   Comment (if any):
5. *WCP-41, §6.2.2.2:* ☒ Am-241 separation date is 1950 or later or ☐ expert review has addressed possible interferences. Comment (if any):
6. *WCP-41, §6.3.1.1.a:* ☒ Bulk density of waste ≤ 0.6 g/ml or ☐ expert review has addressed the high density of the drum. Comment (if any):
7. *WCP-41, §6.3.1.2.a:* ☐ Transmission in every segment ≥ 0.1% for the Se-75 peaks at 136 keV or 265 keV or ☒ expert review has addressed the low transmission.
   Comment (if any): The transmission is zero in four segments for the 136 keV transmission peak. It is okay for the 265 keV transmission peak. Also the ratio of the 129 /413 peaks is 3.88 in the segments in question and 3.67 in the other segments. This indicates that although transmission was low it did not effect the plutonium results.
8. *WCP-41, §6.3.1.2.a:* ☒ Transmission in every segment ≥ 1% for the Se-75 peak at 401 keV or ☐ expert review has addressed the low transmission. Comment (if any):
9. *WCP-41, §6.3.1.3.b:* ☒ Dead time in every segment ≤ 50% or ☐ expert review has addressed the high dead time. Comment (if any):
10. *WCP-41, §6.3.1.3.c:* ☒ Pu-239 masses determined from the 414 keV peak and the 129 keV peak agree by a factor of < 2.5 or ☐ expert review has addressed possible matrix inhomogeneity. Comment (if any):
11. *WCP-41, §6.3.2.3:* Cs-137 (☐ has) (☒ has not) been identified by expert review. If it has, Sr-90 is reported ☐ at an activity ratio to Cs-137of 0.39 for Pu fission or ☐ at a ratio of 1 for U-235 fission or, ☐ if both Pu and U are present, the expert reviewer has determined the ratio. Comment (if any):
12. *WCP-41, §6.3.2.4:* ☒ No unusual nuclides are identified (none other than the 10 required to be reported to WIPP) or ☐ the expert reviewer has checked for interferences from unusual nuclides. Comment (if any):
13. *WCP-41, §6.3.3:* For waste drums (☐ NA for standards), ☐ the Summed Spectrum report value for Pu-239 and the Combined Segment NID report

for Pu-239 agree within 95% confidence limits (the same as for replicates of unknowns) or ☒ expert review has addressed the difference. Comment (if any): The results for the combined segment NID differ with the summed segment NID. This is to be expected for a 'metals' drum.

14. *WCP-41, §6.4:* ☐ The SGS Summed Spectrum and Combined Segment NID reports agree as to the ratios by weight of several radionuclides, such as those of Am-241, Pu-241, Np-237, Am-243, and U-235 to Pu-239, and MGA results agree as to identifying these radionuclides or ☒ expert review has resolved this. Comment (if any): See comment to #13.

15. *WCP-41, §6.6.1:* ☒ All reported radionuclide masses are above 2.5 times the uncorrected MDA or ☐ expert review has calculated transmission-corrected MDAs and taken appropriate action. Comment (if any):

16. *WCP-41, §6.6.2:* ☒ Any changes to reported quantities of individual radionuclides have been entered into the RADA program and a new radioassay data sheet has been produced, showing revised derivative quantities, and included in the batch data report, along with the marked up original. Comment (if any):

17. *CP-41, §6.7:* ☒ Counting statistics are adequate for normal passive count time of 120 seconds per segment or ☐ Counting statistics are adequate for long passive count time of 600 seconds per segment or ☐ expert review has rejected the count and ordered a longer count time. Comment (if any):

Kenneth Raschke	Kenneth Raschke	10/10/02
Expert Reviewer (print)	Signature	Date

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***********************************************************************
*****                        M G A   R E P O R T                  *****
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Report generated on: 10-05-02 12:24:10 PM

MGA version: MGA V9.5 CI

Spectrum ID: 11201063.CNF Sens : 30.0% LT: 55.5 Mins DT: 0.93
Measurement date: 10-05-02 Declared date: 10-05-02

Sample ID: LL85101245TRU Detector: Total counts: 1.059E+06

Pu g/cm2 = 0.0291 Cd g/cm2 = 1.6620 FWHM at 122 keV = 645 eV
QFIT = 1.09 FWHM at 208 keV = 755 eV
NQFIT = 1.01

Isotope	Relative to Pu-239	%* Err	% Err	Relative to Pu-241	%* Err	Isotope analysis at Meas. date % weight	%Err	Decl. date % weight	%Err
Pu-238	0.000696	3.4	3.2	0.3130	3.4	0.06476	3.37	0.06476	3.37
Pu-239	1.000000	0.0	1.2	449.8783	1.9	93.09830	0.17	93.09830	0.17
Pu-240	0.070925	2.5	2.3	31.9076	2.8	6.60298	2.33	6.60298	2.33
Pu-241	0.002223	1.9	1.6	1.0000	0.0	0.20694	1.89	0.20694	1.89
Pu-242	(New alg.	)		0.1305	(11)	0.02701	(11)	0.02701	(11)
Am-241	0.001185	3.0	2.8	0.5331	3.1	0.11032	2.99	0.11032	2.99

Pu-240 effective (meas. date) = 6.812 +/- 2.50%
Am-241 separated about 8.831 +/- 0.625 years ago
Am/Pu-241 weight ratio = 0.53312 +/- 3.21%

Messages :

Lead x-rays detected.
17 MGA parameter(s) defaulted, starting from parameter 8.

Notes : * = Error in ratio
1.000 sigma errors

Gamma Waste Assay

Sample Information

File Name: C:\WAS\DATA\1100\11101063.S11
Sample ID: LL85101245TRU Count Sequence Number: 1063
Assay Start: 10-05-02 11:27:29 AM
Description 1: UNKNOWN
Description 2: 2002-13
Location: 7715
Comment:
Waste Type:
Weight: Gross: 84200.0 g Net: 54100.0 g
Density: 0.260 g /ml

Container Type: 55 Gal Galv 66.3
Container: Volume: 208000. ml Full: 100.0 %

System Configuration

Counter ID Number: SGS
Arrangement Description: SGS
Segments: Number: 16 Offset: 0
Scanning Platform: Start: 934 mm Delta: -51 mm
Count Type: 55 Gal Galv 66.3
Collimator/Geometry Setting: 0
Transmission Mode: Two pass
Transmission Source: 0

Errors quoted at 1.000 sigma
Reference Source Date: Reference Source Rate: 1.01E+03 cps
Geometric Correction Factor(SWCONTGCF): 0.760
Date of efficiency calibration approval: 4-16-2002 3:26:49 PM
Mu Factors response file: Lucite
Transmission Calib. Time: 4-16-2002 10:03:42 AM 324888

Reviewed by: Lee P Wh Date: 10/5/02

Segment Results

Segment: 1 Detector: DET01 (# 1) Position: 1

Elapsed Live Time: 113.05 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.029 +/- 0.0037
SE-75	264.65	0.000 +/- 0.0000	0.056 +/- 0.0007
SE-75	279.53	0.000 +/- 0.0000	0.061 +/- 0.0010
SE-75	400.65	0.000 +/- 0.0000	0.083 +/- 0.0015

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	4.10E+00	2.61E-06 +/- 1.64E-05
2	59.86	2.12E+02 +/- 1.76E+00	3.54E+00	3.82E-05 +/- 7.43E-05
3	98.76	4.92E+00 +/- 5.49E-01	3.07E+00	1.39E-04 +/- 4.09E-05
4	111.39	1.90E+00 +/- 3.74E-01	3.00E+00	1.66E-04 +/- 2.08E-05
5	129.29	8.90E+00 +/- 4.15E-01	2.91E+00	1.95E-04 +/- 1.38E-05
6	148.57	1.00E+00 +/- 2.67E-01	2.83E+00	2.15E-04 +/- 2.55E-05
7	185.71	3.43E-01 +/- 1.80E-01	2.70E+00	2.30E-04 +/- 3.16E-05
8	208.22	2.81E+00 +/- 2.74E-01	2.63E+00	2.30E-04 +/- 2.81E-05
9	300.10	3.23E-01 +/- 1.36E-01	2.38E+00	2.04E-04 +/- 1.08E-05
10	311.90	4.37E-01 +/- 1.39E-01	2.36E+00	2.00E-04 +/- 1.03E-05
11	332.76	1.05E+00 +/- 1.61E-01	2.33E+00	1.92E-04 +/- 1.04E-05
12	345.25	6.43E-01 +/- 1.51E-01	2.31E+00	1.88E-04 +/- 1.07E-05
13	375.12	2.19E+00 +/- 1.87E-01	2.26E+00	1.78E-04 +/- 1.18E-05
14	392.99	8.79E-01 +/- 1.19E-01	2.24E+00	1.72E-04 +/- 1.23E-05
15	413.70	2.67E+00 +/- 1.64E-01	2.21E+00	1.65E-04 +/- 1.27E-05
16	422.31	1.04E-01 +/- 7.04E-02	2.19E+00	1.63E-04 +/- 1.29E-05
17	451.66	3.06E-01 +/- 7.06E-02	2.15E+00	1.54E-04 +/- 1.30E-05
18	511.10	1.71E+00 +/- 1.36E-01	2.07E+00	1.40E-04 +/- 1.22E-05
19	1085.91	2.04E-02 +/- 1.71E-02	1.66E+00	7.49E-05 +/- 3.78E-06
20	1274.88	4.51E-01 +/- 7.26E-02	1.60E+00	6.64E-05 +/- 3.57E-06

Segment: 2 Detector: DET01 (# 1) Position: 2

Elapsed Live Time: 112.60 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Some transmission peaks rejected.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.000 +/- 0.0000
SE-75	264.65	0.000 +/- 0.0000	0.032 +/- 0.0005
SE-75	279.53	0.000 +/- 0.0000	0.033 +/- 0.0008
SE-75	400.65	0.000 +/- 0.0000	0.051 +/- 0.0012

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.79E+00	4.10E+00	2.21E-07 +/- 1.06E-06
2	59.86	3.13E+02 +/- 2.24E+00	4.06E+00	2.26E-05 +/- 3.36E-05
3	98.79	1.12E+01 +/- 6.17E-01	3.50E+00	1.84E-04 +/- 4.24E-05
4	104.25	1.57E+00 +/- 5.12E-01	3.46E+00	2.10E-04 +/- 3.48E-05
5	111.12	2.60E+00 +/- 4.85E-01	3.41E+00	2.40E-04 +/- 2.54E-05
6	129.29	1.50E+01 +/- 5.02E-01	3.31E+00	3.07E-04 +/- 1.84E-05
7	144.25	8.72E-01 +/- 2.95E-01	3.24E+00	3.46E-04 +/- 2.98E-05
8	148.57	6.82E-01 +/- 3.10E-01	3.22E+00	3.54E-04 +/- 3.27E-05
9	208.18	4.08E+00 +/- 3.40E-01	3.00E+00	3.88E-04 +/- 3.71E-05
10	244.70	3.03E-01 +/- 1.77E-01	2.88E+00	3.69E-04 +/- 2.61E-05
11	311.90	6.44E-01 +/- 1.74E-01	2.72E+00	3.18E-04 +/- 1.39E-05
12	332.85	1.19E+00 +/- 1.98E-01	2.67E+00	3.03E-04 +/- 1.34E-05
13	345.10	1.66E+00 +/- 1.89E-01	2.64E+00	2.94E-04 +/- 1.34E-05
14	375.15	3.88E+00 +/- 2.40E-01	2.58E+00	2.74E-04 +/- 1.40E-05
15	392.89	1.26E+00 +/- 1.42E-01	2.54E+00	2.63E-04 +/- 1.43E-05
16	400.66	1.17E-01 +/- 7.28E-02	2.52E+00	2.59E-04 +/- 1.44E-05
17	413.70	3.86E+00 +/- 2.11E-01	2.50E+00	2.51E-04 +/- 1.46E-05
18	422.78	2.15E-01 +/- 9.92E-02	2.48E+00	2.46E-04 +/- 1.46E-05
19	451.66	5.60E-01 +/- 9.30E-02	2.43E+00	2.32E-04 +/- 1.45E-05
20	511.13	2.52E+00 +/- 1.67E-01	2.33E+00	2.07E-04 +/- 1.34E-05
21	778.90	1.98E-02 +/- 1.70E-02	2.02E+00	1.44E-04 +/- 6.92E-06
22	1001.03	4.49E-02 +/- 3.75E-02	1.86E+00	1.20E-04 +/- 5.31E-06
23	1275.12	8.18E-01 +/- 9.26E-02	1.74E+00	1.02E-04 +/- 4.70E-06
24	1408.01	8.79E-03 +/- 8.79E-03	1.70E+00	9.61E-05 +/- 6.36E-06

Segment: 3 Detector: DET01 (# 1) Position: 3

Elapsed Live Time: 112.63 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:

Some transmission peaks rejected.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.000 +/- 0.0000
SE-75	264.65	0.000 +/- 0.0000	0.025 +/- 0.0005
SE-75	279.53	0.000 +/- 0.0000	0.026 +/- 0.0007
SE-75	400.65	0.000 +/- 0.0000	0.041 +/- 0.0011

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.61	1.94E+00 +/- 2.66E-01	4.10E+00	1.35E-08 +/- 1.28E-07
2	35.10	1.01E+03 +/- 4.80E+00	4.10E+00	1.07E-06 +/- 5.27E-06
3	59.84	3.05E+02 +/- 2.20E+00	4.10E+00	3.87E-05 +/- 5.92E-05
4	98.81	1.04E+01 +/- 6.27E-01	3.71E+00	2.01E-04 +/- 4.74E-05
5	104.20	2.89E+00 +/- 4.21E-01	3.67E+00	2.23E-04 +/- 3.80E-05
6	111.20	3.37E+00 +/- 4.77E-01	3.62E+00	2.48E-04 +/- 2.67E-05
7	129.29	1.56E+01 +/- 5.10E-01	3.51E+00	3.02E-04 +/- 1.84E-05
8	148.57	1.32E+00 +/- 3.09E-01	3.41E+00	3.39E-04 +/- 3.24E-05
9	164.73	5.13E-01 +/- 2.44E-01	3.34E+00	3.57E-04 +/- 3.91E-05
10	208.24	4.40E+00 +/- 3.47E-01	3.17E+00	3.66E-04 +/- 3.64E-05
11	255.41	2.47E-01 +/- 1.50E-01	3.01E+00	3.46E-04 +/- 2.31E-05
12	267.69	2.43E-01 +/- 1.51E-01	2.98E+00	3.39E-04 +/- 2.01E-05
13	279.54	2.38E-01 +/- 1.56E-01	2.97E+00	3.32E-04 +/- 1.78E-05
14	300.10	2.76E-01 +/- 1.64E-01	2.91E+00	3.20E-04 +/- 1.49E-05
15	311.90	6.24E-01 +/- 1.76E-01	2.88E+00	3.13E-04 +/- 1.40E-05
16	332.85	1.20E+00 +/- 2.03E-01	2.82E+00	3.00E-04 +/- 1.35E-05
17	345.18	1.23E+00 +/- 1.98E-01	2.79E+00	2.93E-04 +/- 1.36E-05
18	375.08	3.53E+00 +/- 2.30E-01	2.72E+00	2.76E-04 +/- 1.43E-05
19	382.98	3.00E-01 +/- 1.19E-01	2.70E+00	2.72E-04 +/- 1.46E-05
20	393.08	1.51E+00 +/- 1.47E-01	2.68E+00	2.67E-04 +/- 1.48E-05
21	413.70	3.75E+00 +/- 2.04E-01	2.63E+00	2.57E-04 +/- 1.52E-05
22	451.41	3.88E-01 +/- 9.00E-02	2.55E+00	2.40E-04 +/- 1.54E-05
23	511.03	2.30E+00 +/- 1.63E-01	2.45E+00	2.18E-04 +/- 1.45E-05
24	662.42	5.83E-02 +/- 4.16E-02	2.23E+00	1.78E-04 +/- 1.02E-05
25	1275.05	7.49E-01 +/- 8.41E-02	1.80E+00	1.10E-04 +/- 4.96E-06
26	1408.01	8.81E-03 +/- 8.81E-03	1.75E+00	1.03E-04 +/- 6.77E-06

Segment: 4 Detector: DET01 (# 1) Position: 4

Elapsed Live Time: 112.88 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.036 +/- 0.0034
SE-75	264.65	0.000 +/- 0.0000	0.079 +/- 0.0009
SE-75	279.53	0.000 +/- 0.0000	0.084 +/- 0.0013
SE-75	400.65	0.000 +/- 0.0000	0.111 +/- 0.0018

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	4.10E+00	2.00E-05 +/- 1.66E-05
2	49.84	9.42E+00 +/- 9.20E-01	3.62E+00	6.23E-05 +/- 2.99E-05
3	59.86	2.53E+02 +/- 1.96E+00	3.34E+00	9.93E-05 +/- 3.39E-05
4	98.79	8.46E+00 +/- 5.51E-01	2.91E+00	2.40E-04 +/- 2.42E-05
5	104.17	1.56E+00 +/- 4.67E-01	2.88E+00	2.55E-04 +/- 2.21E-05
6	114.43	1.57E+00 +/- 3.63E-01	2.83E+00	2.81E-04 +/- 1.87E-05
7	129.29	1.14E+01 +/- 4.47E-01	2.76E+00	3.12E-04 +/- 1.61E-05
8	148.57	1.15E+00 +/- 2.72E-01	2.68E+00	3.40E-04 +/- 1.63E-05
9	208.25	3.56E+00 +/- 2.97E-01	2.44E+00	3.71E-04 +/- 1.94E-05
10	311.90	5.52E-01 +/- 1.52E-01	2.17E+00	3.38E-04 +/- 1.48E-05
11	332.81	8.76E-01 +/- 1.82E-01	2.14E+00	3.28E-04 +/- 1.37E-05
12	345.29	7.36E-01 +/- 1.64E-01	2.12E+00	3.21E-04 +/- 1.32E-05
13	375.07	2.62E+00 +/- 1.99E-01	2.09E+00	3.06E-04 +/- 1.21E-05
14	383.23	1.95E-01 +/- 1.43E-01	2.08E+00	3.02E-04 +/- 1.18E-05
15	393.05	1.05E+00 +/- 1.24E-01	2.07E+00	2.97E-04 +/- 1.16E-05
16	413.70	2.69E+00 +/- 1.69E-01	2.04E+00	2.87E-04 +/- 1.11E-05
17	510.89	1.43E+00 +/- 1.34E-01	1.93E+00	2.45E-04 +/- 1.02E-05
18	1275.32	4.93E-01 +/- 7.51E-02	1.52E+00	1.03E-04 +/- 4.66E-06

Segment: 5 Detector: DET01 (# 1) Position: 5

Elapsed Live Time: 113.10 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.023 +/- 0.0037
SE-75	264.65	0.000 +/- 0.0000	0.053 +/- 0.0007
SE-75	279.53	0.000 +/- 0.0000	0.055 +/- 0.0010
SE-75	400.65	0.000 +/- 0.0000	0.079 +/- 0.0015

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	4.10E+00	1.48E-05 +/- 1.27E-05
2	59.87	1.94E+02 +/- 1.67E+00	3.76E+00	9.44E-05 +/- 3.31E-05
3	98.72	5.96E+00 +/- 5.45E-01	3.25E+00	2.49E-04 +/- 2.52E-05
4	104.19	9.20E-01 +/- 4.39E-01	3.22E+00	2.66E-04 +/- 2.30E-05
5	111.27	1.87E+00 +/- 3.80E-01	3.17E+00	2.86E-04 +/- 2.04E-05
6	129.29	6.62E+00 +/- 3.82E-01	3.08E+00	3.26E-04 +/- 1.67E-05
7	148.57	7.02E-01 +/- 2.56E-01	2.98E+00	3.54E-04 +/- 1.71E-05
8	208.27	3.41E+00 +/- 2.70E-01	2.70E+00	3.75E-04 +/- 2.04E-05
9	279.54	2.51E-01 +/- 1.33E-01	2.48E+00	3.45E-04 +/- 1.68E-05
10	311.90	7.18E-01 +/- 1.35E-01	2.41E+00	3.26E-04 +/- 1.48E-05
11	332.85	8.65E-01 +/- 1.58E-01	2.37E+00	3.14E-04 +/- 1.36E-05
12	345.23	6.82E-01 +/- 1.39E-01	2.35E+00	3.06E-04 +/- 1.30E-05
13	375.15	1.87E+00 +/- 1.77E-01	2.30E+00	2.89E-04 +/- 1.18E-05
14	393.02	8.04E-01 +/- 1.05E-01	2.27E+00	2.80E-04 +/- 1.13E-05
15	400.66	9.93E-02 +/- 6.27E-02	2.26E+00	2.76E-04 +/- 1.11E-05
16	413.70	1.91E+00 +/- 1.44E-01	2.24E+00	2.69E-04 +/- 1.09E-05
17	964.13	2.19E-02 +/- 2.00E-02	1.73E+00	1.28E-04 +/- 5.33E-06
18	1001.03	1.90E-02 +/- 1.73E-02	1.72E+00	1.24E-04 +/- 4.97E-06

Segment: 6 Detector: DET01 (# 1) Position: 6

Elapsed Live Time: 113.16 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Some transmission peaks rejected.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.000 +/- 0.0000
SE-75	264.65	0.000 +/- 0.0000	0.029 +/- 0.0005
SE-75	279.53	0.000 +/- 0.0000	0.030 +/- 0.0007
SE-75	400.65	0.000 +/- 0.0000	0.045 +/- 0.0011

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.42	1.97E+00 +/- 2.47E-01	4.10E+00	7.23E-07 +/- 1.01E-06
2	35.10	1.01E+03 +/- 4.79E+00	4.10E+00	8.04E-06 +/- 6.71E-06
3	49.86	6.01E+00 +/- 7.92E-01	4.10E+00	3.75E-05 +/- 1.81E-05
4	59.88	1.70E+02 +/- 1.56E+00	4.10E+00	7.00E-05 +/- 2.41E-05
5	98.59	7.22E+00 +/- 5.24E-01	3.59E+00	2.21E-04 +/- 2.26E-05
6	111.30	1.93E+00 +/- 3.75E-01	3.49E+00	2.63E-04 +/- 1.90E-05
7	129.29	8.26E+00 +/- 3.93E-01	3.39E+00	3.10E-04 +/- 1.61E-05
8	148.57	9.97E-01 +/- 2.68E-01	3.29E+00	3.45E-04 +/- 1.67E-05
9	208.28	3.62E+00 +/- 2.84E-01	3.06E+00	3.81E-04 +/- 2.03E-05
10	300.10	2.82E-01 +/- 1.23E-01	2.82E+00	3.46E-04 +/- 1.58E-05
11	311.90	6.89E-01 +/- 1.37E-01	2.79E+00	3.39E-04 +/- 1.51E-05
12	332.86	8.30E-01 +/- 1.65E-01	2.74E+00	3.26E-04 +/- 1.39E-05
13	345.37	7.68E-01 +/- 1.47E-01	2.71E+00	3.19E-04 +/- 1.33E-05
14	375.21	2.15E+00 +/- 1.81E-01	2.65E+00	3.02E-04 +/- 1.21E-05
15	393.16	8.57E-01 +/- 1.09E-01	2.62E+00	2.92E-04 +/- 1.16E-05
16	413.70	2.07E+00 +/- 1.55E-01	2.58E+00	2.81E-04 +/- 1.11E-05
17	583.15	4.69E-01 +/- 7.82E-02	2.29E+00	2.09E-04 +/- 9.45E-06
18	662.42	6.05E-02 +/- 3.89E-02	2.19E+00	1.86E-04 +/- 8.77E-06
19	727.52	5.64E-02 +/- 3.47E-02	2.12E+00	1.71E-04 +/- 8.08E-06

Segment: 7 Detector: DET01 (# 1) Position: 7

Elapsed Live Time: 113.23 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Some transmission peaks rejected.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.000 +/- 0.0000
SE-75	264.65	0.000 +/- 0.0000	0.022 +/- 0.0004
SE-75	279.53	0.000 +/- 0.0000	0.024 +/- 0.0006
SE-75	400.65	0.000 +/- 0.0000	0.040 +/- 0.0010

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	4.10E+00	9.59E-07 +/- 4.73E-06
2	59.88	1.38E+02 +/- 1.39E+00	4.10E+00	4.11E-05 +/- 6.28E-05
3	98.75	4.65E+00 +/- 5.60E-01	3.84E+00	2.20E-04 +/- 5.19E-05
4	111.12	1.83E+00 +/- 3.82E-01	3.74E+00	2.72E-04 +/- 2.90E-05
5	129.29	8.38E+00 +/- 3.89E-01	3.63E+00	3.30E-04 +/- 1.98E-05
6	148.57	9.33E-01 +/- 2.62E-01	3.53E+00	3.68E-04 +/- 3.49E-05
7	185.71	4.92E-01 +/- 2.17E-01	3.36E+00	3.94E-04 +/- 4.30E-05
8	208.24	3.98E+00 +/- 2.91E-01	3.27E+00	3.91E-04 +/- 3.83E-05
9	300.10	3.72E-01 +/- 1.48E-01	2.95E+00	3.36E-04 +/- 1.56E-05
10	311.90	6.59E-01 +/- 1.46E-01	2.91E+00	3.27E-04 +/- 1.48E-05
11	332.87	7.89E-01 +/- 1.63E-01	2.85E+00	3.14E-04 +/- 1.44E-05
12	344.99	8.68E-01 +/- 1.42E-01	2.82E+00	3.06E-04 +/- 1.46E-05
13	368.79	1.95E-01 +/- 1.07E-01	2.75E+00	2.91E-04 +/- 1.52E-05
14	375.07	2.21E+00 +/- 1.87E-01	2.74E+00	2.88E-04 +/- 1.54E-05
15	383.01	1.80E-01 +/- 1.15E-01	2.72E+00	2.83E-04 +/- 1.56E-05
16	393.06	9.70E-01 +/- 1.18E-01	2.69E+00	2.78E-04 +/- 1.59E-05
17	413.70	2.14E+00 +/- 1.53E-01	2.64E+00	2.67E-04 +/- 1.63E-05
18	422.74	2.68E-01 +/- 8.28E-02	2.63E+00	2.62E-04 +/- 1.63E-05
19	451.63	2.58E-01 +/- 6.96E-02	2.57E+00	2.49E-04 +/- 1.63E-05
20	583.28	4.08E-01 +/- 7.63E-02	2.34E+00	2.02E-04 +/- 1.31E-05
21	964.13	2.40E-02 +/- 2.13E-02	1.97E+00	1.35E-04 +/- 6.00E-06
22	1112.12	2.62E-02 +/- 2.03E-02	1.88E+00	1.20E-04 +/- 5.13E-06
23	1274.82	2.36E-01 +/- 5.46E-02	1.81E+00	1.08E-04 +/- 4.90E-06

Segment: 8 Detector: DET01 (# 1) Position: 8

Elapsed Live Time: 113.45 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.032 +/- 0.0033
SE-75	264.65	0.000 +/- 0.0000	0.051 +/- 0.0007
SE-75	279.53	0.000 +/- 0.0000	0.054 +/- 0.0010
SE-75	400.65	0.000 +/- 0.0000	0.076 +/- 0.0014

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.92	1.12E+00 +/- 2.00E-01	4.10E+00	6.61E-09 +/- 6.14E-08
2	35.10	1.01E+03 +/- 4.77E+00	4.10E+00	6.89E-07 +/- 3.37E-06
3	59.88	8.27E+01 +/- 1.08E+00	3.45E+00	3.43E-05 +/- 5.20E-05
4	98.76	4.62E+00 +/- 4.33E-01	3.00E+00	1.98E-04 +/- 4.66E-05
5	111.34	1.41E+00 +/- 3.21E-01	2.93E+00	2.49E-04 +/- 2.63E-05
6	129.29	6.47E+00 +/- 3.40E-01	2.85E+00	3.05E-04 +/- 1.85E-05
7	148.57	8.95E-01 +/- 2.25E-01	2.78E+00	3.45E-04 +/- 3.27E-05
8	208.21	2.51E+00 +/- 2.43E-01	2.63E+00	3.76E-04 +/- 3.72E-05
9	332.92	5.42E-01 +/- 1.38E-01	2.39E+00	3.10E-04 +/- 1.38E-05
10	345.12	6.37E-01 +/- 1.24E-01	2.37E+00	3.03E-04 +/- 1.38E-05
11	375.10	1.57E+00 +/- 1.56E-01	2.32E+00	2.86E-04 +/- 1.46E-05
12	392.89	4.29E-01 +/- 9.17E-02	2.30E+00	2.77E-04 +/- 1.50E-05
13	400.66	1.74E-01 +/- 7.92E-02	2.28E+00	2.73E-04 +/- 1.52E-05
14	413.70	1.62E+00 +/- 1.32E-01	2.26E+00	2.66E-04 +/- 1.54E-05
15	451.73	1.78E-01 +/- 6.87E-02	2.20E+00	2.49E-04 +/- 1.56E-05
16	583.35	3.52E-01 +/- 6.67E-02	2.04E+00	2.03E-04 +/- 1.27E-05

Segment: 9 Detector: DET01 (# 1) Position: 9

Elapsed Live Time: 113.62 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.112 +/- 0.0060
SE-75	264.65	0.000 +/- 0.0000	0.192 +/- 0.0016
SE-75	279.53	0.000 +/- 0.0000	0.199 +/- 0.0021
SE-75	400.65	0.000 +/- 0.0000	0.237 +/- 0.0028

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	3.14E+00	1.75E-05 +/- 8.88E-05
2	59.87	6.35E+01 +/- 9.25E-01	2.40E+00	1.01E-04 +/- 1.59E-04
3	129.29	2.54E+00 +/- 2.37E-01	2.07E+00	3.23E-04 +/- 1.97E-05
4	148.57	3.76E-01 +/- 1.81E-01	2.01E+00	3.48E-04 +/- 3.41E-05
5	208.12	1.25E+00 +/- 1.76E-01	1.87E+00	3.66E-04 +/- 3.76E-05

6	244.70	1.67E-01	+/-	9.69E-02	1.79E+00	3.54E-04	+/-	2.70E-05
7	311.90	2.25E-01	+/-	9.71E-02	1.71E+00	3.20E-04	+/-	1.45E-05
8	375.15	6.68E-01	+/-	1.12E-01	1.66E+00	2.86E-04	+/-	1.49E-05
9	413.70	6.28E-01	+/-	8.86E-02	1.63E+00	2.67E-04	+/-	1.59E-05
10	443.98	4.57E-02	+/-	3.32E-02	1.61E+00	2.53E-04	+/-	1.61E-05
11	583.30	1.85E-01	+/-	4.39E-02	1.53E+00	2.03E-04	+/-	1.30E-05
12	662.42	5.36E-02	+/-	3.44E-02	1.49E+00	1.82E-04	+/-	1.04E-05
13	1408.01	1.75E-02	+/-	1.24E-02	1.31E+00	1.05E-04	+/-	6.85E-06

Segment: 10 Detector: DET01 (# 1) Position: 10

Elapsed Live Time: 113.69 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.127 +/- 0.0062
SE-75	264.65	0.000 +/- 0.0000	0.202 +/- 0.0017
SE-75	279.53	0.000 +/- 0.0000	0.207 +/- 0.0022
SE-75	400.65	0.000 +/- 0.0000	0.250 +/- 0.0029

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	35.10	1.01E+03	+/-	4.76E+00	2.99E+00	5.68E-06	+/-	4.74E-06
2	59.87	6.75E+01	+/-	9.21E-01	2.31E+00	6.47E-05	+/-	2.22E-05
3	129.29	4.74E-01	+/-	1.84E-01	2.00E+00	3.30E-04	+/-	1.70E-05
4	208.05	3.12E-01	+/-	1.26E-01	1.82E+00	4.01E-04	+/-	2.09E-05
5	311.90	2.56E-01	+/-	8.63E-02	1.69E+00	3.45E-04	+/-	1.50E-05
6	374.94	1.94E-01	+/-	6.46E-02	1.64E+00	3.03E-04	+/-	1.20E-05
7	413.70	2.72E-01	+/-	6.25E-02	1.61E+00	2.79E-04	+/-	1.11E-05
8	662.42	3.70E-02	+/-	2.87E-02	1.47E+00	1.80E-04	+/-	8.83E-06
9	964.13	5.22E-02	+/-	2.13E-02	1.37E+00	1.31E-04	+/-	5.40E-06
10	2617.05	6.61E-02	+/-	3.20E-02	1.23E+00	1.33E-04	+/-	4.54E-05

Segment: 11 Detector: DET01 (# 1) Position: 11

Elapsed Live Time: 113.75 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.123 +/- 0.0064
SE-75	264.65	0.000 +/- 0.0000	0.220 +/- 0.0018
SE-75	279.53	0.000 +/- 0.0000	0.228 +/- 0.0023
SE-75	400.65	0.000 +/- 0.0000	0.278 +/- 0.0031

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	3.03E+00	6.75E-06 +/- 5.60E-06
2	59.90	4.91E+01 +/- 7.79E-01	2.33E+00	6.81E-05 +/- 2.32E-05
3	129.29	3.96E-01 +/- 1.54E-01	2.01E+00	3.21E-04 +/- 1.65E-05
4	148.57	2.19E-01 +/- 1.20E-01	1.96E+00	3.56E-04 +/- 1.70E-05
5	238.85	2.26E-01 +/- 9.37E-02	1.73E+00	3.80E-04 +/- 1.94E-05
6	264.66	1.11E-01 +/- 6.13E-02	1.68E+00	3.67E-04 +/- 1.79E-05
7	311.90	1.47E-01 +/- 7.01E-02	1.64E+00	3.37E-04 +/- 1.49E-05
8	413.70	2.08E-01 +/- 6.11E-02	1.56E+00	2.75E-04 +/- 1.09E-05
9	662.42	5.05E-02 +/- 2.88E-02	1.43E+00	1.80E-04 +/- 8.65E-06
10	964.13	8.69E-03 +/- 8.69E-03	1.34E+00	1.32E-04 +/- 5.35E-06

Segment: 12 Detector: DET01 (# 1) Position: 12

Elapsed Live Time: 113.82 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.167 +/- 0.0070
SE-75	264.65	0.000 +/- 0.0000	0.251 +/- 0.0020
SE-75	279.53	0.000 +/- 0.0000	0.260 +/- 0.0025
SE-75	400.65	0.000 +/- 0.0000	0.311 +/- 0.0033

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	2.67E+00	7.63E-06 +/- 6.33E-06
2	59.89	3.02E+01 +/- 6.23E-01	2.10E+00	6.74E-05 +/- 2.31E-05
3	129.29	4.34E-01 +/- 1.48E-01	1.84E+00	3.04E-04 +/- 1.59E-05
4	244.70	9.31E-02 +/- 5.68E-02	1.64E+00	3.70E-04 +/- 1.88E-05
5	264.66	1.12E-01 +/- 7.13E-02	1.61E+00	3.61E-04 +/- 1.77E-05
6	300.10	1.08E-01 +/- 5.42E-02	1.58E+00	3.43E-04 +/- 1.55E-05
7	413.70	1.53E-01 +/- 5.35E-02	1.50E+00	2.79E-04 +/- 1.09E-05
8	1001.03	3.51E-02 +/- 1.75E-02	1.30E+00	1.29E-04 +/- 4.89E-06

Segment: 13 Detector: DET01 (# 1) Position: 13

Elapsed Live Time: 113.81 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.332 +/- 0.0094
SE-75	264.65	0.000 +/- 0.0000	0.418 +/- 0.0030
SE-75	279.53	0.000 +/- 0.0000	0.426 +/- 0.0036
SE-75	400.65	0.000 +/- 0.0000	0.476 +/- 0.0045

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.93E+00	1.10E-05 +/- 9.51E-06
2	59.86	2.99E+01 +/- 6.13E-01	1.63E+00	8.19E-05 +/- 2.89E-05
3	129.29	6.98E-01 +/- 1.48E-01	1.48E+00	3.21E-04 +/- 1.67E-05
4	400.66	9.42E-02 +/- 4.32E-02	1.31E+00	2.81E-04 +/- 1.13E-05
5	413.70	1.35E-01 +/- 4.36E-02	1.30E+00	2.74E-04 +/- 1.10E-05
6	867.39	2.77E-02 +/- 1.95E-02	1.20E+00	1.40E-04 +/- 6.42E-06
7	1112.12	8.69E-03 +/- 8.69E-03	1.17E+00	1.13E-04 +/- 4.19E-06

Segment: 14 Detector: DET01 (# 1) Position: 14

Elapsed Live Time: 113.80 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.281 +/- 0.0090
SE-75	264.65	0.000 +/- 0.0000	0.398 +/- 0.0029
SE-75	279.53	0.000 +/- 0.0000	0.407 +/- 0.0035
SE-75	400.65	0.000 +/- 0.0000	0.454 +/- 0.0043

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	2.10E+00	8.94E-06 +/- 4.41E-05
2	49.40	1.16E+00 +/- 3.29E-01	1.82E+00	4.26E-05 +/- 1.05E-04
3	59.90	4.61E+01 +/- 7.28E-01	1.74E+00	8.17E-05 +/- 1.25E-04
4	129.29	5.41E-01 +/- 1.49E-01	1.57E+00	3.17E-04 +/- 1.90E-05
5	208.51	2.02E-01 +/- 1.06E-01	1.45E+00	3.63E-04 +/- 3.63E-05
6	279.54	1.14E-01 +/- 7.00E-02	1.38E+00	3.36E-04 +/- 1.80E-05
7	300.10	9.63E-02 +/- 6.39E-02	1.37E+00	3.25E-04 +/- 1.51E-05
8	311.90	1.48E-01 +/- 6.49E-02	1.37E+00	3.18E-04 +/- 1.42E-05
9	413.70	1.17E-01 +/- 5.52E-02	1.32E+00	2.67E-04 +/- 1.56E-05
10	662.42	2.94E-02 +/- 2.06E-02	1.25E+00	1.83E-04 +/- 1.04E-05
11	867.39	8.70E-03 +/- 8.70E-03	1.22E+00	1.44E-04 +/- 6.47E-06
12	1085.91	8.70E-03 +/- 8.70E-03	1.19E+00	1.18E-04 +/- 5.01E-06

Segment: 15 Detector: DET01 (# 1) Position: 15

Elapsed Live Time: 113.83 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.346 +/- 0.0098
SE-75	264.65	0.000 +/- 0.0000	0.455 +/- 0.0032
SE-75	279.53	0.000 +/- 0.0000	0.465 +/- 0.0039
SE-75	400.65	0.000 +/- 0.0000	0.517 +/- 0.0047

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	1.89E+00	1.45E-08 +/- 6.96E-08
2	59.87	3.25E+01 +/- 6.17E-01	1.60E+00	1.13E-05 +/- 1.69E-05
3	129.29	3.28E-01 +/- 1.39E-01	1.46E+00	3.37E-04 +/- 1.99E-05
4	375.18	1.93E-01 +/- 6.31E-02	1.28E+00	2.74E-04 +/- 1.44E-05
5	400.66	8.16E-02 +/- 4.72E-02	1.27E+00	2.59E-04 +/- 1.48E-05
6	413.70	1.00E-01 +/- 4.63E-02	1.27E+00	2.52E-04 +/- 1.49E-05
7	662.42	3.94E-02 +/- 3.30E-02	1.21E+00	1.74E-04 +/- 9.76E-06
8	778.90	3.50E-02 +/- 1.75E-02	1.19E+00	1.56E-04 +/- 7.35E-06
9	1001.03	1.75E-02 +/- 1.24E-02	1.16E+00	1.32E-04 +/- 5.58E-06
10	1112.12	1.75E-02 +/- 1.24E-02	1.15E+00	1.22E-04 +/- 5.05E-06
11	1408.01	1.75E-02 +/- 1.24E-02	1.14E+00	9.82E-05 +/- 6.51E-06

Segment: 16 Detector: DET01 (# 1) Position: 16

Elapsed Live Time: 113.87 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.406 +/- 0.0107
SE-75	264.65	0.000 +/- 0.0000	0.546 +/- 0.0038
SE-75	279.53	0.000 +/- 0.0000	0.555 +/- 0.0045
SE-75	400.65	0.000 +/- 0.0000	0.602 +/- 0.0053

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.74E+00	9.52E-10 +/- 5.35E-09
2	59.88	6.88E+00 +/- 3.21E-01	1.50E+00	3.50E-06 +/- 6.11E-06
3	279.54	8.44E-02 +/- 5.58E-02	1.24E+00	2.56E-04 +/- 1.50E-05
4	400.66	1.68E-01 +/- 5.41E-02	1.21E+00	1.86E-04 +/- 1.20E-05
5	413.70	7.02E-02 +/- 2.75E-02	1.20E+00	1.81E-04 +/- 1.21E-05
6	1112.12	1.41E-02 +/- 1.45E-02	1.12E+00	9.17E-05 +/- 4.32E-06
7	1174.49	6.22E-02 +/- 2.91E-02	1.11E+00	8.80E-05 +/- 4.10E-06

Summed Spectrum

Peak Locate Report

Sample ID: LL85101245TRU
Peak Locate Performed on: 10-05-02 12:24:11 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192
Peak Search Sensitivity: 5.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	47.53	0.2919	23.68	6.17
2	70.51	0.0423	35.17	283.63
3	100.09	0.3120	49.95	7.12
4	119.94	0.0674	59.87	124.54
5	197.79	0.1755	98.76	15.56
6	208.86	0.2539	104.29	8.26
7	222.94	0.2237	111.32	9.33
8	259.30	0.1322	129.49	30.48
9	297.94	0.2386	148.79	9.23
10	416.91	0.1393	208.23	25.38
11	624.65	0.2391	312.02	7.20
12	666.27	0.2017	332.82	10.78
13	691.02	0.1974	345.18	12.08
14	750.93	0.1428	375.12	22.69
15	766.90	0.2695	383.10	6.84
16	786.74	0.1912	393.01	12.00
17	828.31	0.1400	413.78	21.30
18	846.32	0.2723	422.78	5.93
19	904.04	0.2396	451.61	7.54
20	1023.09	0.2034	511.09	7.33
21	1167.59	0.2492	583.29	5.87
22	2552.16	0.1907	1275.04	8.07
23	5236.91	0.2068	2616.39	5.53

Errors quoted at 1.000 sigma

Summed Spectrum

Peak Analysis Report

Sample ID: LL85101245TRU
Peak Analysis Performed on: 10-05-02 12:24:11 PM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	45-	50	47.53	23.68	1.55E+03	79.57	2.51E+03
2	67-	73	70.51	35.17	1.85E+06	1361.71	3.83E+03
3	96-	103	100.09	49.95	7.54E+03	303.61	3.89E+04
4	116-	123	119.94	59.87	2.28E+05	554.03	3.82E+04
5	194-	201	197.79	98.76	7.56E+03	184.28	1.31E+04
6	205-	212	208.86	104.29	1.54E+03	140.84	8.50E+03
7	219-	226	222.94	111.32	2.12E+03	134.79	7.73E+03
8	255-	263	259.30	129.49	1.01E+04	143.44	4.90E+03
9	293-	302	297.94	148.79	7.96E+02	104.89	4.51E+03
10	412-	421	416.91	208.23	3.51E+03	102.26	3.03E+03
11	619-	629	624.65	312.02	6.00E+02	53.23	9.38E+02
12	661-	671	666.27	332.82	8.91E+02	60.29	1.13E+03
13	685-	696	691.02	345.18	8.98E+02	56.90	9.31E+02
14	745-	756	750.93	375.12	2.47E+03	66.96	7.98E+02
15	766-	772	766.90	383.10	1.35E+02	35.59	4.44E+02
16	781-	792	786.74	393.01	9.37E+02	43.02	3.65E+02
17	822-	833	828.31	413.78	2.55E+03	57.37	2.97E+02
18	840-	851	846.32	422.78	1.40E+02	30.82	3.18E+02
19	898-	909	904.04	451.61	2.99E+02	28.49	2.05E+02
20	1017-	1028	1023.09	511.09	1.45E+03	43.98	1.93E+02
21	1161-	1173	1167.59	583.29	2.77E+02	23.10	9.76E+01
22	2544-	2559	2552.16	1275.04	4.06E+02	23.32	4.59E+01
23	5226-	5246	5236.91	2616.39	1.83E+02	13.89	2.63E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Summed Spectrum

Nuclide Identification Report

Sample ID: LL85101245TRU
Nuclide Library Used: C:\WAS\NLIB\LLNL.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Pulser	1.000	35.10*	100.00	1.879E+06	3.796E+06
Np-237	0.763	300.10	6.63		
		311.90*	38.60	1.856E+00	1.650E-01
Pu-239	1.000	413.70*	0.00	2.415E+05	6.920E+03
Pu-239A	0.997	129.29*	0.01	2.212E+05	5.670E+03
Pu-241	0.996	148.57*	0.00	5.122E+05	6.784E+04

* = Energy line found in the spectrum.
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10-05-02 12:24:11 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	23.68	1.3588E+01	5.12
3	49.95	6.5917E+01	4.03
4	59.87	1.9885E+03	0.26
5	98.76	6.6052E+01	2.44
6	104.29	1.3425E+01	9.17
7	111.32	1.8504E+01	6.37
10	208.23	3.0652E+01	2.92
12	332.82	7.7855E+00	6.77
13	345.18	7.8484E+00	6.34
14	375.12	2.1587E+01	2.71
15	383.10	1.1816E+00	26.33
16	393.01	8.1916E+00	4.59
18	422.78	1.2194E+00	22.09
19	451.61	2.6112E+00	9.54
20	511.09	1.2678E+01	3.03
21	583.29	2.4247E+00	8.33
22	1275.04	3.5495E+00	5.74
23	2616.39	1.6027E+00	7.58

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Combined Segment NID

NID Results Combiner Mode: Sum Activities

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		5.43E+07	+/-	2.80E+08		1.00E+03	+/-	5.18E+03
SE-75	<	1.10E-01	+/-	7.79E-03	<	2.03E-06	+/-	1.44E-07
EU-152x	<	1.99E-01	+/-	1.52E-02	<	3.68E-06	+/-	2.81E-07
U-233	<	5.25E+03	+/-	4.64E+02	<	9.70E-02	+/-	8.57E-03
U-235		3.88E-01	+/-	1.37E-01		7.17E-06	+/-	2.53E-06
Np-237		2.95E+00	+/-	2.55E-01		5.45E-05	+/-	4.71E-06
Pu-238	<	1.23E+04	+/-	1.54E+03	<	2.27E-01	+/-	2.85E-02
U-238		4.74E+00	+/-	2.15E+00		8.76E-05	+/-	3.97E-05
Pu-239		3.84E+05	+/-	1.23E+04		7.10E+00	+/-	2.28E-01
Pu-239A		3.91E+05	+/-	1.07E+04		7.24E+00	+/-	1.98E-01
Am-241		2.06E+04	+/-	5.82E+03		3.82E-01	+/-	1.08E-01
Pu-241		1.11E+06	+/-	1.15E+05		2.05E+01	+/-	2.12E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	1.80E-01	+/-	6.35E-02
Np-237	4.19E-03	+/-	3.62E-04
U-238	1.41E+01	+/-	6.39E+00
Pu-239	6.18E+00	+/-	1.99E-01
Pu-239A	6.30E+00	+/-	1.72E-01
Am-241	6.03E-03	+/-	1.70E-03
Pu-241	1.07E-02	+/-	1.11E-03

Summed Spectrum

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		1.88E+06	+/-	3.80E+06		3.47E+01	+/-	7.02E+01
SE-75	<	3.55E-01	+/-	2.54E-03	<	6.56E-06	+/-	4.69E-08
EU-152x	<	4.44E-01	+/-	6.95E-03	<	8.21E-06	+/-	1.29E-07
U-233	<	1.92E+04	+/-	3.52E+02	<	3.55E-01	+/-	6.51E-03
U-235	<	5.58E-01	+/-	1.06E-02	<	1.03E-05	+/-	1.96E-07
Np-237		1.86E+00	+/-	1.65E-01		3.43E-05	+/-	3.05E-06
Pu-238	<	4.39E+04	+/-	5.69E+02	<	8.12E-01	+/-	1.05E-02
U-238	<	1.59E+01	+/-	2.44E-01	<	2.93E-04	+/-	4.51E-06
Pu-239		2.41E+05	+/-	6.92E+03		4.46E+00	+/-	1.28E-01
Pu-239A		2.21E+05	+/-	5.67E+03		4.09E+00	+/-	1.05E-01
Am-241	<	3.35E+04	+/-	2.36E+02	<	6.19E-01	+/-	4.37E-03
Pu-241		5.12E+05	+/-	6.78E+04		9.47E+00	+/-	1.25E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
Np-237	2.64E-03	+/-	2.34E-04
Pu-239	3.89E+00	+/-	1.11E-01
Pu-239A	3.56E+00	+/-	9.13E-02
Pu-241	4.95E-03	+/-	6.56E-04

Final Non-Uniformity Results

Source Longitudinal Ratio:	0.975	+/-	17.4188
Matrix Longitudinal Ratio:	0.959	+/-	0.1596
Source Vertical Ratio:	0.806	+/-	0.4493
Matrix Vertical Ratio:	0.962	+/-	0.0199

NUDS could not find the transmission peak in one radial segment.

LAWRENCE LIVERMORE NATIONAL LABORATORY

WASTE DISPOSAL REQUISITION

W 221316

H1. Label/Waste Type:
- ☐ Non-Haz (N)
- ☐ RCRA Haz (H)
- ☐ CA Haz (C)
- ☐ NTS LLW (L)
- ☐ Low-Level (R)
- ☐ LLW Mixed (F)
- ☐ LLW Combined (S)
- ☒ TRU (T)
- ☐ TRU Mixed (X)

H2. CCC: PS

H3. Storage Restrictions
Not acceptable at the following locations:
☑ 233 ☑ 514 ☐ 612 ☐ 693 ☐ 696
CWAA ☑ 169 ☑ 361 ☐ 612-4

1. Container ID Number or Tank ID or for TRU Waste, TRU Waste Container Serial No.: Q – LL85-10L245 TRU-

2. Container Use/Acceptability: ☐ On-site use only; ☑ Acceptable for off-site use
Container Manufacturer Serial No./Batch No. B520483 ☐ N/A
Employee No.: 691484 Initials: WAS Date: 05-01-02

3. RMMA: ☒ Yes ☐ No

4. Waste Form: ☑ Solid ☐ Liquid ☐ Gas ☐ Sludge

H4. Hazardous Properties: ☐ Toxic ☐ Corrosive ☐ Ignitable ☐ Reactive

5. Outer Container Type: ☐ Box ☐ Sack ☐ Can ☐ SWB ☐ Carboy ☐ Tub ☒ Drum ☐ Bag ☐ Tank – Fixed ☐ Tank – Portable ☐ Transportainer
Other: _____

6. Outer Container Size/Vol:
☐ 1 gal ☒ 55 gal ☐ 67 cu ft
☐ 2 gal ☐ 85 gal ☐ 1 × 1 × 1.5
☐ 5 gal ☐ 330 gal ☐ 2 × 4 × 7
☐ 10 gal ☐ 660 gal ☐ 4 × 4 × 7
☐ 12 gal ☐ 750 gal ☐ 1 cu yd
☐ 20 gal ☐ 1000 gal ☐ 8 × 8 × 20
☐ 30 gal ☐ 5000 gal ☐ 8 × 8 × 40
Other: _____ ☐ gal _____ ☐ cu ft

7. Building No.: 332
8. Room No.: 1378
9. Location: AT 6EN
10. Workplace Start Date: 05/01/02
11. Workplace End Date: 6/15/02
12. Account No.: 5481-50
13. Directorate: DNT
14. WEF/PKE/SAW/PIW: ☐ WEF ☒ PKE ☐ SAW ☐ PIW
Specify No.: 0245 ☐ N/A
15. Source Code: A940
16. Inner Containers ☐ Yes ☒ No

17. Item No.	18. Spent or Unused (S/U)	19. Organic or Inorganic (O/I)	20. Waste Form (S,SL,L,G)	21. Waste Description (For multiple parcels, list Parcel Card Nos.)	22. Hazardous Constituents and Concentrations	23. Item Container Size	24. Quantity per Item Amount	Units	25. Analysis Sample No.	Physical Waste Data: 26. Aqueous Only pH	Normality	27. Flash Point
				P050912								
				P052328								
				P052246								

28. Does the waste contain radioactive components? ☐ Yes ☐ No ☐ To be analyzed
(If yes or TBA, complete Page 3 as applicable to waste type.)

This section (Steps 29–30) is required for Hazardous Waste generated in a RMMA

29. Was the waste kept isolated from any operation that could have produced radioactive contamination (using a glove box, vent hood, etc.)? ☐ Yes ☐ No (If no, full rad analysis required) N/A 10/9/02

30. Was the waste exposed to particle beams capable of inducing radioactivity by activation? ☐ Yes ☒ No (If yes, full rad analysis required)

31. ☐ Generator: I certify, to the best of my knowledge, that the information provided on this requistion is correct. I understand that I may be liable to State and Federal prosecution by intentionally providing false information. I have obtained this information by:
- ☐ Direct knowledge of the waste generating process ☐ Analytical Data
- ☐ Obtaining sufficient information from others knowledgeable of the waste generating process

☒ Container Custodian: I certify that the waste parcels identified on this form are contained in this waste container and have been packaged in accordance with the requirements specified in the appropriate LLNL TRU or Low-Level Waste Program Certification and Quality Assurance Program.

Generator or Container Custodian Name (Print – Last, First): Summers, Harry V.
Signature: Harry V. S
Employee No.: 000806 L-Code: 361 Ext.: 3580 Date: 6/5/02

H5. Inspected By: Signature: Employee No.: Date:

H6. Characterization Chemist Approval:
☐ Acceptable for Sampling _____ (Initials) Exempt: ☐ OP ☐ SA ☐ DE
Signature: ☐ WEF Employee No.: Date:

H7. RCA Approval: ☐ Overpack for final shipment to NTS ☐ Meets SCAL
☐ Decay Program (Initials) _____ ☐ NTS Certified (Initials) _____ ☐ WIPP Certified (Initials) _____
☐ On-site Treatment
Signature: ☐ WEF Employee No.: Date:

32. Waste Profile No., TRU Waste Form No., or Bin No.: 1,2b

☐ On Hold – Pending S&A

☐ Released

31A. Gross Weight 84.2 kg TARE = 30.1 kg

Radioactive page attached: ☒ Yes ☐ N/A

Continuation page(s) attached: ☐ Yes ☒ N/A

☐ HWM Use Only

LL-5344 (4/01)

WASTE DISPOSAL REQUISITION

REQUISITION No.: W 221316

H8.

Item	RCH Prefix	RCH	P	Origin Code	Form Code	EPA No.	DTSC No.	MSDS No.	Hazardous Properties T	C	I	R
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑

H9. **Hazardous Appendix**
Chemist Review
SCIL (Single Container Inventory Limits) Exceeded ❑ Yes ❑ No

pH results obtained by (*Check all that apply*) ❑ N/A

❑ Meter (Calibrated) ❑ Paper ❑ MSDS ❑ Analytical

Initial: _____

Employee No. _____ Date _____

CC Rule (*VOC's greater or less than 500 ppm level 1, 2, 3*) ❑ N/A:

❑ CC/> 500/A ❑ CC/< 500/A

❑ CC/> 500/B ❑ CC/< 500/B

A = Generator Knowledge B = Analytical Data

MPC: _____

❑ WEF CC initials: _____

H10. **RCO**

❑ Req tracking:

_____ Initials _____ Date

❑ TWMS:

_____ Initials _____ Date

H11.

❑ No disposal option:

Approved Exemption Request No. _____ Date _____

H12. NORM Rad Screening Conducted

❑ Yes ❑ No N/A

Employee No.: _____ Date: _____

Background Reading:

_____ mR/hr

Reading on Item:

_____ mR/hr

H13. RMMA Certification:

Shipping Emp. #: CC

H14. WDAR #:

WASTE DISPOSAL REQUISITION
RADIOACTIVE WASTE

REQUISITION No.: W 2 2 1 3 1 6

33. Moderators/Reflectors: Quantity of beryllium: 0 grams
Enriched in deuterium ☐ Yes ☒ No Carbon (e.g., graphite) 0 grams

34. Waste Package Seals (WPS)Applied: ☐ N/A ☒ Yes
WPS No(s): K783, L02745 TC 10/4/02

35. MBA Quantity: ☐ Yes ☐ No

Items 36 to 39 are not required if Parcel Cards were used for documentation.

36. Method(s) used to identify radionuclides and/or determine activity: (Check all that apply)

☐ Process Knowledge ☐ Mass ☐ Mass Balance ☐ Liquid Scintillation Counting
☐ Alpha Spectrometry ☐ Tritium off gas measurement ☐ See attached methodology
☐ Dose-to-Curie ☐ Gamma Spectrometry ☐ High Sensitivity Neutron Instrument
☐ Segmented Gamma Scanner ☐ Other: _____
☐ AVLIS Method (☐ A ☐ B ☐ C)

(Complete the following when a meter is used to determine activity):

Survey meter model: _____ Serial Number: _____
Meter Reading: _____ cpm, dpm, mR/hr (circle)
Calibration due date: _____
Check source jig No.: _____ Detector response (± 30%) ☐ Satisfactory

40. Radiological Data: ☐ See attached sheet

Item	Radionuclide	Quantity	Units (Ci, g)	α / PE - Ci	Pu – Eq. gram

37. Does this waste contain any of the following?

Friable Asbestos: ☐ Yes ☐ No
PCBs: ☐ Yes ☐ No
Pyrophorics: ☐ Yes ☐ No
(e.g., uranium turnings that could spontaneously combust if exposed to air)
Explosives: ☐ Yes ☐ No
(e.g., TNT, PETN that exhibit explosive properties).
Chelating Agents: ☐ Yes ☐ No
(e.g., Radiac Wash, >1% by weight)
Compressed Gases: ☐ Yes ☐ No
(e.g., aerosol cans)
Free Liquids: ☐ Yes ☐ No
Classified Material: ☐ Yes ☐ No
Explanations/Comments:

Plutonium grades: ☒ Weapons ☐ Fuel ☐ Reactor ☐ Mixed ☐ Am enriched
☐ Enriched Uranium: _____% U-234 _____% U-235 _____% U-238

41. Weight (Note: If AVLIS Method C, mass, HSNI, SGS or activity per unit mass is used to determine the activity of the waste, a calibrated scale shall be used).
☐ Estimated Weigh ☐ Weighed on Calibrated Scale Initials: _____

Gross Weight/Unit	Tare Weight/Unit	Scale Serial No.	Calibration Due Date

42. Rad. Survey (mR/hr):

βγ @ Contact	βγ @ 1 Meter	Neutron @ Contact

Swipe Data: ☐ Complies with on-site transfer requirements
☐ Complies with 10 CFR 835 criteria for unrestricted release

Performed By (print and signature): _____
Date: Employee No.: Ext:

Item 38 and 39 are only required for waste destined for NTS. This includes waste that will be treated prior to final disposal (e.g., LSC, and pyrophoric uranium turnings).

38. Packaging Procedure followed: ☐ WCP-8 ☐ Packaging Instruction No.: _____
☐ EX-404 ☐ Other (describe):

39. Verifier Certification: I verify that, to the best of my knowledge, the information supplied by the waste generator on this form is complete and accurate, and that by visual inspection the waste is accurately described.

Verifier Name (print and sign): _____
Employee No.: _____ Date: _____

43. Container Type:
☒ DOT Type A
☐ DOT Type B
☐ Other

H15. Radiological Appendix:
☐ Liquid waste containing >1 Ci of Pu-Equivalent activity
☐ Contains > 10 grams fissionable material
RCA Initials: _____

****
* R A D I O A S S A Y D A T A S H E E T *
****

Batch Number: 2002 - 13

Radio Assay Method: SGS

Procedure ID & Rev: OP-B332-005

Software Version: GWAS V2.3A RADA V2.1

****
* D R U M I N F O R M A T I O N *
****

Drum Package ID: LL85601332TR
Sequence Number: 1064
Assay Date & Time: 10-05-2002 12:34:40 PM
Report Generated: 10-07-2002 8:35:43 AM
Drum Package GROSS Weight: 83.00 kg NET Weight: 52.90 kg

IDC Number: LL85601332TRU

QC Replicate (Yes/No): NO Passed (Yes/No): _____

Operator Name (Printed): LEE CALDEIRA

Operator Signature: [signature] Date: 10/7/02

Independent Reviewer: [signature] Date: 10/10/02

Expert Reviewer: Kenneth Raschke Date: 10/9/02

Tech. Supv/QA Officer: [signature] Date: 10/14/02

****
* A C T I V I T Y I N F O R M A T I O N *
****

Waste Classification: (TRU or LLW): TRU

Total Alpha Activity: 2.845E+00 +/- 7.734E-01 Ci

****
* I S O T O P I C I N F O R M A T I O N *
****

Isotope	Measured Mass (g)	Mass Uncertainty (g)
Pu-238	5.573E-03	2.359E-03
Pu-239	2.883E+01	1.162E+01
Pu-240	2.222E+00	8.986E-01
Pu-241	6.454E-02	2.610E-02
Pu-242	1.137E-02	5.098E-03
Am-241	1.286E-01	5.199E-02
*Am-243	N/A	N/A
Np-237	2.248E-01	1.029E-01
U-235	3.702E+00	1.546E+00
*U-238	N/A	N/A
*U-233	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 3.11E+01 +/- 1.17E+01 g

****
* M G A R E S U L T S *
****

NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	1.790E-02	6.58E+00
Pu-239	9.260E+01	1.32E-01
Pu-240	7.136E+00	1.67E+00
Pu-241	2.073E-01	1.65E+00
Pu-242	3.653E-02	1.00E+01
Am-241	4.130E-01	1.56E+00
Np-237	7.219E-01	1.10E+01
U-235	1.189E+01	5.58E+00

```
*****************************************
*  A C T I V I T Y   I N F O R M A T I O N *
*****************************************
```

Procedure ID & Rev: OP-B332-005
Software Version: GWAS V2.3A RADA V2.1

Assay Date & Time: 10-05-2002 12:34:40 PM
Report Generated: 10-07-2002 8:35:45 AM

Drum Package ID: LL85601332TR
Sequence Number: 1064

Waste Classification (TRU or LLW): TRU

			Errors at 1.96 sigma	
Total Alpha Activity :	2.845E+00	+/-	7.734E-01	Ci
Total TRU Activity :	5.377E+04	+/-	1.462E+04	nCi/g
Pu-239 Equiv Activity:	2.968E+00	+/-	7.750E-01	Ci
Fissile Gram Equiv Mass:	3.274E+01	+/-	1.193E+01	g
Total Decay Heat:	9.046E-02	+/-	2.436E-02	W
TMU Value:	40.31 %			

```
*****************************************
* I S O T O P I C   I N F O R M A T I O N *
*****************************************
```

Isotope	Act (Ci)	1.96 Sigma Act Error (Ci)	Measured Mass (g)	1.96 Sigma Mass Error
Pu-238	9.64E-02	4.08E-02	5.57E-03	2.36E-03
Pu-239	1.79E+00	7.22E-01	2.88E+01	1.16E+01
Pu-240	5.11E-01	2.07E-01	2.22E+00	8.99E-01
Pu-241	6.71E+00	2.71E+00	6.45E-02	2.61E-02
Pu-242	4.51E-05	2.02E-05	1.14E-02	5.10E-03
Am-241	4.46E-01	1.80E-01	1.29E-01	5.20E-02
*Am-243	N/A	N/A	N/A	N/A
Np-237	1.60E-04	7.33E-05	2.25E-01	1.03E-01
U-235	8.11E-06	3.39E-06	3.70E+00	1.55E+00
*U-238	N/A	N/A	N/A	N/A
*U-233	N/A	N/A	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 3.11E+01 +/- 1.17E+01 g

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*     M G A   R E S U L T S     *
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NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	1.790E-02	6.58E+00
Pu-239	9.260E+01	1.32E-01
Pu-240	7.136E+00	1.67E+00
Pu-241	2.073E-01	1.65E+00
Pu-242	3.653E-02	1.00E+01
Am-241	4.130E-01	1.56E+00
Np-237	7.219E-01	1.10E+01
U-235	1.189E+01	5.58E+00

SGS Expert Review Checklist

Container Identification #: LL85601332TRU_____ Original Assay Date:10-05-2002_

1. *WCP-41, §6.1:* A MGA report ☒ is present or ☐ expert review has provided isotopic ratios from SGS or AK. Comment (if any):
2. *WCP-41, §6.1:* MGA and AK ☒ agree as to radiological composition or, if not, ☐ expert review has resolved this. Comment (if any):
3. *WCP-41, §6.2.1:* ☒ Pu-238 ≤ 2% by weight of total Pu or, if not, ☐ expert review has addressed this and assigned a Pu-240 value. Comment (if any):
4. *WCP-41, §6.2.2:* ☐ Neither Np-237 nor U-235 is identified by MGA or ☒ expert review has addressed possible interferences from these radionuclides.
   Comment (if any): Both Np-237 and U-235 are identified by MGA and GWAS and the abundance values agree. There is no interference.
5. *WCP-41, §6.2.2.2:* ☒ Am-241 separation date is 1950 or later or ☐ expert review has addressed possible interferences. Comment (if any):
6. *WCP-41, §6.3.1.1.a:* ☒ Bulk density of waste ≤ 0.6 g/ml or ☐ expert review has addressed the high density of the drum. Comment (if any):
7. *WCP-41, §6.3.1.2.a:* ☒ Transmission in every segment ≥ 0.1% for the Se-75 peaks at 136 keV or 265 keV or ☐ expert review has addressed the low transmission.
   Comment (if any):
8. *WCP-41, §6.3.1.2.a:* ☒ Transmission in every segment ≥ 1% for the Se-75 peak at 401 keV or ☐ expert review has addressed the low transmission. Comment (if any):
9. *WCP-41, §6.3.1.3.b:* ☒ Dead time in every segment ≤ 50% or ☐ expert review has addressed the high dead time. Comment (if any):
10. *WCP-41, §6.3.1.3.c:* ☒ Pu-239 masses determined from the 414 keV peak and the 129 keV peak agree by a factor of < 2.5 or ☐ expert review has addressed possible matrix inhomogeneity. Comment (if any): The reported values in the GWAS report indicate that 129 keV in the summed spectra should be increased by 12%. This should not effect any values reported.
11. *WCP-41, §6.3.2.3:* Cs-137 (☐ has) (☒ has not) been identified by expert review. If it has, Sr-90 is reported ☐ at an activity ratio to Cs-137of 0.39 for Pu fission or ☐ at a ratio of 1 for U-235 fission or, ☐ if both Pu and U are present, the expert reviewer has determined the ratio. Comment (if any):
12. *WCP-41, §6.3.2.4:* ☐ No unusual nuclides are identified (none other than the 10 required to be reported to WIPP) or ☒ the expert reviewer has checked for interferences from unusual nuclides. Comment (if any): Both U-235 and Np-237 are identified and quantified by MGA and GWAS. There is no interference.

SGS Expert Review Checklist

Container Identification #: LL85601332TRU_____ Original Assay Date:10-05-2002_

13. *WCP-41, §6.3.3:* For waste drums (☐ NA for standards), ☒ the Summed Spectrum report value for Pu-239 and the Combined Segment NID report for Pu-239 agree within 95% confidence limits (the same as for replicates of unknowns) or ☐ expert review has addressed the difference. Comment (if any):
14. *WCP-41, §6.4:* ☒ The SGS Summed Spectrum and Combined Segment NID reports agree as to the ratios by weight of several radionuclides, such as those of Am-241, Pu-241, Np-237, Am-243, and U-235 to Pu-239, and MGA results agree as to identifying these radionuclides or ☐ expert review has resolved this. Comment (if any):
15. *WCP-41, §6.6.1:* ☒ All reported radionuclide masses are above 2.5 times the uncorrected MDA or ☐ expert review has calculated transmission-corrected MDAs and taken appropriate action. Comment (if any):
16. *WCP-41, §6.6.2:* ☒ Any changes to reported quantities of individual radionuclides have been entered into the RADA program and a new radioassay data sheet has been produced, showing revised derivative quantities, and included in the batch data report, along with the marked up original. Comment (if any):
17. *CP-41, §6.7:* ☒ Counting statistics are adequate for normal passive count time of 120 seconds per segment or ☐ Counting statistics are adequate for long passive count time of 600 seconds per segment or ☐ expert review has rejected the count and ordered a longer count time. Comment (if any):

Kenneth Raschke	Kenneth Raschke	10/10/02
Expert Reviewer (print)	Signature	Date

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***********************************************************************
*****                      M G A   R E P O R T                    *****
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Report generated on: 10-05-02 1:31:26 PM

MGA version: MGA V9.5 CI

Spectrum ID: 11201064.CNF Sens : 30.0% LT: 53.6 Mins DT: 4.39
Measurement date: 10-05-02 Declared date: 10-05-02

Sample ID: LL85601332TRU Detector: Total counts: 4.555E+06

Pu g/cm2 = 0.6596 Cd g/cm2 = 1.5764 FWHM at 122 keV = 640 eV
QFIT = 1.00 FWHM at 208 keV = 804 eV
NQFIT = 1.00

Isotope	Relative to Pu-239	%* Err	% Err	Relative to Pu-241	%* Err	Isotope analysis at Meas. date % weight	%Err	Decl. date % weight	%Err
Pu-238	0.000193	6.6	6.3	0.0863	6.3	0.01790	6.58	0.01790	6.58
Pu-239	1.000000	0.0	1.4	446.7052	1.7	92.60249	0.13	92.60249	0.13
Pu-240	0.077058	1.8	1.3	34.4223	1.6	7.13579	1.67	7.13579	1.67
Pu-241	0.002239	1.7	1.1	1.0000	0.0	0.20730	1.65	0.20730	1.65
Pu-242	(New alg.	)		0.1762	(10)	0.03653	(10)	0.03653	(10)
Am-241	0.004460	1.7	0.6	1.9923	1.2	0.41301	1.56	0.41301	1.56
Np-237						0.72187	11.05		
U-235	0.128392	5.4	5.6			11.88945	5.58	11.88945	5.58

Pu-240 effective (meas. date) = 7.242 +/- 2.12%
Am-241 separated about 22.731 +/- 0.258 years ago
Am/Pu-241 weight ratio = 1.99233 +/- 1.25%

Messages :

Lead x-rays observed : Np-237 results could be affected.
Calculations in MGAABS didn't converge : results may be suspect.
Efficiency curvature boundary reached.
Pu-241/Pu-239 efficiency changed in MGACAL by 3%.
17 MGA parameter(s) defaulted, starting from parameter 8.

Notes : * = Error in ratio
1.000 sigma errors

Gamma Waste Assay

Sample Information

File Name: C:\WAS\DATA\1100\11101064.S11
Sample ID: LL85601332TRU Count Sequence Number: 1064
Assay Start: 10-05-02 12:34:42 PM
Description 1: UNKNOWN
Description 2: 2002-13
Location: 7715
Comment:
Waste Type:
Weight: Gross: 83000.0 g Net: 52900.0 g
Density: 0.254 g /ml

Container Type: 55 Gal Galv 66.3
Container: Volume: 208000. ml Full: 100.0 %

System Configuration

Counter ID Number: SGS
Arrangement Description: SGS
Segments: Number: 16 Offset: 0
Scanning Platform: Start: 934 mm Delta: -51 mm
Count Type: 55 Gal Galv 66.3
Collimator/Geometry Setting: 0
Transmission Mode: Two pass
Transmission Source: 0

Errors quoted at 1.000 sigma
Reference Source Date: Reference Source Rate: 1.01E+03 cps
Geometric Correction Factor(SWCONTGCF): 0.760
Date of efficiency calibration approval: 4-16-2002 3:26:49 PM
Mu Factors response file: Lucite
Transmission Calib. Time: 4-16-2002 10:03:42 AM 324888

Reviewed by: [signature] Date: 10/5/02

Segment Results

Segment: 1 Detector: DET01 (# 1) Position: 1

Elapsed Live Time: 113.00 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.057 +/- 0.0048
SE-75	264.65	0.000 +/- 0.0000	0.137 +/- 0.0013
SE-75	279.53	0.000 +/- 0.0000	0.145 +/- 0.0017
SE-75	400.65	0.000 +/- 0.0000	0.186 +/- 0.0024

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.79E+00	4.00E+00	2.61E-06 +/- 1.64E-05
2	49.96	1.23E+01 +/- 7.57E-01	3.19E+00	1.83E-05 +/- 5.58E-05
3	59.90	2.69E+02 +/- 1.95E+00	2.96E+00	3.82E-05 +/- 7.43E-05
4	98.80	7.25E+00 +/- 5.13E-01	2.60E+00	1.39E-04 +/- 4.08E-05
5	104.02	2.58E+00 +/- 4.30E-01	2.58E+00	1.51E-04 +/- 3.19E-05
6	111.42	1.70E+00 +/- 4.20E-01	2.55E+00	1.66E-04 +/- 2.08E-05
7	129.29	9.28E+00 +/- 4.34E-01	2.48E+00	1.95E-04 +/- 1.38E-05
8	148.57	1.22E+00 +/- 2.81E-01	2.39E+00	2.15E-04 +/- 2.55E-05
9	185.71	1.10E+00 +/- 2.54E-01	2.21E+00	2.30E-04 +/- 3.16E-05
10	195.76	3.68E-01 +/- 2.21E-01	2.17E+00	2.31E-04 +/- 3.04E-05
11	208.24	2.41E+00 +/- 2.98E-01	2.12E+00	2.30E-04 +/- 2.81E-05
12	219.27	3.97E-01 +/- 1.72E-01	2.08E+00	2.29E-04 +/- 2.56E-05
13	255.43	3.48E-01 +/- 1.65E-01	1.96E+00	2.20E-04 +/- 1.72E-05
14	311.90	8.19E-01 +/- 1.64E-01	1.87E+00	2.00E-04 +/- 1.03E-05
15	332.70	6.75E-01 +/- 1.81E-01	1.84E+00	1.92E-04 +/- 1.04E-05
16	345.15	9.35E-01 +/- 1.53E-01	1.83E+00	1.88E-04 +/- 1.07E-05
17	375.16	2.80E+00 +/- 1.96E-01	1.80E+00	1.78E-04 +/- 1.18E-05
18	382.97	2.77E-01 +/- 9.19E-02	1.79E+00	1.75E-04 +/- 1.20E-05
19	392.82	1.07E+00 +/- 1.21E-01	1.78E+00	1.72E-04 +/- 1.23E-05
20	413.70	2.86E+00 +/- 1.75E-01	1.76E+00	1.65E-04 +/- 1.27E-05
21	451.48	4.10E-01 +/- 8.23E-02	1.72E+00	1.55E-04 +/- 1.30E-05
22	510.95	9.16E-01 +/- 9.76E-02	1.68E+00	1.40E-04 +/- 1.22E-05
23	1085.91	2.63E-02 +/- 1.52E-02	1.43E+00	7.49E-05 +/- 3.78E-06

Segment: 2 Detector: DET01 (# 1) Position: 2

Elapsed Live Time: 112.71 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.057 +/- 0.0050
SE-75	264.65	0.000 +/- 0.0000	0.127 +/- 0.0012
SE-75	279.53	0.000 +/- 0.0000	0.132 +/- 0.0016
SE-75	400.65	0.000 +/- 0.0000	0.166 +/- 0.0022

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.50	1.56E+00 +/- 2.59E-01	4.10E+00	6.95E-10 +/- 6.50E-09
2	35.10	1.01E+03 +/- 4.79E+00	3.99E+00	2.21E-07 +/- 1.06E-06
3	59.89	3.15E+02 +/- 2.17E+00	2.96E+00	2.26E-05 +/- 3.37E-05
4	98.82	9.86E+00 +/- 6.09E-01	2.60E+00	1.84E-04 +/- 4.23E-05
5	104.18	4.15E+00 +/- 5.16E-01	2.57E+00	2.09E-04 +/- 3.49E-05
6	111.32	3.45E+00 +/- 4.50E-01	2.54E+00	2.41E-04 +/- 2.52E-05
7	129.29	1.50E+01 +/- 5.11E-01	2.48E+00	3.07E-04 +/- 1.84E-05
8	144.39	1.09E+00 +/- 3.27E-01	2.41E+00	3.46E-04 +/- 2.99E-05
9	185.71	1.45E+00 +/- 2.98E-01	2.23E+00	3.89E-04 +/- 4.14E-05
10	208.15	4.14E+00 +/- 3.48E-01	2.15E+00	3.88E-04 +/- 3.71E-05
11	244.70	3.13E-01 +/- 1.81E-01	2.04E+00	3.69E-04 +/- 2.61E-05
12	267.19	3.60E-01 +/- 1.25E-01	1.98E+00	3.52E-04 +/- 2.02E-05
13	311.90	1.05E+00 +/- 1.77E-01	1.92E+00	3.18E-04 +/- 1.39E-05
14	332.77	1.64E+00 +/- 2.15E-01	1.90E+00	3.03E-04 +/- 1.34E-05
15	345.10	1.68E+00 +/- 1.92E-01	1.89E+00	2.94E-04 +/- 1.34E-05
16	375.10	4.04E+00 +/- 2.49E-01	1.86E+00	2.74E-04 +/- 1.40E-05
17	393.16	1.48E+00 +/- 1.51E-01	1.84E+00	2.63E-04 +/- 1.43E-05
18	413.70	4.30E+00 +/- 2.14E-01	1.82E+00	2.51E-04 +/- 1.46E-05
19	443.98	1.03E-01 +/- 6.18E-02	1.79E+00	2.36E-04 +/- 1.45E-05
20	451.38	5.32E-01 +/- 8.77E-02	1.78E+00	2.32E-04 +/- 1.45E-05
21	662.42	1.32E-01 +/- 4.17E-02	1.63E+00	1.65E-04 +/- 9.18E-06
22	1274.93	6.67E-01 +/- 7.95E-02	1.42E+00	1.02E-04 +/- 4.70E-06
23	1408.01	3.51E-02 +/- 1.76E-02	1.39E+00	9.61E-05 +/- 6.36E-06

Segment: 3 Detector: DET01 (# 1) Position: 3

Elapsed Live Time: 112.64 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.093 +/- 0.0058
SE-75	264.65	0.000 +/- 0.0000	0.168 +/- 0.0015
SE-75	279.53	0.000 +/- 0.0000	0.177 +/- 0.0020
SE-75	400.65	0.000 +/- 0.0000	0.208 +/- 0.0026

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.77	1.98E+00 +/- 2.70E-01	4.10E+00	1.47E-08 +/- 1.39E-07
2	35.10	1.01E+03 +/- 4.79E+00	3.36E+00	1.07E-06 +/- 5.27E-06
3	59.88	3.26E+02 +/- 2.23E+00	2.55E+00	3.88E-05 +/- 5.93E-05
4	98.79	1.09E+01 +/- 6.31E-01	2.27E+00	2.01E-04 +/- 4.75E-05
5	104.00	3.81E+00 +/- 5.27E-01	2.25E+00	2.22E-04 +/- 3.84E-05
6	111.40	3.58E+00 +/- 4.68E-01	2.22E+00	2.49E-04 +/- 2.64E-05
7	129.29	1.64E+01 +/- 5.18E-01	2.17E+00	3.02E-04 +/- 1.84E-05
8	148.57	1.27E+00 +/- 3.36E-01	2.11E+00	3.39E-04 +/- 3.24E-05
9	164.57	5.14E-01 +/- 3.09E-01	2.07E+00	3.57E-04 +/- 3.91E-05
10	185.71	2.34E+00 +/- 3.27E-01	2.01E+00	3.67E-04 +/- 4.05E-05
11	208.21	4.74E+00 +/- 3.67E-01	1.95E+00	3.66E-04 +/- 3.64E-05
12	244.70	2.74E-01 +/- 1.74E-01	1.87E+00	3.52E-04 +/- 2.60E-05
13	311.90	6.19E-01 +/- 1.87E-01	1.77E+00	3.13E-04 +/- 1.40E-05
14	332.97	1.56E+00 +/- 2.38E-01	1.76E+00	3.00E-04 +/- 1.35E-05
15	345.19	1.97E+00 +/- 2.11E-01	1.75E+00	2.93E-04 +/- 1.36E-05
16	375.06	4.32E+00 +/- 2.55E-01	1.73E+00	2.76E-04 +/- 1.43E-05
17	382.96	4.13E-01 +/- 1.72E-01	1.72E+00	2.72E-04 +/- 1.46E-05
18	393.06	1.60E+00 +/- 1.63E-01	1.72E+00	2.67E-04 +/- 1.48E-05
19	400.66	2.50E-01 +/- 9.24E-02	1.71E+00	2.63E-04 +/- 1.50E-05
20	413.70	4.39E+00 +/- 2.19E-01	1.70E+00	2.57E-04 +/- 1.52E-05
21	422.50	2.76E-01 +/- 9.36E-02	1.69E+00	2.53E-04 +/- 1.53E-05
22	451.57	5.64E-01 +/- 1.01E-01	1.67E+00	2.40E-04 +/- 1.54E-05
23	510.55	1.49E+00 +/- 1.42E-01	1.63E+00	2.18E-04 +/- 1.45E-05
24	662.42	9.96E-02 +/- 4.81E-02	1.54E+00	1.78E-04 +/- 1.02E-05
25	1085.91	2.97E-02 +/- 1.86E-02	1.40E+00	1.23E-04 +/- 5.23E-06
26	1274.84	6.86E-01 +/- 8.88E-02	1.36E+00	1.11E-04 +/- 4.96E-06

Segment: 4 Detector: DET01 (# 1) Position: 4

Elapsed Live Time: 112.36 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.055 +/- 0.0050
SE-75	264.65	0.000 +/- 0.0000	0.117 +/- 0.0011
SE-75	279.53	0.000 +/- 0.0000	0.121 +/- 0.0016
SE-75	400.65	0.000 +/- 0.0000	0.161 +/- 0.0022

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.81E+00	4.02E+00	2.00E-05 +/- 1.66E-05
2	49.90	1.40E+01 +/- 9.56E-01	3.21E+00	6.25E-05 +/- 2.99E-05
3	59.90	4.27E+02 +/- 2.67E+00	2.98E+00	9.94E-05 +/- 3.40E-05
4	98.80	1.29E+01 +/- 6.70E-01	2.62E+00	2.40E-04 +/- 2.42E-05
5	103.57	3.12E+00 +/- 6.28E-01	2.59E+00	2.54E-04 +/- 2.23E-05
6	111.23	3.96E+00 +/- 5.27E-01	2.56E+00	2.74E-04 +/- 1.97E-05
7	129.29	1.68E+01 +/- 5.61E-01	2.50E+00	3.12E-04 +/- 1.61E-05
8	144.36	8.62E-01 +/- 3.97E-01	2.43E+00	3.35E-04 +/- 1.60E-05
9	148.57	7.18E-01 +/- 3.64E-01	2.42E+00	3.40E-04 +/- 1.63E-05
10	185.71	2.60E+00 +/- 3.54E-01	2.27E+00	3.67E-04 +/- 1.89E-05
11	208.15	4.54E+00 +/- 3.92E-01	2.19E+00	3.71E-04 +/- 1.94E-05
12	300.10	5.81E-01 +/- 1.86E-01	1.98E+00	3.44E-04 +/- 1.54E-05
13	311.90	1.04E+00 +/- 1.93E-01	1.96E+00	3.38E-04 +/- 1.48E-05
14	332.81	1.53E+00 +/- 2.43E-01	1.93E+00	3.28E-04 +/- 1.37E-05
15	345.12	2.08E+00 +/- 2.16E-01	1.92E+00	3.21E-04 +/- 1.32E-05
16	367.73	8.81E-01 +/- 1.62E-01	1.89E+00	3.10E-04 +/- 1.23E-05
17	375.15	4.95E+00 +/- 2.68E-01	1.88E+00	3.06E-04 +/- 1.21E-05
18	383.02	3.42E-01 +/- 1.73E-01	1.87E+00	3.02E-04 +/- 1.18E-05
19	393.07	1.87E+00 +/- 1.71E-01	1.86E+00	2.97E-04 +/- 1.16E-05
20	413.70	5.31E+00 +/- 2.37E-01	1.84E+00	2.87E-04 +/- 1.11E-05
21	451.47	6.59E-01 +/- 9.73E-02	1.80E+00	2.70E-04 +/- 1.06E-05
22	662.42	2.15E-01 +/- 6.08E-02	1.64E+00	1.95E-04 +/- 9.03E-06
23	1085.91	1.99E-02 +/- 1.75E-02	1.47E+00	1.20E-04 +/- 4.36E-06
24	1275.10	5.57E-01 +/- 7.98E-02	1.42E+00	1.03E-04 +/- 4.66E-06
25	1408.01	1.77E-02 +/- 1.25E-02	1.40E+00	9.34E-05 +/- 5.87E-06

Segment: 5 Detector: DET01 (# 1) Position: 5

Elapsed Live Time: 111.95 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.042 +/- 0.0049
SE-75	264.65	0.000 +/- 0.0000	0.108 +/- 0.0011
SE-75	279.53	0.000 +/- 0.0000	0.110 +/- 0.0015
SE-75	400.65	0.000 +/- 0.0000	0.146 +/- 0.0021

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.57	2.11E+00 +/- 3.15E-01	4.10E+00	1.94E-06 +/- 2.77E-06
2	35.10	1.01E+03 +/- 4.81E+00	4.10E+00	1.48E-05 +/- 1.27E-05
3	49.71	1.38E+01 +/- 9.56E-01	3.49E+00	5.51E-05 +/- 2.72E-05
4	59.88	5.55E+02 +/- 3.19E+00	3.23E+00	9.45E-05 +/- 3.31E-05
5	98.84	1.57E+01 +/- 7.43E-01	2.82E+00	2.49E-04 +/- 2.52E-05
6	103.61	4.62E+00 +/- 7.04E-01	2.79E+00	2.64E-04 +/- 2.32E-05
7	111.16	3.11E+00 +/- 5.69E-01	2.75E+00	2.86E-04 +/- 2.04E-05
8	129.29	1.93E+01 +/- 5.73E-01	2.68E+00	3.26E-04 +/- 1.67E-05
9	148.57	1.59E+00 +/- 3.90E-01	2.57E+00	3.54E-04 +/- 1.71E-05
10	185.71	2.24E+00 +/- 3.59E-01	2.38E+00	3.75E-04 +/- 2.00E-05
11	208.19	7.02E+00 +/- 4.38E-01	2.28E+00	3.75E-04 +/- 2.04E-05
12	311.90	1.31E+00 +/- 2.00E-01	2.02E+00	3.26E-04 +/- 1.48E-05
13	332.86	2.02E+00 +/- 2.56E-01	1.99E+00	3.14E-04 +/- 1.36E-05
14	345.18	2.15E+00 +/- 2.38E-01	1.97E+00	3.06E-04 +/- 1.30E-05
15	375.11	5.57E+00 +/- 2.97E-01	1.93E+00	2.89E-04 +/- 1.18E-05
16	393.08	2.45E+00 +/- 1.82E-01	1.91E+00	2.80E-04 +/- 1.13E-05
17	400.66	2.50E-01 +/- 1.05E-01	1.91E+00	2.76E-04 +/- 1.11E-05
18	413.70	5.87E+00 +/- 2.55E-01	1.89E+00	2.69E-04 +/- 1.09E-05
19	422.88	3.71E-01 +/- 9.52E-02	1.88E+00	2.64E-04 +/- 1.07E-05
20	443.98	1.27E-01 +/- 7.86E-02	1.86E+00	2.54E-04 +/- 1.04E-05
21	451.68	7.47E-01 +/- 9.92E-02	1.85E+00	2.51E-04 +/- 1.03E-05
22	511.30	1.41E+00 +/- 1.27E-01	1.79E+00	2.26E-04 +/- 9.85E-06
23	583.24	9.18E-02 +/- 5.13E-02	1.73E+00	2.01E-04 +/- 9.41E-06
24	662.42	2.27E-01 +/- 6.19E-02	1.68E+00	1.79E-04 +/- 8.77E-06
25	1001.03	3.01E-02 +/- 2.41E-02	1.52E+00	1.24E-04 +/- 4.97E-06
26	1275.41	2.83E-01 +/- 6.07E-02	1.45E+00	1.04E-04 +/- 4.68E-06

Segment: 6 Detector: DET01 (# 1) Position: 6

Elapsed Live Time: 111.98 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.030 +/- 0.0045
SE-75	264.65	0.000 +/- 0.0000	0.083 +/- 0.0009
SE-75	279.53	0.000 +/- 0.0000	0.089 +/- 0.0013
SE-75	400.65	0.000 +/- 0.0000	0.120 +/- 0.0019

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.68	2.36E+00 +/- 3.26E-01	4.10E+00	7.79E-07 +/- 1.08E-06
2	35.10	1.01E+03 +/- 4.80E+00	4.10E+00	8.04E-06 +/- 6.71E-06
3	50.00	1.52E+01 +/- 1.06E+00	3.79E+00	3.79E-05 +/- 1.82E-05
4	59.86	5.08E+02 +/- 3.02E+00	3.50E+00	6.99E-05 +/- 2.41E-05
5	98.84	1.39E+01 +/- 7.47E-01	3.04E+00	2.22E-04 +/- 2.25E-05
6	111.25	4.19E+00 +/- 5.84E-01	2.97E+00	2.63E-04 +/- 1.90E-05
7	129.29	1.86E+01 +/- 5.80E-01	2.88E+00	3.10E-04 +/- 1.61E-05
8	148.57	1.21E+00 +/- 4.00E-01	2.77E+00	3.45E-04 +/- 1.67E-05
9	185.71	1.08E+00 +/- 3.54E-01	2.56E+00	3.77E-04 +/- 1.97E-05
10	208.25	7.13E+00 +/- 4.38E-01	2.45E+00	3.81E-04 +/- 2.03E-05
11	268.38	5.80E-01 +/- 2.46E-01	2.22E+00	3.63E-04 +/- 1.78E-05
12	279.54	2.85E-01 +/- 1.82E-01	2.19E+00	3.57E-04 +/- 1.71E-05
13	311.90	1.65E+00 +/- 2.14E-01	2.14E+00	3.39E-04 +/- 1.51E-05
14	332.98	2.10E+00 +/- 2.53E-01	2.11E+00	3.26E-04 +/- 1.39E-05
15	345.20	1.94E+00 +/- 2.34E-01	2.09E+00	3.19E-04 +/- 1.33E-05
16	375.12	5.81E+00 +/- 2.81E-01	2.05E+00	3.02E-04 +/- 1.21E-05
17	392.94	2.23E+00 +/- 1.68E-01	2.02E+00	2.92E-04 +/- 1.16E-05
18	400.66	2.54E-01 +/- 1.07E-01	2.01E+00	2.88E-04 +/- 1.14E-05
19	413.70	5.46E+00 +/- 2.31E-01	2.00E+00	2.81E-04 +/- 1.11E-05
20	451.45	6.29E-01 +/- 8.85E-02	1.95E+00	2.62E-04 +/- 1.05E-05
21	510.82	1.12E+00 +/- 1.29E-01	1.89E+00	2.36E-04 +/- 9.96E-06
22	583.42	9.68E-02 +/- 5.30E-02	1.82E+00	2.09E-04 +/- 9.45E-06
23	662.42	2.41E-01 +/- 7.40E-02	1.76E+00	1.86E-04 +/- 8.77E-06
24	778.90	3.09E-02 +/- 2.27E-02	1.69E+00	1.61E-04 +/- 7.48E-06
25	1275.05	3.56E-01 +/- 5.91E-02	1.50E+00	1.10E-04 +/- 4.84E-06

Segment: 7 Detector: DET01 (# 1) Position: 7

Elapsed Live Time: 111.80 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.031 +/- 0.0047
SE-75	264.65	0.000 +/- 0.0000	0.083 +/- 0.0009
SE-75	279.53	0.000 +/- 0.0000	0.089 +/- 0.0013
SE-75	400.65	0.000 +/- 0.0000	0.117 +/- 0.0019

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.79	3.29E+00 +/- 3.46E-01	4.10E+00	1.02E-08 +/- 9.65E-08
2	35.10	1.01E+03 +/- 4.81E+00	4.10E+00	9.59E-07 +/- 4.73E-06
3	59.86	4.98E+02 +/- 3.01E+00	3.49E+00	4.10E-05 +/- 6.28E-05
4	98.84	1.61E+01 +/- 7.93E-01	3.03E+00	2.21E-04 +/- 5.17E-05
5	103.81	5.59E+00 +/- 6.18E-01	3.00E+00	2.43E-04 +/- 4.21E-05
6	111.21	5.25E+00 +/- 6.33E-01	2.96E+00	2.73E-04 +/- 2.89E-05
7	129.29	1.79E+01 +/- 6.24E-01	2.88E+00	3.30E-04 +/- 1.98E-05
8	144.15	1.56E+00 +/- 4.38E-01	2.79E+00	3.61E-04 +/- 3.18E-05
9	148.57	1.14E+00 +/- 4.50E-01	2.76E+00	3.68E-04 +/- 3.49E-05
10	160.76	1.15E+00 +/- 4.40E-01	2.69E+00	3.82E-04 +/- 4.08E-05
11	185.71	1.03E+00 +/- 4.07E-01	2.55E+00	3.94E-04 +/- 4.30E-05
12	208.19	5.98E+00 +/- 4.53E-01	2.45E+00	3.91E-04 +/- 3.83E-05
13	300.10	4.16E+00 +/- 3.13E-01	2.16E+00	3.36E-04 +/- 1.56E-05
14	311.90	2.29E+01 +/- 5.11E-01	2.14E+00	3.27E-04 +/- 1.48E-05
15	332.88	1.71E+00 +/- 2.57E-01	2.11E+00	3.14E-04 +/- 1.44E-05
16	340.59	9.25E-01 +/- 2.66E-01	2.10E+00	3.09E-04 +/- 1.45E-05
17	345.08	8.05E-01 +/- 2.77E-01	2.10E+00	3.06E-04 +/- 1.46E-05
18	375.14	5.87E+00 +/- 2.94E-01	2.06E+00	2.88E-04 +/- 1.54E-05
19	383.04	2.96E-01 +/- 1.34E-01	2.05E+00	2.83E-04 +/- 1.56E-05
20	392.96	2.16E+00 +/- 1.80E-01	2.04E+00	2.78E-04 +/- 1.59E-05
21	413.70	5.37E+00 +/- 2.51E-01	2.01E+00	2.67E-04 +/- 1.63E-05
22	422.63	1.53E-01 +/- 1.11E-01	2.00E+00	2.62E-04 +/- 1.63E-05
23	451.51	4.39E-01 +/- 9.42E-02	1.96E+00	2.49E-04 +/- 1.63E-05
24	662.42	2.26E-01 +/- 6.93E-02	1.77E+00	1.82E-04 +/- 1.06E-05
25	964.13	8.86E-03 +/- 8.86E-03	1.60E+00	1.35E-04 +/- 6.00E-06
26	1274.59	2.66E-01 +/- 5.44E-02	1.51E+00	1.08E-04 +/- 4.90E-06

Segment: 8 Detector: DET01 (# 1) Position: 8

Elapsed Live Time: 111.73 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.072 +/- 0.0061
SE-75	264.65	0.000 +/- 0.0000	0.159 +/- 0.0014
SE-75	279.53	0.000 +/- 0.0000	0.168 +/- 0.0019
SE-75	400.65	0.000 +/- 0.0000	0.211 +/- 0.0026

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.60	3.59E+00 +/- 3.69E-01	4.10E+00	5.42E-09 +/- 5.13E-08
2	35.10	1.01E+03 +/- 4.84E+00	3.70E+00	6.89E-07 +/- 3.37E-06
3	49.77	1.16E+01 +/- 1.12E+00	2.98E+00	1.18E-05 +/- 2.82E-05
4	59.87	4.31E+02 +/- 2.79E+00	2.77E+00	3.42E-05 +/- 5.20E-05
5	67.42	1.96E+00 +/- 4.46E-01	2.66E+00	5.96E-05 +/- 6.47E-05
6	86.74	4.50E+00 +/- 5.85E-01	2.51E+00	1.44E-04 +/- 6.39E-05
7	98.76	1.51E+01 +/- 9.00E-01	2.44E+00	1.98E-04 +/- 4.66E-05
8	103.65	1.76E+00 +/- 7.47E-01	2.42E+00	2.19E-04 +/- 3.84E-05
9	111.34	6.09E+00 +/- 6.17E-01	2.39E+00	2.49E-04 +/- 2.63E-05
10	129.29	1.62E+01 +/- 6.32E-01	2.33E+00	3.05E-04 +/- 1.85E-05
11	185.71	1.64E+00 +/- 4.40E-01	2.10E+00	3.75E-04 +/- 4.12E-05
12	208.22	5.39E+00 +/- 4.76E-01	2.02E+00	3.76E-04 +/- 3.72E-05
13	300.10	7.63E+00 +/- 3.99E-01	1.80E+00	3.30E-04 +/- 1.53E-05
14	311.90	4.44E+01 +/- 7.03E-01	1.79E+00	3.23E-04 +/- 1.44E-05
15	332.80	2.16E+00 +/- 2.92E-01	1.77E+00	3.10E-04 +/- 1.38E-05
16	340.60	2.92E+00 +/- 3.42E-01	1.76E+00	3.05E-04 +/- 1.38E-05
17	375.16	7.08E+00 +/- 3.25E-01	1.73E+00	2.86E-04 +/- 1.46E-05
18	392.94	1.99E+00 +/- 1.91E-01	1.71E+00	2.77E-04 +/- 1.50E-05
19	413.70	6.83E+00 +/- 2.93E-01	1.69E+00	2.66E-04 +/- 1.54E-05
20	451.24	5.90E-01 +/- 1.05E-01	1.66E+00	2.49E-04 +/- 1.56E-05
21	662.42	2.87E-01 +/- 7.56E-02	1.53E+00	1.83E-04 +/- 1.03E-05

Segment: 9 Detector: DET01 (# 1) Position: 9

Elapsed Live Time: 108.94 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.192 +/- 0.0083
SE-75	264.65	0.000 +/- 0.0000	0.273 +/- 0.0022
SE-75	279.53	0.000 +/- 0.0000	0.275 +/- 0.0027
SE-75	400.65	0.000 +/- 0.0000	0.321 +/- 0.0035

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.65	5.14E+00 +/- 4.86E-01	3.66E+00	2.56E-06 +/- 2.50E-05
2	35.10	1.01E+03 +/- 4.88E+00	2.51E+00	1.75E-05 +/- 8.88E-05
3	49.97	2.79E+01 +/- 1.61E+00	2.11E+00	6.17E-05 +/- 1.52E-04
4	59.78	1.29E+03 +/- 6.16E+00	2.00E+00	1.01E-04 +/- 1.59E-04
5	67.35	3.29E+00 +/- 5.72E-01	1.95E+00	1.33E-04 +/- 1.50E-04
6	98.78	3.85E+01 +/- 1.11E+00	1.82E+00	2.51E-04 +/- 6.07E-05
7	103.67	1.16E+01 +/- 1.07E+00	1.81E+00	2.66E-04 +/- 4.77E-05
8	111.27	1.05E+01 +/- 8.59E-01	1.80E+00	2.86E-04 +/- 3.07E-05
9	129.29	3.80E+01 +/- 8.20E-01	1.76E+00	3.23E-04 +/- 1.97E-05
10	148.57	2.14E+00 +/- 6.27E-01	1.73E+00	3.48E-04 +/- 3.41E-05
11	185.71	1.03E+00 +/- 5.58E-01	1.67E+00	3.67E-04 +/- 4.18E-05
12	195.93	1.71E+00 +/- 5.09E-01	1.66E+00	3.67E-04 +/- 4.04E-05
13	208.15	1.73E+01 +/- 7.00E-01	1.64E+00	3.66E-04 +/- 3.76E-05
14	255.71	1.70E+00 +/- 3.72E-01	1.58E+00	3.49E-04 +/- 2.39E-05
15	300.10	4.88E+00 +/- 4.01E-01	1.55E+00	3.26E-04 +/- 1.55E-05
16	311.90	2.54E+01 +/- 5.89E-01	1.55E+00	3.20E-04 +/- 1.45E-05
17	332.79	7.93E+00 +/- 4.71E-01	1.53E+00	3.08E-04 +/- 1.39E-05
18	345.09	7.53E+00 +/- 3.95E-01	1.53E+00	3.02E-04 +/- 1.41E-05
19	368.30	3.17E+00 +/- 3.12E-01	1.51E+00	2.89E-04 +/- 1.47E-05
20	375.10	2.47E+01 +/- 5.94E-01	1.51E+00	2.86E-04 +/- 1.49E-05
21	382.86	2.37E+00 +/- 2.84E-01	1.50E+00	2.82E-04 +/- 1.52E-05
22	393.00	9.41E+00 +/- 3.49E-01	1.50E+00	2.77E-04 +/- 1.54E-05
23	413.70	2.59E+01 +/- 5.25E-01	1.49E+00	2.67E-04 +/- 1.59E-05
24	422.66	1.44E+00 +/- 2.01E-01	1.48E+00	2.63E-04 +/- 1.60E-05
25	443.98	2.00E-01 +/- 1.22E-01	1.47E+00	2.53E-04 +/- 1.61E-05
26	451.53	3.13E+00 +/- 2.06E-01	1.46E+00	2.50E-04 +/- 1.61E-05
27	511.36	1.93E+00 +/- 1.63E-01	1.43E+00	2.26E-04 +/- 1.52E-05
28	662.42	6.52E-01 +/- 1.07E-01	1.38E+00	1.82E-04 +/- 1.04E-05
29	722.05	3.80E-01 +/- 8.32E-02	1.36E+00	1.69E-04 +/- 8.80E-06
30	769.89	2.47E-01 +/- 5.30E-02	1.34E+00	1.61E-04 +/- 7.78E-06
31	1085.91	2.67E-02 +/- 2.11E-02	1.28E+00	1.23E-04 +/- 5.22E-06
32	1275.34	6.99E-01 +/- 8.57E-02	1.25E+00	1.11E-04 +/- 5.01E-06
33	1408.01	9.07E-03 +/- 9.07E-03	1.24E+00	1.05E-04 +/- 6.85E-06

Segment: 10 Detector: DET01 (# 1) Position: 10

Elapsed Live Time: 106.57 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.197 +/- 0.0085
SE-75	264.65	0.000 +/- 0.0000	0.270 +/- 0.0022
SE-75	279.53	0.000 +/- 0.0000	0.271 +/- 0.0027
SE-75	400.65	0.000 +/- 0.0000	0.314 +/- 0.0035

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.56	9.28E+00 +/- 5.91E-01	3.63E+00	3.84E-07 +/- 5.34E-07
2	35.10	1.01E+03 +/- 4.93E+00	2.48E+00	5.68E-06 +/- 4.74E-06
3	49.86	4.45E+01 +/- 1.98E+00	2.09E+00	3.23E-05 +/- 1.56E-05
4	59.68	2.04E+03 +/- 9.09E+00	1.98E+00	6.40E-05 +/- 2.21E-05
5	75.45	2.58E+00 +/- 7.52E-01	1.89E+00	1.30E-04 +/- 2.69E-05
6	98.71	5.13E+01 +/- 1.50E+00	1.81E+00	2.30E-04 +/- 2.34E-05
7	103.70	2.43E+01 +/- 1.32E+00	1.80E+00	2.50E-04 +/- 2.19E-05
8	111.20	1.58E+01 +/- 1.06E+00	1.78E+00	2.77E-04 +/- 1.99E-05
9	129.29	5.79E+01 +/- 9.90E-01	1.75E+00	3.30E-04 +/- 1.70E-05
10	148.57	5.90E+00 +/- 6.65E-01	1.72E+00	3.68E-04 +/- 1.75E-05
11	185.71	1.57E+00 +/- 6.11E-01	1.67E+00	4.00E-04 +/- 2.05E-05
12	195.56	1.97E+00 +/- 5.42E-01	1.66E+00	4.02E-04 +/- 2.08E-05
13	208.10	2.83E+01 +/- 8.35E-01	1.64E+00	4.01E-04 +/- 2.09E-05
14	244.70	1.17E+00 +/- 4.32E-01	1.60E+00	3.89E-04 +/- 1.95E-05
15	255.48	1.89E+00 +/- 4.49E-01	1.59E+00	3.83E-04 +/- 1.88E-05
16	267.37	1.20E+00 +/- 3.14E-01	1.58E+00	3.75E-04 +/- 1.80E-05
17	300.10	1.09E+00 +/- 2.61E-01	1.56E+00	3.54E-04 +/- 1.57E-05
18	311.90	8.66E+00 +/- 4.61E-01	1.55E+00	3.45E-04 +/- 1.50E-05
19	323.45	9.90E-01 +/- 3.20E-01	1.55E+00	3.37E-04 +/- 1.43E-05
20	332.70	1.24E+01 +/- 5.93E-01	1.54E+00	3.31E-04 +/- 1.38E-05
21	345.04	1.19E+01 +/- 5.16E-01	1.53E+00	3.22E-04 +/- 1.32E-05
22	367.94	5.14E+00 +/- 3.73E-01	1.52E+00	3.07E-04 +/- 1.23E-05
23	375.07	3.46E+01 +/- 7.34E-01	1.52E+00	3.03E-04 +/- 1.20E-05
24	382.89	2.91E+00 +/- 3.48E-01	1.51E+00	2.98E-04 +/- 1.18E-05
25	392.96	1.36E+01 +/- 4.13E-01	1.51E+00	2.91E-04 +/- 1.15E-05
26	413.70	3.82E+01 +/- 6.44E-01	1.50E+00	2.79E-04 +/- 1.11E-05
27	422.55	2.40E+00 +/- 2.55E-01	1.49E+00	2.74E-04 +/- 1.09E-05
28	451.45	4.53E+00 +/- 2.46E-01	1.47E+00	2.58E-04 +/- 1.05E-05
29	511.21	2.70E+00 +/- 1.79E-01	1.44E+00	2.30E-04 +/- 1.00E-05
30	645.91	1.54E-01 +/- 8.62E-02	1.39E+00	1.85E-04 +/- 8.99E-06
31	662.42	6.67E-01 +/- 1.25E-01	1.38E+00	1.80E-04 +/- 8.83E-06
32	1275.31	8.07E-01 +/- 9.27E-02	1.26E+00	1.12E-04 +/- 4.90E-06

Segment: 11 Detector: DET01 (# 1) Position: 11

Elapsed Live Time: 108.05 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.143 +/- 0.0075
SE-75	264.65	0.000 +/- 0.0000	0.218 +/- 0.0018
SE-75	279.53	0.000 +/- 0.0000	0.226 +/- 0.0024
SE-75	400.65	0.000 +/- 0.0000	0.261 +/- 0.0031

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.65	6.51E+00 +/- 5.18E-01	4.10E+00	5.41E-07 +/- 7.45E-07
2	35.10	1.01E+03 +/- 4.92E+00	2.85E+00	6.75E-06 +/- 5.60E-06
3	49.89	4.66E+01 +/- 1.97E+00	2.36E+00	3.52E-05 +/- 1.68E-05
4	59.73	1.85E+03 +/- 8.35E+00	2.22E+00	6.74E-05 +/- 2.32E-05
5	98.88	3.68E+01 +/- 1.10E+00	2.00E+00	2.29E-04 +/- 2.29E-05
6	103.40	1.45E+01 +/- 1.01E+00	1.99E+00	2.45E-04 +/- 2.16E-05
7	111.29	7.54E+00 +/- 8.20E-01	1.97E+00	2.72E-04 +/- 1.94E-05
8	129.29	2.66E+01 +/- 7.40E-01	1.93E+00	3.21E-04 +/- 1.65E-05
9	148.57	3.54E+00 +/- 5.28E-01	1.89E+00	3.56E-04 +/- 1.70E-05
10	164.77	8.62E-01 +/- 4.34E-01	1.85E+00	3.75E-04 +/- 1.85E-05
11	208.15	1.65E+01 +/- 6.21E-01	1.77E+00	3.89E-04 +/- 2.04E-05
12	300.10	1.18E+00 +/- 3.12E-01	1.65E+00	3.45E-04 +/- 1.56E-05
13	311.90	7.95E+00 +/- 3.75E-01	1.65E+00	3.37E-04 +/- 1.49E-05
14	332.74	4.86E+00 +/- 4.07E-01	1.63E+00	3.24E-04 +/- 1.37E-05
15	345.10	5.04E+00 +/- 3.13E-01	1.63E+00	3.16E-04 +/- 1.31E-05
16	368.10	2.04E+00 +/- 2.76E-01	1.61E+00	3.02E-04 +/- 1.22E-05
17	375.10	1.42E+01 +/- 4.72E-01	1.61E+00	2.97E-04 +/- 1.19E-05
18	382.96	1.24E+00 +/- 2.30E-01	1.60E+00	2.93E-04 +/- 1.17E-05
19	392.88	5.68E+00 +/- 2.72E-01	1.60E+00	2.87E-04 +/- 1.14E-05
20	400.66	3.84E-01 +/- 1.60E-01	1.59E+00	2.82E-04 +/- 1.12E-05
21	413.70	1.55E+01 +/- 4.11E-01	1.59E+00	2.75E-04 +/- 1.09E-05
22	422.56	7.13E-01 +/- 1.82E-01	1.58E+00	2.70E-04 +/- 1.08E-05
23	443.98	1.83E-01 +/- 9.57E-02	1.56E+00	2.59E-04 +/- 1.04E-05
24	451.69	1.65E+00 +/- 1.57E-01	1.56E+00	2.55E-04 +/- 1.03E-05
25	511.06	2.38E+00 +/- 1.74E-01	1.52E+00	2.29E-04 +/- 9.82E-06
26	662.42	6.80E-01 +/- 1.02E-01	1.45E+00	1.80E-04 +/- 8.65E-06
27	721.98	3.17E-01 +/- 7.11E-02	1.43E+00	1.67E-04 +/- 8.05E-06
28	1275.03	7.53E-01 +/- 8.57E-02	1.30E+00	1.12E-04 +/- 4.96E-06
29	1408.01	9.25E-03 +/- 9.25E-03	1.29E+00	1.08E-04 +/- 6.61E-06

Segment: 12 Detector: DET01 (# 1) Position: 12

Elapsed Live Time: 105.94 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.169 +/- 0.0078
SE-75	264.65	0.000 +/- 0.0000	0.253 +/- 0.0021
SE-75	279.53	0.000 +/- 0.0000	0.262 +/- 0.0027
SE-75	400.65	0.000 +/- 0.0000	0.309 +/- 0.0034

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.64	1.06E+01 +/- 6.10E-01	3.92E+00	7.23E-07 +/- 9.96E-07
2	35.10	1.01E+03 +/- 4.94E+00	2.66E+00	7.63E-06 +/- 6.33E-06
3	49.76	7.26E+01 +/- 2.41E+00	2.22E+00	3.57E-05 +/- 1.72E-05
4	59.65	3.03E+03 +/- 1.29E+01	2.10E+00	6.66E-05 +/- 2.30E-05
5	86.87	1.89E+00 +/- 7.44E-01	1.94E+00	1.72E-04 +/- 2.51E-05
6	98.91	2.10E+01 +/- 1.01E+00	1.90E+00	2.17E-04 +/- 2.20E-05
7	103.17	1.23E+01 +/- 1.11E+00	1.89E+00	2.31E-04 +/- 2.08E-05
8	118.60	5.52E+00 +/- 6.81E-01	1.85E+00	2.78E-04 +/- 1.71E-05
9	125.33	4.91E+00 +/- 4.13E-01	1.84E+00	2.95E-04 +/- 1.62E-05
10	148.57	3.72E+00 +/- 4.46E-01	1.80E+00	3.39E-04 +/- 1.64E-05
11	160.60	8.96E-01 +/- 3.84E-01	1.77E+00	3.54E-04 +/- 1.74E-05
12	208.16	1.39E+01 +/- 4.82E-01	1.69E+00	3.76E-04 +/- 1.99E-05
13	300.10	2.44E+00 +/- 2.81E-01	1.58E+00	3.43E-04 +/- 1.55E-05
14	311.90	1.51E+01 +/- 4.26E-01	1.57E+00	3.36E-04 +/- 1.48E-05
15	332.59	8.53E-01 +/- 2.44E-01	1.55E+00	3.24E-04 +/- 1.37E-05
16	345.03	6.67E-01 +/- 1.81E-01	1.55E+00	3.17E-04 +/- 1.31E-05
17	368.73	8.85E-01 +/- 1.75E-01	1.53E+00	3.04E-04 +/- 1.21E-05
18	375.10	2.10E+00 +/- 2.23E-01	1.53E+00	3.00E-04 +/- 1.19E-05
19	382.87	2.01E-01 +/- 1.02E-01	1.52E+00	2.96E-04 +/- 1.17E-05
20	400.66	5.06E-01 +/- 1.16E-01	1.51E+00	2.86E-04 +/- 1.12E-05
21	413.70	2.20E+00 +/- 1.81E-01	1.50E+00	2.79E-04 +/- 1.09E-05
22	443.98	1.21E-01 +/- 6.64E-02	1.49E+00	2.64E-04 +/- 1.04E-05
23	452.01	3.62E-01 +/- 8.94E-02	1.48E+00	2.60E-04 +/- 1.03E-05
24	511.16	1.28E+00 +/- 1.27E-01	1.45E+00	2.34E-04 +/- 9.75E-06
25	662.42	4.61E-01 +/- 8.99E-02	1.39E+00	1.85E-04 +/- 8.58E-06
26	964.13	3.97E-02 +/- 2.65E-02	1.31E+00	1.33E-04 +/- 5.22E-06
27	1274.98	4.42E-01 +/- 7.20E-02	1.26E+00	1.08E-04 +/- 4.84E-06
28	1408.01	1.87E-02 +/- 1.32E-02	1.25E+00	1.02E-04 +/- 6.34E-06

Segment: 13 Detector: DET01 (# 1) Position: 13

Elapsed Live Time: 106.17 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.141 +/- 0.0074
SE-75	264.65	0.000 +/- 0.0000	0.239 +/- 0.0020
SE-75	279.53	0.000 +/- 0.0000	0.249 +/- 0.0026
SE-75	400.65	0.000 +/- 0.0000	0.299 +/- 0.0033

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.55	9.68E+00 +/- 5.97E-01	4.10E+00	1.22E-06 +/- 1.76E-06
2	35.10	1.01E+03 +/- 4.93E+00	2.87E+00	1.10E-05 +/- 9.51E-06
3	49.90	7.08E+01 +/- 2.41E+00	2.37E+00	4.62E-05 +/- 2.29E-05
4	59.66	2.96E+03 +/- 1.26E+01	2.23E+00	8.11E-05 +/- 2.89E-05
5	98.89	2.20E+01 +/- 9.60E-01	2.01E+00	2.37E-04 +/- 2.42E-05
6	103.11	8.64E+00 +/- 1.06E+00	2.00E+00	2.52E-04 +/- 2.27E-05
7	118.50	2.91E+00 +/- 6.31E-01	1.96E+00	2.96E-04 +/- 1.81E-05
8	125.42	5.25E+00 +/- 5.31E-01	1.94E+00	3.13E-04 +/- 1.70E-05
9	148.57	3.24E+00 +/- 4.48E-01	1.89E+00	3.52E-04 +/- 1.72E-05
10	208.02	1.34E+01 +/- 4.41E-01	1.74E+00	3.80E-04 +/- 2.07E-05
11	300.10	3.30E+00 +/- 2.76E-01	1.60E+00	3.40E-04 +/- 1.57E-05
12	311.90	2.32E+01 +/- 5.06E-01	1.59E+00	3.33E-04 +/- 1.50E-05
13	340.53	1.18E+00 +/- 2.40E-01	1.57E+00	3.16E-04 +/- 1.34E-05
14	375.09	1.19E+00 +/- 1.76E-01	1.55E+00	2.95E-04 +/- 1.20E-05
M 15	413.84	6.98E-01 +/- 1.25E-01	1.52E+00	2.74E-04 +/- 1.10E-05
m 16	415.71	6.40E-01 +/- 1.18E-01	1.52E+00	2.73E-04 +/- 1.10E-05
17	662.42	6.65E-01 +/- 8.40E-02	1.40E+00	1.80E-04 +/- 8.87E-06
18	1408.01	9.30E-03 +/- 9.30E-03	1.26E+00	9.60E-05 +/- 6.10E-06

Segment: 14 Detector: DET01 (# 1) Position: 14

Elapsed Live Time: 108.86 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.216 +/- 0.0084
SE-75	264.65	0.000 +/- 0.0000	0.331 +/- 0.0025
SE-75	279.53	0.000 +/- 0.0000	0.338 +/- 0.0031
SE-75	400.65	0.000 +/- 0.0000	0.388 +/- 0.0039

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.63	5.98E+00 +/- 4.60E-01	3.43E+00	6.78E-07 +/- 6.46E-06
2	35.10	1.01E+03 +/- 4.89E+00	2.38E+00	8.94E-06 +/- 4.41E-05
3	49.85	4.73E+01 +/- 1.99E+00	2.02E+00	4.41E-05 +/- 1.06E-04
4	59.77	1.93E+03 +/- 8.65E+00	1.92E+00	8.12E-05 +/- 1.25E-04
5	98.94	1.42E+01 +/- 7.48E-01	1.76E+00	2.39E-04 +/- 5.60E-05
6	103.18	5.43E+00 +/- 8.41E-01	1.75E+00	2.53E-04 +/- 4.59E-05
7	111.20	1.09E+00 +/- 5.12E-01	1.73E+00	2.76E-04 +/- 2.93E-05
8	125.47	2.90E+00 +/- 4.35E-01	1.71E+00	3.09E-04 +/- 1.73E-05
9	148.57	2.40E+00 +/- 3.48E-01	1.66E+00	3.44E-04 +/- 3.29E-05
10	164.63	9.53E-01 +/- 3.05E-01	1.63E+00	3.57E-04 +/- 3.92E-05
11	208.18	7.96E+00 +/- 3.56E-01	1.56E+00	3.63E-04 +/- 3.64E-05
12	279.54	3.29E-01 +/- 1.82E-01	1.47E+00	3.36E-04 +/- 1.80E-05
13	300.10	3.27E+00 +/- 2.50E-01	1.46E+00	3.25E-04 +/- 1.51E-05
14	311.90	1.83E+01 +/- 4.41E-01	1.45E+00	3.18E-04 +/- 1.42E-05
15	332.55	4.22E-01 +/- 1.71E-01	1.44E+00	3.07E-04 +/- 1.37E-05
16	340.61	1.17E+00 +/- 1.95E-01	1.43E+00	3.03E-04 +/- 1.37E-05
17	368.84	4.22E-01 +/- 1.09E-01	1.42E+00	2.88E-04 +/- 1.44E-05
18	375.20	8.51E-01 +/- 1.44E-01	1.42E+00	2.85E-04 +/- 1.46E-05
19	398.62	6.28E-01 +/- 1.08E-01	1.40E+00	2.74E-04 +/- 1.53E-05
20	413.70	1.18E+00 +/- 1.31E-01	1.40E+00	2.67E-04 +/- 1.56E-05
21	662.42	3.24E-01 +/- 7.09E-02	1.31E+00	1.83E-04 +/- 1.04E-05
22	867.39	4.20E-02 +/- 3.41E-02	1.26E+00	1.44E-04 +/- 6.47E-06
23	1001.03	2.76E-02 +/- 1.59E-02	1.24E+00	1.27E-04 +/- 5.50E-06

Segment: 15 Detector: DET01 (# 1) Position: 15

Elapsed Live Time: 111.17 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.457 +/- 0.0113
SE-75	264.65	0.000 +/- 0.0000	0.548 +/- 0.0038
SE-75	279.53	0.000 +/- 0.0000	0.550 +/- 0.0045
SE-75	400.65	0.000 +/- 0.0000	0.609 +/- 0.0054

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.65	3.32E+00 +/- 3.39E-01	2.07E+00	2.78E-12 +/- 2.58E-11
2	35.10	1.01E+03 +/- 4.82E+00	1.63E+00	1.45E-08 +/- 6.96E-08
3	50.02	2.76E+01 +/- 1.48E+00	1.47E+00	2.01E-06 +/- 4.68E-06
4	59.85	1.05E+03 +/- 5.15E+00	1.43E+00	1.13E-05 +/- 1.68E-05
5	86.98	1.81E+00 +/- 3.95E-01	1.37E+00	1.14E-04 +/- 4.90E-05
6	98.94	7.41E+00 +/- 5.23E-01	1.36E+00	1.84E-04 +/- 4.19E-05
7	103.22	1.75E+00 +/- 5.87E-01	1.35E+00	2.09E-04 +/- 3.68E-05
8	111.04	1.22E+00 +/- 3.66E-01	1.34E+00	2.53E-04 +/- 2.66E-05
9	125.48	8.35E-01 +/- 3.25E-01	1.33E+00	3.22E-04 +/- 1.78E-05
10	148.57	9.75E-01 +/- 2.69E-01	1.32E+00	3.93E-04 +/- 3.63E-05
11	185.71	4.28E-01 +/- 2.16E-01	1.29E+00	4.24E-04 +/- 4.51E-05
12	208.03	2.65E+00 +/- 2.44E-01	1.28E+00	4.16E-04 +/- 3.98E-05
13	300.10	2.16E+00 +/- 1.91E-01	1.24E+00	3.32E-04 +/- 1.51E-05
14	311.90	1.15E+01 +/- 3.46E-01	1.23E+00	3.22E-04 +/- 1.42E-05
15	340.68	9.99E-01 +/- 1.45E-01	1.22E+00	2.99E-04 +/- 1.37E-05
16	375.32	4.32E-01 +/- 1.04E-01	1.21E+00	2.74E-04 +/- 1.44E-05
17	398.85	4.03E-01 +/- 8.93E-02	1.20E+00	2.60E-04 +/- 1.48E-05
18	413.70	6.02E-01 +/- 9.92E-02	1.20E+00	2.52E-04 +/- 1.49E-05
19	662.42	6.43E-02 +/- 3.19E-02	1.15E+00	1.74E-04 +/- 9.76E-06

Segment: 16 Detector: DET01 (# 1) Position: 16

Elapsed Live Time: 112.78 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.520 +/- 0.0120
SE-75	264.65	0.000 +/- 0.0000	0.624 +/- 0.0043
SE-75	279.53	0.000 +/- 0.0000	0.625 +/- 0.0049
SE-75	400.65	0.000 +/- 0.0000	0.664 +/- 0.0058

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.73	1.25E+00 +/- 2.21E-01	1.86E+00	2.73E-14 +/- 2.95E-13
2	35.10	1.01E+03 +/- 4.79E+00	1.51E+00	9.52E-10 +/- 5.35E-09
3	50.14	1.24E+01 +/- 1.02E+00	1.38E+00	4.31E-07 +/- 1.17E-06
4	59.88	3.75E+02 +/- 2.53E+00	1.35E+00	3.50E-06 +/- 6.10E-06
5	99.05	2.56E+00 +/- 3.79E-01	1.29E+00	1.09E-04 +/- 2.86E-05
6	148.57	3.40E-01 +/- 1.72E-01	1.26E+00	2.78E-04 +/- 3.01E-05
7	185.71	2.52E-01 +/- 1.51E-01	1.23E+00	3.10E-04 +/- 3.88E-05
8	208.12	7.23E-01 +/- 1.80E-01	1.22E+00	3.05E-04 +/- 3.43E-05
9	300.10	7.34E-01 +/- 1.36E-01	1.18E+00	2.42E-04 +/- 1.22E-05
10	311.90	3.81E+00 +/- 2.04E-01	1.18E+00	2.34E-04 +/- 1.14E-05
11	340.71	2.85E-01 +/- 1.10E-01	1.18E+00	2.16E-04 +/- 1.09E-05
12	400.66	2.35E-01 +/- 6.05E-02	1.16E+00	1.86E-04 +/- 1.20E-05
13	413.70	2.72E-01 +/- 7.31E-02	1.16E+00	1.81E-04 +/- 1.21E-05
14	662.42	5.27E-02 +/- 3.24E-02	1.13E+00	1.26E-04 +/- 8.22E-06

Summed Spectrum

Peak Locate Report

Sample ID: LL85601332TRU
Peak Locate Performed on: 10-05-02 1:31:26 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192
Peak Search Sensitivity: 5.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	47.43	0.1895	23.64	15.83
2	70.50	0.0429	35.16	273.91
3	100.00	0.1727	49.90	18.66
4	119.70	0.0403	59.74	338.27
5	135.04	0.3096	67.41	7.01
6	150.59	0.3343	75.18	5.27
7	174.04	0.3579	86.89	5.11
8	197.92	0.1154	98.82	36.68
9	207.07	0.1359	103.40	24.13
10	222.86	0.1575	111.29	18.47
11	259.23	0.0996	129.46	50.96
12	288.89	0.2870	144.28	7.42
13	297.74	0.1976	148.70	12.12
14	329.92	0.2611	164.78	7.77
15	372.16	0.2197	185.88	11.25
16	391.97	0.3169	195.78	5.37
17	416.74	0.1009	208.15	47.00
18	511.33	0.2786	255.41	5.57
19	535.63	0.3127	267.55	5.95
20	601.00	0.1491	300.21	20.72
21	624.58	0.0889	311.99	54.87
22	666.15	0.1284	332.76	28.13
23	690.85	0.1301	345.10	26.78
24	737.09	0.2042	368.20	7.87
25	750.90	0.0944	375.10	49.84
26	766.54	0.1798	382.92	15.21
27	786.68	0.1291	392.98	23.51
28	828.23	0.0952	413.74	47.19
29	845.98	0.1858	422.61	12.59
30	903.91	0.1570	451.55	17.68
31	1023.11	0.1916	511.10	8.09
32	1167.80	0.2864	583.39	5.38
33	1325.88	0.2078	662.37	8.88
34	1445.41	0.2490	722.10	5.33
35	2552.18	0.1633	1275.05	11.71
36	2925.91	0.2636	1461.78	5.25

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
37	5237.01	0.2182	2616.45	5.65

Errors quoted at 1.000 sigma

Summed Spectrum

Peak Analysis Report

Sample ID: LL85601332TRU
Peak Analysis Performed on: 10-05-02 1:31:27 PM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	45-	50	47.43	23.64	7.39E+03	177.78	1.23E+04
2	67-	73	70.50	35.16	1.80E+06	1349.64	1.31E+04
3	96-	103	100.00	49.90	4.97E+04	663.21	1.76E+05
4	116-	123	119.70	59.74	1.96E+06	1539.69	2.04E+05
5	131-	138	135.04	67.41	2.87E+03	202.19	1.88E+04
6	146-	154	150.59	75.18	1.94E+03	240.29	2.58E+04
7	170-	177	174.04	86.89	2.47E+03	248.72	2.93E+04
8	194-	201	197.92	98.82	3.39E+04	365.21	4.96E+04
9	203-	210	207.07	103.40	1.32E+04	331.16	4.36E+04
10	218-	226	222.86	111.29	7.72E+03	280.99	3.25E+04
11	255-	263	259.23	129.46	2.80E+04	261.30	1.86E+04
12	284-	292	288.89	144.28	9.51E+02	181.23	1.48E+04
13	293-	301	297.74	148.70	3.55E+03	187.03	1.47E+04
14	325-	334	329.92	164.78	3.49E+02	183.25	1.46E+04
15	367-	376	372.16	185.88	1.98E+03	166.98	1.15E+04
16	387-	396	391.97	195.78	9.05E+02	153.35	1.00E+04
17	412-	421	416.74	208.15	1.56E+04	206.44	1.17E+04
18	506-	516	511.33	255.41	8.43E+02	118.17	5.51E+03
19	530-	540	535.63	267.55	3.42E+02	114.40	5.35E+03
20	596-	605	601.00	300.21	3.67E+03	111.13	3.85E+03
21	619-	629	624.58	311.99	2.07E+04	170.79	3.57E+03
22	661-	671	666.15	332.76	4.56E+03	127.95	4.82E+03
23	687-	695	690.85	345.10	4.34E+03	103.49	2.91E+03
24	731-	742	737.09	368.20	2.01E+03	87.57	2.25E+03
25	745-	756	750.90	375.10	1.31E+04	147.49	3.44E+03
26	766-	771	766.54	382.92	1.16E+03	69.52	1.24E+03
27	781-	791	786.68	392.98	4.98E+03	86.57	1.06E+03
28	822-	833	828.23	413.74	1.38E+04	128.25	1.05E+03
29	840-	851	845.98	422.61	7.48E+02	54.75	8.79E+02
30	898-	909	903.91	451.55	1.59E+03	51.64	4.31E+02
31	1017-	1028	1023.11	511.10	2.10E+03	54.16	3.31E+02
32	1161-	1173	1167.80	583.39	1.67E+02	25.34	1.80E+02
33	1319-	1332	1325.88	662.37	5.75E+02	33.41	1.97E+02
34	1439-	1451	1445.41	722.10	2.22E+02	24.99	1.53E+02
35	2544-	2559	2552.18	1275.05	7.12E+02	29.36	4.99E+01
36	2917-	2933	2925.91	1461.78	1.03E+02	12.17	1.45E+01
37	5227-	5246	5237.01	2616.45	1.43E+02	12.67	5.00E+00

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Summed Spectrum

Nuclide Identification Report

Sample ID: LL85601332TRU
Nuclide Library Used: C:\WAS\NLIB\LLNL.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Pulser	1.000	35.10*	100.00	1.773E+06	3.597E+06
U-235	0.998	185.71*	57.20	3.811E+00	3.289E-01
Np-237	0.999	300.10*	6.63	6.595E+01	2.039E+00
		311.90*	38.60	6.508E+01	6.634E-01
Pu-239	1.000	413.70*	0.00	1.333E+06	2.668E+04
Pu-239A	0.998	129.29*	0.01	6.246E+05	1.457E+04
Am-241	1.000	662.42*	0.00	2.860E+05	1.675E+04
Pu-241	0.999	148.57*	0.00	2.323E+06	1.262E+05

* = Energy line found in the spectrum.
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10-05-02 1:31:26 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	23.64	6.6381E+01	2.41
3	49.90	4.4659E+02	1.34
4	59.74	1.7597E+04	0.12
5	67.41	2.5761E+01	7.05
6	75.18	1.7419E+01	12.39
7	86.89	2.2229E+01	10.05
8	98.82	3.0496E+02	1.08
9	103.40	1.1831E+02	2.52
10	111.29	6.9352E+01	3.64
12	144.28	8.5415E+00	19.06
14	164.78	3.1318E+00	52.56
16	195.78	8.1281E+00	16.95
17	208.15	1.4008E+02	1.33
18	255.41	7.5717E+00	14.02
19	267.55	3.0701E+00	33.47
22	332.76	4.1004E+01	2.80
23	345.10	3.8996E+01	2.39
24	368.20	1.8100E+01	4.35
25	375.10	1.1739E+02	1.13
26	382.92	1.0415E+01	6.00
27	392.98	4.4702E+01	1.74
29	422.61	6.7217E+00	7.32
30	451.55	1.4285E+01	3.25
31	511.10	1.8898E+01	2.58
32	583.39	1.5035E+00	15.14
34	722.10	1.9952E+00	11.25
35	1275.05	6.3972E+00	4.12
36	1461.78	9.2106E-01	11.87
37	2616.45	1.2847E+00	8.86

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Combined Segment NID

NID Results Combiner Mode: Sum Activities

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		4.73E+07	+/-	2.44E+08		8.94E+02	+/-	4.61E+03
SE-75	<	1.81E-01	+/-	8.73E-03	<	3.42E-06	+/-	1.65E-07
EU-152x	<	1.72E-01	+/-	1.31E-02	<	3.25E-06	+/-	2.48E-07
U-233	<	7.30E+03	+/-	3.69E+02	<	1.38E-01	+/-	6.98E-03
U-235		4.66E+00	+/-	3.76E-01		8.81E-05	+/-	7.10E-06
Np-237		6.73E+01	+/-	1.15E+00		1.27E-03	+/-	2.17E-05
Pu-238	<	1.79E+04	+/-	8.56E+02	<	3.39E-01	+/-	1.62E-02
U-238		2.06E+00	+/-	1.08E+00		3.89E-05	+/-	2.04E-05
Pu-239		1.37E+06	+/-	2.93E+04		2.59E+01	+/-	5.53E-01
Pu-239A		7.63E+05	+/-	1.56E+04		1.44E+01	+/-	2.95E-01
Am-241		2.73E+05	+/-	1.68E+04		5.15E+00	+/-	3.18E-01
Pu-241		2.41E+06	+/-	1.49E+05		4.56E+01	+/-	2.81E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	2.16E+00	+/-	1.74E-01
Np-237	9.56E-02	+/-	1.63E-03
U-238	6.13E+00	+/-	3.22E+00
Pu-239	2.21E+01	+/-	4.71E-01
Pu-239A	1.23E+01	+/-	2.51E-01
Am-241	7.96E-02	+/-	4.91E-03
Pu-241	2.33E-02	+/-	1.44E-03

Summed Spectrum

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		1.77E+06	+/-	3.60E+06		3.35E+01	+/-	6.80E+01
SE-75	<	7.16E-01	+/-	5.14E-03	<	1.35E-05	+/-	9.72E-08
EU-152x	<	4.67E-01	+/-	7.35E-03	<	8.82E-06	+/-	1.39E-07
U-233	<	3.54E+04	+/-	6.52E+02	<	6.70E-01	+/-	1.23E-02
U-235		3.81E+00	+/-	3.29E-01		7.20E-05	+/-	6.22E-06
Np-237		6.52E+01	+/-	6.31E-01		1.23E-03	+/-	1.19E-05
Pu-238	<	8.28E+04	+/-	1.07E+03	<	1.56E+00	+/-	2.02E-02
U-238	<	1.87E+01	+/-	2.88E-01	<	3.54E-04	+/-	5.45E-06
Pu-239		1.33E+06	+/-	2.67E+04		2.52E+01	+/-	5.04E-01
Pu-239A		6.25E+05	+/-	1.46E+04		1.18E+01	+/-	2.75E-01
Am-241		2.86E+05	+/-	1.67E+04		5.41E+00	+/-	3.17E-01
Pu-241		2.32E+06	+/-	1.26E+05		4.39E+01	+/-	2.39E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	1.76E+00	+/-	1.52E-01
Np-237	9.25E-02	+/-	8.96E-04
Pu-239	2.15E+01	+/-	4.30E-01
Pu-239A	1.01E+01	+/-	2.35E-01
Am-241	8.35E-02	+/-	4.89E-03
Pu-241	2.25E-02	+/-	1.22E-03

Final Non-Uniformity Results

Source Longitudinal Ratio:	0.000	+/-	0.0000
Matrix Longitudinal Ratio:	0.937	+/-	0.0666
Source Vertical Ratio:	0.000	+/-	0.0000
Matrix Vertical Ratio:	0.876	+/-	0.0117

NUDS could not find the transmission peak in one radial segment.
NUDS could not find the source peak in any radial segment.

LAWRENCE LIVERMORE NATIONAL LABORATORY

WASTE DISPOSAL REQUISITION

W 221326

H1. Label/Waste Type:
- ☐ Non-Haz (N)
- ☐ RCRA Haz (H)
- ☐ CA Haz (C)
- ☐ NTS LLW (L)
- ☐ Low-Level (R)
- ☐ LLW Mixed (F)
- ☐ LLW Combined (S)
- ☒ TRU (T)
- ☐ TRU Mixed (X)

1. Container ID Number or Tank ID or for TRU Waste, TRU Waste Container Serial No.: Q – LL85-601332 TRU–

H2. CCC: DS

H3. Storage Restrictions
Not acceptable at the following locations:
☑ 233 ☑ 514 ☐ 612 ☐ 693 ☐ 696
CWAA ☐ 169 ☑ 361 ☐ 612-4

2. Container Use/Acceptability: ☐ On-site use only; ☒ Acceptable for off-site use
Container Manufacturer Serial No./Batch No. B520483 ☐ N/A
Employee No.: 553224 Initials: TM Date: 5/22/02

3. RMMA: ☒ Yes ☐ No

4. Waste Form: ☒ Solid ☐ Liquid ☐ Gas ☐ Sludge

H4. Hazardous Properties: ☐ Toxic ☐ Corrosive ☐ Ignitable ☐ Reactive

5. Outer Container Type: ☐ Box ☐ Sack ☐ Can ☐ SWB ☐ Carboy ☐ Tub ☒ Drum ☐ Bag ☐ Tank – Fixed ☐ Tank – Portable ☐ Transportainer
Other: _____

6. Outer Container Size/Vol:
☐ 1 gal ☒ 55 gal ☐ 67 cu ft
☐ 2 gal ☐ 85 gal ☐ 1 × 1 × 1.5
☐ 5 gal ☐ 330 gal ☐ 2 × 4 × 7
☐ 10 gal ☐ 660 gal ☐ 4 × 4 × 7
☐ 12 gal ☐ 750 gal ☐ 1 cu yd
☐ 20 gal ☐ 1000 gal ☐ 8 × 8 × 20
☐ 30 gal ☐ 5000 gal ☐ 8 × 8 × 40
Other: _____ ☐ gal _____ ☐ cu ft

7. Building No.: 332
8. Room No.: 1378
9. Location: ~~78 DLC~~ AT GEN
10. Workplace Start Date: 6/28/02
11. Workplace End Date: 08/07/02
12. Account No.: 5481-50
13. Directorate: DNT
14. WEF/PKE/SAW/PIW: ~~243~~ ☐ WEF ☒ PKE ☐ SAW ☐ PIW
Specify No.: ~~1002 AC~~ ☐ N/A
15. Source Code: A940
16. Inner Containers: ☒ Yes ☒ No

17. Item No.	18. Spent or Unused (S/U)	19. Organic or Inorganic (O/I)	20. Waste Form (S,SL,L,G)	21. Waste Description (For multiple parcels, list Parcel Card Nos.)	22. Hazardous Constituents and Concentrations	23. Item Container Size	24. Quantity per Item Amount	Units	25. Analysis Sample No.	Physical Waste Data: 26. Aqueous Only pH	Normality	27. Flash Point
				P052325								
				P052022								
				P052296								
				P052025								
				P052340								

28. Does the waste contain radioactive components? ☒ Yes ☐ No ☐ To be analyzed
(If yes or TBA, complete Page 3 as applicable to waste type.)

This section (Steps 29–30) is required for Hazardous Waste generated in a RMMA

29. Was the waste kept isolated from any operation that could have produced radioactive contamination (using a glove box, vent hood, etc.)? ☐ Yes ☐ No (If no, full rad analysis required)

30. Was the waste exposed to particle beams capable of inducing radioactivity by activation? ☐ Yes ☒ No (If yes, full rad analysis required)

31. ☐ Generator: I certify, to the best of my knowledge, that the information provided on this requisition is correct. I understand that I may be liable to State and Federal prosecution by intentionally providing false information. I have obtained this information by:
- ☐ Direct knowledge of the waste generating process ☐ Analytical Data
- ☐ Obtaining sufficient information from others knowledgeable of the waste generating process

☒ Container Custodian: I certify that the waste parcels identified on this form are contained in this waste container and have been packaged in accordance with the requirements specified in the appropriate LLNL TRU or Low-Level Waste Program Certification and Quality Assurance Program.

Generator or Container Custodian Name (Print – Last, First): Close Walt
Signature: Walt Close 8/7/02
Employee No.: 164212 L-Code: 361 Ext.: 2-6075 Date: ~~6/28/02~~

H5. Inspected By: Signature: Employee No.: Date:

H6. Characterization Chemist Approval:
☐ Acceptable for Sampling _____ (Initials) Exempt: ☐ OP ☐ SA ☐ DE
Signature: ☐ WEF Employee No.: Date:

H7. RCA Approval: ☐ Overpack for final shipment to NTS ☐ Meets SCAL
☐ Decay Program (Initials) _____ ☐ NTS Certified (Initials) _____ ☐ WIPP Certified (Initials) _____
☐ On-site Treatment
Signature: ☐ WEF Employee No.: Date:

☐ On Hold – Pending S&A

☐ Released

31A. Gross Weight 83.0 Kg
TARE = 30.1 Kg

Radioactive page attached: ☒ Yes ☐ N/A

Continuation page(s) attached: ☐ Yes ☒ N/A

32. Waste Profile No., TRU Waste Form No., or Bin No.: 1, 2b

☐ HWM Use Only

LL-5344 (4/01)

WASTE DISPOSAL REQUISITION
RADIOACTIVE WASTE

REQUISITION No.: W 2 2 1 3 2 6

33. Moderators/Reflectors: Quantity of beryllium: 0 grams
Enriched in deuterium ☐ Yes ☒ No Carbon (e.g., graphite) 0 grams

34. Waste Package Seals (WPS)Applied: ☐ N/A ☒ Yes
WPS No(s): K780, L2748 T 10/4/02

35. MBA Quantity: ☐ Yes ☐ No

Items 36 to 39 are not required if Parcel Cards were used for documentation.

36. Method(s) used to identify radionuclides and/or determine activity: (Check all that apply)

☐ Process Knowledge ☐ Mass ☐ Mass Balance ☐ Liquid Scintillation Counting
☐ Alpha Spectrometry ☐ Tritium off gas measurement ☐ See attached methodology
☐ Dose-to-Curie ☐ Gamma Spectrometry ☐ High Sensitivity Neutron Instrument
☐ Segmented Gamma Scanner ☐ Other: _____
☐ AVLIS Method (☐ A ☐ B ☐ C)

N/A see attached parcel cards T 10/4/02

(Complete the following when a meter is used to determine activity):
Survey meter model: _____ Serial Number: _____
Meter Reading: _____ cpm, dpm, mR/hr (circle)
Calibration due date: _____
Check source jig No.: _____ Detector response (± 30%) ☐ Satisfactory

40. Radiological Data: ☐ See attached sheet

Item	Radionuclide	Quantity	Units (Ci, g)	α / PE - Ci	Pu – Eq. gram

37. Does this waste contain any of the following?

Friable Asbestos: ☐ Yes ☐ No PCBs: ☐ Yes ☐ No
Pyrophorics: ☐ Yes ☐ No Explosives: ☐ Yes ☐ No
(e.g., uranium turnings that could spontaneously combust if exposed to air) (e.g., TNT, PETN that exhibit explosive properties).
Chelating Agents: ☐ Yes ☐ No Compressed Gases: ☐ Yes ☐ No
(e.g., Radiac Wash, >1% by weight) (e.g., aerosol cans)
Free Liquids: ☐ Yes ☐ No Classified Material: ☐ Yes ☐ No
Explanations/Comments:

Plutonium grades: ☒ Weapons ☐ Fuel ☐ Reactor ☐ Mixed ☐ Am enriched
☐ Enriched Uranium: ____% U-234 ____% U-235 ____% U-238

41. Weight (Note: If AVLIS Method C, mass, HSNI, SGS or activity per unit mass is used to determine the activity of the waste, a calibrated scale shall be used).
☐ Estimated Weight ☐ Weighed on Calibrated Scale Initials: _____

Gross Weight/Unit	Tare Weight/Unit	Scale Serial No.	Calibration Due Date

42. Rad. Survey (mR/hr):

βγ @ Contact	βγ @ 1 Meter	Neutron @ Contact

Swipe Data: ☐ Complies with on-site transfer requirements
☐ Complies with 10 CFR 835 criteria for unrestricted release

Performed By (print and signature): _____
Date: Employee No.: Ext:

Item 38 and 39 are only required for waste destined for NTS. This includes waste that will be treated prior to final disposal (e.g., LSC, and pyrophoric uranium turnings).

38. Packaging Procedure followed: ☐ WCP-8 ☐ Packaging Instruction No.: _____
☐ EX-404 ☐ Other (describe):

39. Verifier Certification: I verify that, to the best of my knowledge, the information supplied by the waste generator on this form is complete and accurate, and that by visual inspection the waste is accurately described.
Verifier Name (print and sign): _____
Employee No.: _____ Date: _____

43. Container Type:
☒ DOT Type A
☐ DOT Type B
☐ Other

H15. Radiological Appendix:
☐ Liquid waste containing >1 Ci of Pu-Equivalent activity
☐ Contains > 10 grams fissionable material
RCA Initials: _____

RADIOASSAY DATA SHEET

Batch Number: 2002-13

Radio Assay Method: SGS

Procedure ID & Rev: OP-B332-005

Software Version: GWAS V2.3A RADA V2.1

DRUM INFORMATION

Drum Package ID: LL85001028TR
Sequence Number: 1066
Assay Date & Time: 10-05-2002 3:03:47 PM
Report Generated: 10-07-2002 8:36:23 AM
Drum Package GROSS Weight: 56.00 kg NET Weight: 24.20 kg

IDC Number: LL85001028 TRU

QC Replicate (Yes/No): No Passed (Yes/No): _____

Operator Name (Printed): LEE CALDEIRA

Operator Signature: [signature] Date: 10/7/02

Independent Reviewer: [signature] Date: 10/11/02

Expert Reviewer: Kenneth Raschke Date: 10/11/02

Tech. Supv/QA Officer: [signature] Date: 10/14/02

ACTIVITY INFORMATION

Waste Classification: (TRU or LLW): TRU

Total Alpha Activity: 1.408E-01 +/- 3.375E-02 Ci

****
* I S O T O P I C I N F O R M A T I O N *
****

Isotope	Measured Mass (g)	Mass Uncertainty (g)
Pu-238	2.341E-04	1.023E-04
Pu-239	1.509E+00	5.154E-01
Pu-240	1.009E-01	3.495E-02
Pu-241	2.331E-03	8.082E-04
Pu-242	4.780E-04	1.931E-04
Am-241	5.704E-03	1.960E-03
*Am-243	N/A	N/A
*Np-237	N/A	N/A
U-235	2.273E+00	8.006E-01
*U-238	N/A	N/A
*U-233	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 1.61E+00 +/- 5.17E-01 g

****
* M G A R E S U L T S *
****

NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	1.451E-02	1.39E+01
Pu-239	9.356E+01	1.99E-01
Pu-240	6.254E+00	2.96E+00
Pu-241	1.445E-01	3.06E+00
Pu-242	2.963E-02	1.10E+01
Am-241	3.535E-01	1.99E+00
U-235	1.409E+02	4.39E+00

```
*******************************************
* A C T I V I T Y   I N F O R M A T I O N *
*******************************************
```

Procedure ID & Rev: OP-B332-005
Software Version: GWAS V2.3A RADA V2.1

Assay Date & Time: 10-05-2002 3:03:47 PM
Report Generated: 10-07-2002 8:36:25 AM

Drum Package ID: LL85001028TR
Sequence Number: 1066

Waste Classification (TRU or LLW): TRU

			Errors at 1.96 sigma	
Total Alpha Activity :	1.408E-01	+/-	3.375E-02	Ci
Total TRU Activity :	5.818E+03	+/-	1.394E+03	nCi/g
Pu-239 Equiv Activity:	1.452E-01	+/-	3.378E-02	Ci
Fissile Gram Equiv Mass:	3.790E+00	+/-	1.479E+00	g
Total Decay Heat:	4.469E-03	+/-	1.062E-03	W
TMU Value:	34.15 %			

```
*******************************************
* I S O T O P I C   I N F O R M A T I O N *
*******************************************
```

Isotope	Act (Ci)	1.96 Sigma Act Error (Ci)	Measured Mass (g)	1.96 Sigma Mass Error
Pu-238	4.05E-03	1.77E-03	2.34E-04	1.02E-04
Pu-239	9.38E-02	3.20E-02	1.51E+00	5.15E-01
Pu-240	2.32E-02	8.04E-03	1.01E-01	3.49E-02
Pu-241	2.42E-01	8.40E-02	2.33E-03	8.08E-04
Pu-242	1.90E-06	7.66E-07	4.78E-04	1.93E-04
Am-241	1.98E-02	6.80E-03	5.70E-03	1.96E-03
*Am-243	N/A	N/A	N/A	N/A
*Np-237	N/A	N/A	N/A	N/A
U-235	4.98E-06	1.75E-06	2.27E+00	8.01E-01
*U-238	N/A	N/A	N/A	N/A
*U-233	N/A	N/A	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 1.61E+00 +/- 5.17E-01 g

```
*********************************
*     M G A   R E S U L T S     *
*********************************
```

NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	1.451E-02	1.39E+01
Pu-239	9.356E+01	1.99E-01
Pu-240	6.254E+00	2.96E+00
Pu-241	1.445E-01	3.06E+00
Pu-242	2.963E-02	1.10E+01
Am-241	3.535E-01	1.99E+00
U-235	1.409E+02	4.39E+00

SGS Expert Review Checklist

Container Identification #: LL85001028TRU_____ Original Assay Date:10-05-2002_

1. *WCP-41, §6.1:* A MGA report ☒ is present or ☐ expert review has provided isotopic ratios from SGS or AK. Comment (if any):
2. *WCP-41, §6.1:* MGA and AK ☒ agree as to radiological composition or, if not, ☐ expert review has resolved this. Comment (if any):
3. *WCP-41, §6.2.1:* ☒ Pu-238 ≤ 2% by weight of total Pu or, if not, ☐ expert review has addressed this and assigned a Pu-240 value. Comment (if any):
4. *WCP-41, §6.2.2:* ☐ Neither Np-237 nor U-235 is identified by MGA or ☒ expert review has addressed possible interferences from these radionuclides.
   Comment (if any): U-235 is identified by both MGA and GWAS-there is no interference.
5. *WCP-41, §6.2.2.2:* ☒ Am-241 separation date is 1950 or later or ☐ expert review has addressed possible interferences. Comment (if any):
6. *WCP-41, §6.3.1.1.a:* ☒ Bulk density of waste ≤ 0.6 g/ml or ☐ expert review has addressed the high density of the drum. Comment (if any):
7. *WCP-41, §6.3.1.2.a:* ☒ Transmission in every segment ≥ 0.1% for the Se-75 peaks at 136 keV or 265 keV or ☐ expert review has addressed the low transmission.
   Comment (if any):
8. *WCP-41, §6.3.1.2.a:* ☒ Transmission in every segment ≥ 1% for the Se-75 peak at 401 keV or ☐ expert review has addressed the low transmission. Comment (if any):
9. *WCP-41, §6.3.1.3.b:* ☒ Dead time in every segment ≤ 50% or ☐ expert review has addressed the high dead time. Comment (if any):
10. *WCP-41, §6.3.1.3.c:* ☒ Pu-239 masses determined from the 414 keV peak and the 129 keV peak agree by a factor of < 2.5 or ☐ expert review has addressed possible matrix inhomogeneity. Comment (if any):
11. *WCP-41, §6.3.2.3:* Cs-137 (☐ has) (☒ has not) been identified by expert review. If it has, Sr-90 is reported ☐ at an activity ratio to Cs-137of 0.39 for Pu fission or ☐ at a ratio of 1 for U-235 fission or, ☐ if both Pu and U are present, the expert reviewer has determined the ratio. Comment (if any):
12. *WCP-41, §6.3.2.4:* ☐ No unusual nuclides are identified (none other than the 10 required to be reported to WIPP) or ☒ the expert reviewer has checked for interferences from unusual nuclides. Comment (if any): U-235 is identified by both MGA and GWAS and the values agree. There is no interference.
13. *WCP-41, §6.3.3:* For waste drums (☐ NA for standards), ☒ the Summed Spectrum report value for Pu-239 and the Combined Segment NID report for Pu-239 agree within 95% confidence limits (the same as for replicates

Container Identification #: LL85001028TRU_____ Original Assay Date:10-05-2002_

of unknowns) or ☐ expert review has addressed the difference. Comment (if any):

14. *WCP-41, §6.4:* ☒ The SGS Summed Spectrum and Combined Segment NID reports agree as to the ratios by weight of several radionuclides, such as those of Am-241, Pu-241, Np-237, Am-243, and U-235 to Pu-239, and MGA results agree as to identifying these radionuclides or ☐ expert review has resolved this. Comment (if any):

15. *WCP-41, §6.6.1:* ☒ All reported radionuclide masses are above 2.5 times the uncorrected MDA or ☐ expert review has calculated transmission-corrected MDAs and taken appropriate action. Comment (if any):

16. *WCP-41, §6.6.2:* ☒ Any changes to reported quantities of individual radionuclides have been entered into the RADA program and a new radioassay data sheet has been produced, showing revised derivative quantities, and included in the batch data report, along with the marked up original. Comment (if any):

17. *CP-41, §6.7:* ☒ Counting statistics are adequate for normal passive count time of 120 seconds per segment or ☐ Counting statistics are adequate for long passive count time of 600 seconds per segment or ☐ expert review has rejected the count and ordered a longer count time. Comment (if any):

Kenneth Raschke	Kenneth Raschke	10/11/02
Expert Reviewer (print)	Signature	Date

From: jfleissner@canberra.com
To: hiland1@llnl.gov, raschke1@llnl.gov
Subject: LL85001028TRU - 1 drum question Seq # 1066
X-Mailer: Lotus Notes Release 5.0.6a January 17, 2001
Date: Fri, 11 Oct 2002 11:48:36 -0400
X-MIMETrack: Serialize by Router on MERSMT01/CANBERRA/GRCOG(Release 5.0.8 |June 18, 2001) at
10/11/2002 11:45:50 AM,
Serialize complete at 10/11/2002 11:45:50 AM

Ken, Dave,

I looked at the results for assay seq#1066, drum LL85001028TRU, and found nothing unusual. It has about 1.4 grams Pu-239 and 2.9 grams U-235. Of course this drum was run when the filter on the SGS was cocked but I would expect the segment results to change little if any. I don't recall what the "question" was with respect to this drum. Was there anything in particular that you wanted me to look at?

John

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*********************************************************************
*****                    M G A   R E P O R T                    *****
*********************************************************************
```

Report generated on: 10-05-02 4:00:26 PM

MGA version: MGA V9.5 CI

Spectrum ID: 11201066.CNF Sens : 30.0% LT: 55.7 Mins DT: 0.43
Measurement date: 10-05-02 Declared date: 10-05-02

Sample ID: LL85001028TRU Detector: Total counts: 4.861E+05

Pu g/cm2 = 0.0877 Cd g/cm2 = 1.6555 FWHM at 122 keV = 644 eV
QFIT = 1.02 FWHM at 208 keV = 754 eV
NQFIT = 1.00

Isotope	Relative to Pu-239	%* Err	% Err	Relative to Pu-241	%* Err	Isotope analysis at Meas. date % weight	%Err	Decl. date % weight	%Err
Pu-238	0.000155	13.9	13.8	0.1004	13.8	0.01451	13.91	0.01451	13.91
Pu-239	1.000000	0.0	1.5	647.5553	3.1	93.55745	0.20	93.55745	0.20
Pu-240	0.066846	3.2	2.8	43.2864	3.9	6.25393	2.96	6.25393	2.96
Pu-241	0.001544	3.1	2.7	1.0000	0.0	0.14448	3.06	0.14448	3.06
Pu-242	(New alg.	)		0.2051	(11)	0.02963	(11)	0.02963	(11)
Am-241	0.003779	2.1	1.5	2.4469	3.1	0.35353	1.99	0.35353	1.99
U-235	1.506110	4.2	4.4			140.90782	4.39	140.90782	4.39

Pu-240 effective (meas. date) = 6.340 +/- 3.24%
Am-241 separated about 25.353 +/- 0.589 years ago
Am/Pu-241 weight ratio = 2.44695 +/- 3.14%

Messages :

Lead x-rays detected.
Pu-241/Pu-239 efficiency changed in MGACAL by 2%.
17 MGA parameter(s) defaulted, starting from parameter 8.

Notes : * = Error in ratio
1.000 sigma errors

Gamma Waste Assay

Sample Information

File Name: C:\WAS\DATA\1100\11101066.S11
Sample ID: LL85001028TRU Count Sequence Number: 1066
Assay Start: 10-05-02 3:03:49 PM
Description 1: UNKNOWN
Description 2: 2002-13
Location: 7715
Comment:
Waste Type:
Weight: Gross: 56000.0 g Net: 24200.0 g
Density: 0.116 g /ml

Container Type: 55 Gal Galv
Container: Volume: 208000. ml Full: 100.0 %

System Configuration

Counter ID Number: SGS
Arrangement Description: SGS
Segments: Number: 16 Offset: 0
Scanning Platform: Start: 934 mm Delta: -51 mm
Count Type: 55 Gal Galv
Collimator/Geometry Setting: 0
Transmission Mode: Two pass
Transmission Source: 0

Errors quoted at 1.000 sigma
Reference Source Date: Reference Source Rate: 1.01E+03 cps
Geometric Correction Factor(SWCONTGCF): 0.760
Date of efficiency calibration approval: 4-16-2002 3:26:49 PM
Mu Factors response file: Lucite
Transmission Calib. Time: 4-16-2002 8:52:25 AM 315551

Reviewed by: _____ Date: 10/5/02

Segment Results

Segment: 1 Detector: DET01 (# 1) Position: 1

Elapsed Live Time: 113.75 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.341 +/- 0.0098
SE-75	264.65	0.000 +/- 0.0000	0.447 +/- 0.0032
SE-75	279.53	0.000 +/- 0.0000	0.456 +/- 0.0038
SE-75	400.65	0.000 +/- 0.0000	0.511 +/- 0.0047

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.91E+00	2.61E-06 +/- 1.64E-05
2	49.90	2.14E+00 +/- 3.93E-01	1.68E+00	1.82E-05 +/- 5.56E-05
3	59.94	6.43E+01 +/- 8.67E-01	1.61E+00	3.83E-05 +/- 7.44E-05
4	99.12	8.54E-01 +/- 1.95E-01	1.50E+00	1.40E-04 +/- 4.02E-05
5	129.29	1.05E+00 +/- 1.51E-01	1.47E+00	1.95E-04 +/- 1.38E-05
6	207.74	2.64E-01 +/- 1.07E-01	1.39E+00	2.30E-04 +/- 2.82E-05
7	413.70	2.29E-01 +/- 5.38E-02	1.27E+00	1.65E-04 +/- 1.27E-05
8	778.90	8.70E-03 +/- 8.70E-03	1.19E+00	9.79E-05 +/- 5.69E-06
9	867.39	3.48E-02 +/- 1.74E-02	1.18E+00	8.96E-05 +/- 4.69E-06
10	1001.03	8.70E-03 +/- 8.70E-03	1.17E+00	7.98E-05 +/- 4.04E-06

Segment: 2 Detector: DET01 (# 1) Position: 2

Elapsed Live Time: 113.71 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.223 +/- 0.0083
SE-75	264.65	0.000 +/- 0.0000	0.347 +/- 0.0026
SE-75	279.53	0.000 +/- 0.0000	0.356 +/- 0.0032
SE-75	400.65	0.000 +/- 0.0000	0.413 +/- 0.0041

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	2.35E+00	2.21E-07 +/- 1.06E-06
2	59.93	8.00E+01 +/- 9.78E-01	1.89E+00	2.27E-05 +/- 3.37E-05
3	99.08	1.26E+00 +/- 2.27E-01	1.74E+00	1.85E-04 +/- 4.20E-05
4	129.29	1.54E+00 +/- 1.83E-01	1.69E+00	3.07E-04 +/- 1.84E-05
5	208.04	2.88E-01 +/- 1.22E-01	1.54E+00	3.88E-04 +/- 3.71E-05
6	244.70	1.16E-01 +/- 7.21E-02	1.48E+00	3.69E-04 +/- 2.61E-05
7	264.66	1.40E-01 +/- 7.02E-02	1.46E+00	3.54E-04 +/- 2.08E-05
8	311.90	1.08E-01 +/- 7.04E-02	1.42E+00	3.18E-04 +/- 1.39E-05
9	374.75	3.10E-01 +/- 8.44E-02	1.39E+00	2.74E-04 +/- 1.40E-05
10	400.66	9.78E-02 +/- 4.86E-02	1.37E+00	2.59E-04 +/- 1.44E-05
11	413.70	3.46E-01 +/- 6.72E-02	1.37E+00	2.51E-04 +/- 1.46E-05
12	964.13	8.77E-03 +/- 8.77E-03	1.23E+00	1.23E-04 +/- 5.48E-06
13	1001.03	8.77E-03 +/- 8.77E-03	1.22E+00	1.20E-04 +/- 5.31E-06
14	1408.01	8.77E-03 +/- 8.77E-03	1.18E+00	9.61E-05 +/- 6.36E-06
15	2615.39	1.32E-01 +/- 3.40E-02	1.14E+00	6.27E-05 +/- 5.41E-05

Segment: 3 Detector: DET01 (# 1) Position: 3

Elapsed Live Time: 113.66 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.192 +/- 0.0079
SE-75	264.65	0.000 +/- 0.0000	0.321 +/- 0.0024
SE-75	279.53	0.000 +/- 0.0000	0.333 +/- 0.0030
SE-75	400.65	0.000 +/- 0.0000	0.393 +/- 0.0039

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	2.52E+00	1.07E-06 +/- 5.27E-06
2	59.92	9.86E+01 +/- 1.09E+00	2.00E+00	3.89E-05 +/- 5.93E-05
3	98.92	1.42E+00 +/- 2.33E-01	1.83E+00	2.01E-04 +/- 4.72E-05
4	103.75	5.09E-01 +/- 2.30E-01	1.81E+00	2.21E-04 +/- 3.88E-05
5	129.29	1.93E+00 +/- 2.01E-01	1.77E+00	3.02E-04 +/- 1.84E-05
6	185.71	2.42E-01 +/- 1.24E-01	1.63E+00	3.67E-04 +/- 4.05E-05
7	208.33	6.62E-01 +/- 1.28E-01	1.59E+00	3.66E-04 +/- 3.64E-05
8	345.13	2.50E-01 +/- 7.81E-02	1.43E+00	2.93E-04 +/- 1.36E-05
9	400.66	1.00E-01 +/- 5.40E-02	1.40E+00	2.63E-04 +/- 1.50E-05
10	413.70	4.54E-01 +/- 7.88E-02	1.39E+00	2.57E-04 +/- 1.52E-05
11	778.90	2.61E-02 +/- 1.51E-02	1.27E+00	1.57E-04 +/- 7.69E-06
12	1112.12	8.70E-03 +/- 8.70E-03	1.22E+00	1.21E-04 +/- 5.09E-06

Segment: 4 Detector: DET01 (# 1) Position: 4

Elapsed Live Time: 113.66 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.304 +/- 0.0097
SE-75	264.65	0.000 +/- 0.0000	0.471 +/- 0.0033
SE-75	279.53	0.000 +/- 0.0000	0.483 +/- 0.0040
SE-75	400.65	0.000 +/- 0.0000	0.538 +/- 0.0049

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	2.02E+00	2.00E-05 +/- 1.66E-05
2	59.90	9.00E+01 +/- 1.04E+00	1.68E+00	9.95E-05 +/- 3.40E-05
3	98.68	1.26E+00 +/- 2.60E-01	1.57E+00	2.39E-04 +/- 2.43E-05
4	103.45	4.79E-01 +/- 2.26E-01	1.56E+00	2.53E-04 +/- 2.24E-05
5	129.29	2.09E+00 +/- 2.06E-01	1.53E+00	3.12E-04 +/- 1.61E-05
6	208.22	7.50E-01 +/- 1.41E-01	1.39E+00	3.71E-04 +/- 1.94E-05
7	300.10	1.38E-01 +/- 6.79E-02	1.29E+00	3.44E-04 +/- 1.54E-05
8	311.90	1.20E-01 +/- 6.64E-02	1.29E+00	3.38E-04 +/- 1.48E-05
9	375.23	6.57E-01 +/- 8.48E-02	1.26E+00	3.06E-04 +/- 1.21E-05

10	392.79	2.95E-01	+/-	6.78E-02	1.26E+00	2.98E-04	+/- 1.16E-05
11	413.70	6.45E-01	+/-	9.15E-02	1.25E+00	2.87E-04	+/- 1.11E-05
12	778.90	1.74E-02	+/-	1.23E-02	1.18E+00	1.67E-04	+/- 7.66E-06
13	1001.03	8.70E-03	+/-	8.70E-03	1.15E+00	1.30E-04	+/- 4.96E-06
14	1085.91	8.70E-03	+/-	8.70E-03	1.15E+00	1.20E-04	+/- 4.36E-06
15	1408.01	1.74E-02	+/-	1.23E-02	1.13E+00	9.34E-05	+/- 5.87E-06

Segment: 5 Detector: DET01 (# 1) Position: 5

Elapsed Live Time: 113.63 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.212 +/- 0.0087
SE-75	264.65	0.000 +/- 0.0000	0.395 +/- 0.0029
SE-75	279.53	0.000 +/- 0.0000	0.406 +/- 0.0035
SE-75	400.65	0.000 +/- 0.0000	0.466 +/- 0.0044

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	35.10	1.01E+03	+/-	4.79E+00	2.41E+00	1.48E-05	+/-	1.27E-05
2	59.91	1.14E+02	+/-	1.18E+00	1.93E+00	9.46E-05	+/-	3.31E-05
3	99.08	1.99E+00	+/-	2.81E-01	1.77E+00	2.50E-04	+/-	2.51E-05
4	129.29	2.33E+00	+/-	2.17E-01	1.71E+00	3.26E-04	+/-	1.67E-05
5	185.71	3.88E-01	+/-	1.31E-01	1.55E+00	3.75E-04	+/-	2.00E-05
6	208.25	4.79E-01	+/-	1.53E-01	1.50E+00	3.75E-04	+/-	2.04E-05
7	300.10	1.35E-01	+/-	8.07E-02	1.37E+00	3.33E-04	+/-	1.55E-05
8	311.90	1.38E-01	+/-	7.09E-02	1.36E+00	3.26E-04	+/-	1.48E-05
9	374.97	7.83E-01	+/-	9.85E-02	1.33E+00	2.90E-04	+/-	1.18E-05
10	392.98	3.09E-01	+/-	6.55E-02	1.32E+00	2.80E-04	+/-	1.13E-05
11	400.66	6.55E-02	+/-	4.54E-02	1.32E+00	2.76E-04	+/-	1.11E-05
12	413.70	7.01E-01	+/-	8.03E-02	1.31E+00	2.69E-04	+/-	1.09E-05
13	443.98	6.69E-02	+/-	3.23E-02	1.30E+00	2.54E-04	+/-	1.04E-05
14	778.90	8.81E-03	+/-	8.81E-03	1.22E+00	1.54E-04	+/-	7.51E-06
15	964.13	1.76E-02	+/-	1.25E-02	1.20E+00	1.28E-04	+/-	5.33E-06

Segment: 6 Detector: DET01 (# 1) Position: 6

Elapsed Live Time: 113.56 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.235 +/- 0.0089
SE-75	264.65	0.000 +/- 0.0000	0.407 +/- 0.0029
SE-75	279.53	0.000 +/- 0.0000	0.419 +/- 0.0036
SE-75	400.65	0.000 +/- 0.0000	0.474 +/- 0.0045

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	2.29E+00	8.04E-06 +/- 6.71E-06
2	59.92	1.39E+02 +/- 1.30E+00	1.86E+00	7.02E-05 +/- 2.41E-05
3	98.99	2.16E+00 +/- 3.11E-01	1.71E+00	2.23E-04 +/- 2.25E-05
4	129.29	3.24E+00 +/- 2.46E-01	1.66E+00	3.10E-04 +/- 1.61E-05
5	148.57	2.75E-01 +/- 1.54E-01	1.61E+00	3.45E-04 +/- 1.67E-05
6	185.71	4.73E-01 +/- 1.45E-01	1.52E+00	3.77E-04 +/- 1.97E-05
7	208.22	1.01E+00 +/- 1.65E-01	1.48E+00	3.81E-04 +/- 2.03E-05
8	238.55	2.61E-01 +/- 1.13E-01	1.42E+00	3.75E-04 +/- 1.95E-05
9	332.82	2.94E-01 +/- 1.08E-01	1.34E+00	3.26E-04 +/- 1.39E-05
10	345.13	2.96E-01 +/- 7.30E-02	1.33E+00	3.19E-04 +/- 1.33E-05
11	375.23	8.01E-01 +/- 1.20E-01	1.32E+00	3.02E-04 +/- 1.21E-05
12	392.77	3.74E-01 +/- 7.33E-02	1.31E+00	2.92E-04 +/- 1.16E-05
13	400.66	7.75E-02 +/- 5.77E-02	1.31E+00	2.88E-04 +/- 1.14E-05
14	413.70	9.29E-01 +/- 1.02E-01	1.31E+00	2.81E-04 +/- 1.11E-05
15	867.39	4.30E-02 +/- 3.33E-02	1.20E+00	1.46E-04 +/- 6.40E-06
16	1085.91	4.25E-02 +/- 2.40E-02	1.18E+00	1.22E-04 +/- 4.37E-06
17	1112.12	2.61E-02 +/- 1.51E-02	1.18E+00	1.20E-04 +/- 4.28E-06

Segment: 7 Detector: DET01 (# 1) Position: 7

Elapsed Live Time: 113.46 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.323 +/- 0.0101
SE-75	264.65	0.000 +/- 0.0000	0.507 +/- 0.0036
SE-75	279.53	0.000 +/- 0.0000	0.515 +/- 0.0042
SE-75	400.65	0.000 +/- 0.0000	0.573 +/- 0.0052

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	1.96E+00	9.59E-07 +/- 4.73E-06
2	59.94	1.81E+02 +/- 1.53E+00	1.64E+00	4.13E-05 +/- 6.29E-05
3	98.91	3.61E+00 +/- 3.17E-01	1.53E+00	2.21E-04 +/- 5.16E-05
4	103.70	1.11E+00 +/- 3.07E-01	1.53E+00	2.42E-04 +/- 4.24E-05
5	129.29	4.12E+00 +/- 2.58E-01	1.50E+00	3.30E-04 +/- 1.98E-05
6	185.71	8.27E-01 +/- 1.54E-01	1.39E+00	3.94E-04 +/- 4.30E-05
7	208.14	1.16E+00 +/- 1.82E-01	1.36E+00	3.91E-04 +/- 3.84E-05
8	238.48	3.16E-01 +/- 1.13E-01	1.31E+00	3.77E-04 +/- 2.89E-05
9	311.90	2.69E-01 +/- 7.67E-02	1.26E+00	3.27E-04 +/- 1.48E-05
10	345.19	3.07E-01 +/- 1.06E-01	1.25E+00	3.06E-04 +/- 1.46E-05
11	375.12	1.13E+00 +/- 1.32E-01	1.24E+00	2.88E-04 +/- 1.54E-05
12	393.07	3.02E-01 +/- 7.32E-02	1.23E+00	2.78E-04 +/- 1.59E-05
13	400.66	1.23E-01 +/- 5.50E-02	1.23E+00	2.74E-04 +/- 1.60E-05
14	413.70	8.97E-01 +/- 1.04E-01	1.22E+00	2.67E-04 +/- 1.63E-05
15	778.90	2.80E-02 +/- 1.97E-02	1.16E+00	1.60E-04 +/- 7.89E-06
16	964.13	8.79E-03 +/- 8.79E-03	1.14E+00	1.35E-04 +/- 6.00E-06
17	1085.91	3.52E-02 +/- 1.76E-02	1.13E+00	1.23E-04 +/- 5.27E-06
18	1408.01	1.76E-02 +/- 1.24E-02	1.11E+00	9.90E-05 +/- 6.54E-06

Segment: 8 Detector: DET01 (# 1) Position: 8

Elapsed Live Time: 113.30 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.247 +/- 0.0088
SE-75	264.65	0.000 +/- 0.0000	0.388 +/- 0.0028
SE-75	279.53	0.000 +/- 0.0000	0.397 +/- 0.0035
SE-75	400.65	0.000 +/- 0.0000	0.450 +/- 0.0043

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	2.24E+00	6.89E-07 +/- 3.37E-06
2	50.20	4.58E+00 +/- 5.96E-01	1.91E+00	1.24E-05 +/- 2.92E-05
3	59.92	2.41E+02 +/- 1.82E+00	1.83E+00	3.44E-05 +/- 5.21E-05
4	76.88	4.20E-01 +/- 1.90E-01	1.74E+00	9.88E-05 +/- 7.01E-05
5	98.90	4.12E+00 +/- 3.37E-01	1.68E+00	1.99E-04 +/- 4.64E-05
6	103.32	7.88E-01 +/- 3.12E-01	1.67E+00	2.18E-04 +/- 3.90E-05
7	129.29	4.67E+00 +/- 2.75E-01	1.63E+00	3.05E-04 +/- 1.85E-05
8	185.71	2.04E+00 +/- 1.90E-01	1.52E+00	3.75E-04 +/- 4.12E-05
9	208.24	1.51E+00 +/- 1.95E-01	1.48E+00	3.76E-04 +/- 3.72E-05
10	311.90	2.71E-01 +/- 8.11E-02	1.38E+00	3.23E-04 +/- 1.44E-05
11	332.81	2.73E-01 +/- 1.08E-01	1.36E+00	3.10E-04 +/- 1.38E-05
12	374.97	1.30E+00 +/- 1.20E-01	1.35E+00	2.86E-04 +/- 1.46E-05
13	393.21	3.66E-01 +/- 7.81E-02	1.34E+00	2.77E-04 +/- 1.50E-05
14	400.66	1.50E-01 +/- 6.38E-02	1.33E+00	2.73E-04 +/- 1.52E-05
15	413.70	1.16E+00 +/- 1.12E-01	1.33E+00	2.66E-04 +/- 1.54E-05
16	662.42	4.80E-02 +/- 2.92E-02	1.26E+00	1.83E-04 +/- 1.03E-05

Segment: 9 Detector: DET01 (# 1) Position: 9

Elapsed Live Time: 113.16 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.292 +/- 0.0094
SE-75	264.65	0.000 +/- 0.0000	0.415 +/- 0.0030
SE-75	279.53	0.000 +/- 0.0000	0.426 +/- 0.0036
SE-75	400.65	0.000 +/- 0.0000	0.482 +/- 0.0046

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.79E+00	2.06E+00	1.75E-05 +/- 8.88E-05
2	59.92	2.96E+02 +/- 2.08E+00	1.71E+00	1.01E-04 +/- 1.59E-04
3	98.95	3.86E+00 +/- 3.59E-01	1.59E+00	2.52E-04 +/- 6.02E-05
4	129.29	3.72E+00 +/- 2.92E-01	1.55E+00	3.23E-04 +/- 1.97E-05
5	144.02	6.19E-01 +/- 1.93E-01	1.53E+00	3.43E-04 +/- 3.12E-05

6	185.71	5.78E+00	+/-	2.80E-01	1.46E+00	3.67E-04	+/-	4.18E-05
7	203.77	2.85E-01	+/-	1.84E-01	1.44E+00	3.66E-04	+/-	3.87E-05
8	208.32	1.31E+00	+/-	1.97E-01	1.43E+00	3.66E-04	+/-	3.76E-05
9	238.69	2.26E-01	+/-	1.11E-01	1.40E+00	3.57E-04	+/-	2.88E-05
10	311.90	1.42E-01	+/-	9.88E-02	1.34E+00	3.20E-04	+/-	1.45E-05
11	332.98	2.09E-01	+/-	1.06E-01	1.33E+00	3.08E-04	+/-	1.39E-05
12	375.15	1.12E+00	+/-	1.34E-01	1.31E+00	2.86E-04	+/-	1.49E-05
13	400.66	1.60E-01	+/-	6.53E-02	1.30E+00	2.73E-04	+/-	1.56E-05
14	413.70	1.31E+00	+/-	1.09E-01	1.30E+00	2.67E-04	+/-	1.59E-05
15	662.42	8.08E-02	+/-	2.88E-02	1.23E+00	1.82E-04	+/-	1.04E-05
16	1408.01	1.76E-02	+/-	1.24E-02	1.15E+00	1.05E-04	+/-	6.85E-06

Segment: 10 Detector: DET01 (# 1) Position: 10

Elapsed Live Time: 113.05 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.245 +/- 0.0086
SE-75	264.65	0.000 +/- 0.0000	0.365 +/- 0.0027
SE-75	279.53	0.000 +/- 0.0000	0.373 +/- 0.0033
SE-75	400.65	0.000 +/- 0.0000	0.438 +/- 0.0043

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	35.10	1.01E+03	+/-	4.78E+00	2.25E+00	5.68E-06	+/-	4.74E-06
2	49.90	7.23E+00	+/-	7.46E-01	1.92E+00	3.24E-05	+/-	1.56E-05
3	59.92	3.56E+02	+/-	2.32E+00	1.83E+00	6.49E-05	+/-	2.23E-05
4	99.02	4.20E+00	+/-	3.99E-01	1.68E+00	2.32E-04	+/-	2.33E-05
5	103.41	1.04E+00	+/-	3.39E-01	1.68E+00	2.49E-04	+/-	2.20E-05
6	111.52	1.29E+00	+/-	2.77E-01	1.66E+00	2.78E-04	+/-	1.98E-05
7	129.29	5.16E+00	+/-	2.91E-01	1.64E+00	3.30E-04	+/-	1.70E-05
8	143.96	1.11E+00	+/-	1.99E-01	1.61E+00	3.60E-04	+/-	1.71E-05
9	185.71	5.75E+00	+/-	2.74E-01	1.54E+00	4.00E-04	+/-	2.05E-05
10	203.56	3.08E-01	+/-	2.06E-01	1.51E+00	4.02E-04	+/-	2.09E-05
11	208.22	1.79E+00	+/-	2.13E-01	1.50E+00	4.01E-04	+/-	2.09E-05
12	244.70	1.49E-01	+/-	9.06E-02	1.46E+00	3.89E-04	+/-	1.95E-05
13	311.90	2.02E-01	+/-	9.42E-02	1.40E+00	3.45E-04	+/-	1.50E-05
14	332.81	4.17E-01	+/-	1.14E-01	1.39E+00	3.31E-04	+/-	1.38E-05
15	344.68	2.78E-01	+/-	9.62E-02	1.38E+00	3.23E-04	+/-	1.32E-05
16	375.19	1.44E+00	+/-	1.45E-01	1.36E+00	3.02E-04	+/-	1.20E-05
17	413.70	1.00E+00	+/-	1.06E-01	1.34E+00	2.79E-04	+/-	1.11E-05
18	778.90	4.38E-02	+/-	1.96E-02	1.24E+00	1.56E-04	+/-	7.55E-06

Segment: 11 Detector: DET01 (# 1) Position: 11

Elapsed Live Time: 113.21 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.160 +/- 0.0076
SE-75	264.65	0.000 +/- 0.0000	0.309 +/- 0.0024
SE-75	279.53	0.000 +/- 0.0000	0.319 +/- 0.0029
SE-75	400.65	0.000 +/- 0.0000	0.385 +/- 0.0039

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	2.72E+00	6.75E-06 +/- 5.60E-06
2	59.92	2.92E+02 +/- 2.05E+00	2.13E+00	6.82E-05 +/- 2.33E-05
3	98.83	3.37E+00 +/- 3.39E-01	1.93E+00	2.28E-04 +/- 2.29E-05
4	103.30	7.91E-01 +/- 3.19E-01	1.92E+00	2.45E-04 +/- 2.16E-05
5	129.29	3.69E+00 +/- 2.64E-01	1.86E+00	3.21E-04 +/- 1.65E-05
6	143.83	5.00E-01 +/- 1.85E-01	1.82E+00	3.49E-04 +/- 1.66E-05
7	185.71	2.59E+00 +/- 2.02E-01	1.69E+00	3.87E-04 +/- 1.99E-05
8	203.52	4.26E-01 +/- 1.48E-01	1.64E+00	3.89E-04 +/- 2.04E-05
9	208.26	1.52E+00 +/- 1.94E-01	1.63E+00	3.89E-04 +/- 2.04E-05
10	311.90	2.58E-01 +/- 9.24E-02	1.47E+00	3.37E-04 +/- 1.49E-05
11	332.69	3.29E-01 +/- 1.21E-01	1.45E+00	3.24E-04 +/- 1.37E-05
12	345.24	2.37E-01 +/- 9.16E-02	1.44E+00	3.16E-04 +/- 1.31E-05
13	375.06	1.06E+00 +/- 1.10E-01	1.42E+00	2.97E-04 +/- 1.19E-05
14	392.98	3.89E-01 +/- 7.65E-02	1.41E+00	2.87E-04 +/- 1.14E-05
15	400.66	1.02E-01 +/- 6.34E-02	1.41E+00	2.82E-04 +/- 1.12E-05
16	413.70	9.99E-01 +/- 1.04E-01	1.40E+00	2.75E-04 +/- 1.09E-05
17	662.42	4.12E-02 +/- 3.35E-02	1.31E+00	1.80E-04 +/- 8.65E-06
18	867.39	3.93E-02 +/- 3.32E-02	1.26E+00	1.43E-04 +/- 6.39E-06
19	1001.03	8.74E-03 +/- 8.74E-03	1.24E+00	1.28E-04 +/- 5.01E-06
20	1112.12	2.46E-02 +/- 2.10E-02	1.23E+00	1.20E-04 +/- 4.37E-06

Segment: 12 Detector: DET01 (# 1) Position: 12

Elapsed Live Time: 113.27 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.209 +/- 0.0083
SE-75	264.65	0.000 +/- 0.0000	0.355 +/- 0.0026
SE-75	279.53	0.000 +/- 0.0000	0.366 +/- 0.0033
SE-75	400.65	0.000 +/- 0.0000	0.426 +/- 0.0042

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.74	7.94E-01 +/- 1.83E-01	3.48E+00	7.44E-07 +/- 1.02E-06
2	35.10	1.01E+03 +/- 4.77E+00	2.42E+00	7.63E-06 +/- 6.33E-06
3	49.98	6.51E+00 +/- 6.55E-01	2.05E+00	3.63E-05 +/- 1.74E-05
4	59.91	2.73E+02 +/- 1.96E+00	1.94E+00	6.75E-05 +/- 2.31E-05
5	98.99	2.72E+00 +/- 3.17E-01	1.77E+00	2.17E-04 +/- 2.20E-05
6	129.29	2.41E+00 +/- 2.17E-01	1.72E+00	3.04E-04 +/- 1.59E-05
7	185.71	1.26E+00 +/- 1.69E-01	1.59E+00	3.72E-04 +/- 1.93E-05
8	208.29	9.17E-01 +/- 1.53E-01	1.54E+00	3.76E-04 +/- 1.99E-05
9	311.90	2.83E-01 +/- 7.87E-02	1.41E+00	3.36E-04 +/- 1.48E-05
10	374.96	6.23E-01 +/- 9.68E-02	1.37E+00	3.00E-04 +/- 1.19E-05
11	400.66	9.06E-02 +/- 5.85E-02	1.36E+00	2.86E-04 +/- 1.12E-05
12	413.70	4.42E-01 +/- 8.62E-02	1.35E+00	2.79E-04 +/- 1.09E-05
13	662.42	5.77E-02 +/- 4.69E-02	1.27E+00	1.85E-04 +/- 8.58E-06
14	1085.91	3.49E-02 +/- 1.75E-02	1.20E+00	1.21E-04 +/- 4.35E-06

Segment: 13 Detector: DET01 (# 1) Position: 13

Elapsed Live Time: 113.60 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.185 +/- 0.0083
SE-75	264.65	0.000 +/- 0.0000	0.318 +/- 0.0024
SE-75	279.53	0.000 +/- 0.0000	0.328 +/- 0.0030
SE-75	400.65	0.000 +/- 0.0000	0.386 +/- 0.0039

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	2.55E+00	1.10E-05 +/- 9.51E-06
2	59.90	1.22E+02 +/- 1.23E+00	2.03E+00	8.21E-05 +/- 2.90E-05
3	98.98	1.19E+00 +/- 2.52E-01	1.85E+00	2.38E-04 +/- 2.42E-05
4	129.29	7.67E-01 +/- 1.84E-01	1.78E+00	3.21E-04 +/- 1.67E-05
5	185.71	2.83E+00 +/- 1.95E-01	1.65E+00	3.79E-04 +/- 2.03E-05
6	311.90	3.68E-01 +/- 7.56E-02	1.46E+00	3.33E-04 +/- 1.50E-05
7	400.66	1.07E-01 +/- 5.09E-02	1.41E+00	2.81E-04 +/- 1.13E-05
8	413.70	3.74E-01 +/- 6.63E-02	1.40E+00	2.74E-04 +/- 1.10E-05
9	1173.57	6.99E-02 +/- 2.76E-02	1.22E+00	1.09E-04 +/- 4.15E-06

Segment: 14 Detector: DET01 (# 1) Position: 14

Elapsed Live Time: 113.73 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.171 +/- 0.0076
SE-75	264.65	0.000 +/- 0.0000	0.314 +/- 0.0024
SE-75	279.53	0.000 +/- 0.0000	0.326 +/- 0.0030
SE-75	400.65	0.000 +/- 0.0000	0.385 +/- 0.0039

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	2.65E+00	8.94E-06 +/- 4.41E-05
2	59.95	6.89E+01 +/- 9.03E-01	2.09E+00	8.20E-05 +/- 1.25E-04
3	98.74	9.60E-01 +/- 2.21E-01	1.89E+00	2.39E-04 +/- 5.65E-05
4	129.29	9.67E-01 +/- 1.76E-01	1.83E+00	3.17E-04 +/- 1.90E-05
5	143.98	6.22E-01 +/- 1.56E-01	1.79E+00	3.39E-04 +/- 3.00E-05
6	185.71	5.23E+00 +/- 2.45E-01	1.67E+00	3.64E-04 +/- 4.04E-05
7	238.54	1.60E-01 +/- 7.94E-02	1.55E+00	3.55E-04 +/- 2.79E-05
8	300.10	9.26E-02 +/- 5.86E-02	1.47E+00	3.25E-04 +/- 1.51E-05
9	311.90	2.72E-01 +/- 7.63E-02	1.46E+00	3.18E-04 +/- 1.42E-05
10	333.15	1.33E-01 +/- 7.64E-02	1.45E+00	3.07E-04 +/- 1.37E-05
11	375.56	2.84E-01 +/- 7.15E-02	1.42E+00	2.85E-04 +/- 1.47E-05
12	413.70	2.57E-01 +/- 6.33E-02	1.40E+00	2.67E-04 +/- 1.56E-05

13	778.90	3.07E-02	+/-	2.17E-02	1.28E+00	1.59E-04	+/- 7.64E-06

Segment: 15 Detector: DET01 (# 1) Position: 15

Elapsed Live Time: 113.76 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.394 +/- 0.0107
SE-75	264.65	0.000 +/- 0.0000	0.522 +/- 0.0037
SE-75	279.53	0.000 +/- 0.0000	0.530 +/- 0.0043
SE-75	400.65	0.000 +/- 0.0000	0.586 +/- 0.0053

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.77E+00	1.45E-08 +/- 6.96E-08
2	50.02	2.48E+00 +/- 3.29E-01	1.57E+00	2.01E-06 +/- 4.68E-06
3	59.96	5.35E+01 +/- 7.77E-01	1.52E+00	1.14E-05 +/- 1.70E-05
4	99.20	4.69E-01 +/- 2.00E-01	1.43E+00	1.85E-04 +/- 4.16E-05
5	129.29	1.10E+00 +/- 1.51E-01	1.40E+00	3.37E-04 +/- 1.99E-05
6	144.01	7.30E-01 +/- 1.47E-01	1.39E+00	3.82E-04 +/- 3.28E-05
7	185.71	4.41E+00 +/- 2.29E-01	1.34E+00	4.24E-04 +/- 4.51E-05
8	311.90	1.82E-01 +/- 6.00E-02	1.25E+00	3.22E-04 +/- 1.42E-05
9	400.66	8.00E-02 +/- 4.75E-02	1.22E+00	2.59E-04 +/- 1.48E-05
10	413.70	2.16E-01 +/- 6.35E-02	1.21E+00	2.52E-04 +/- 1.49E-05
11	1085.91	1.74E-02 +/- 1.23E-02	1.13E+00	1.24E-04 +/- 5.17E-06

Segment: 16 Detector: DET01 (# 1) Position: 16

Elapsed Live Time: 113.84 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.737 +/- 0.0142
SE-75	264.65	0.000 +/- 0.0000	0.789 +/- 0.0053
SE-75	279.53	0.000 +/- 0.0000	0.808 +/- 0.0061
SE-75	400.65	0.000 +/- 0.0000	0.831 +/- 0.0069

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.22E+00	9.52E-10 +/- 5.35E-09
2	59.89	2.06E+01 +/- 4.98E-01	1.15E+00	3.51E-06 +/- 6.11E-06
3	129.29	3.09E-01 +/- 1.34E-01	1.12E+00	2.29E-04 +/- 1.54E-05
4	185.71	1.31E+00 +/- 1.45E-01	1.11E+00	3.10E-04 +/- 3.88E-05
5	208.06	2.09E-01 +/- 9.87E-02	1.10E+00	3.05E-04 +/- 3.43E-05
6	238.99	3.55E-01 +/- 9.16E-02	1.10E+00	2.87E-04 +/- 2.50E-05
7	300.10	1.23E-01 +/- 6.98E-02	1.08E+00	2.42E-04 +/- 1.22E-05
8	311.90	1.61E-01 +/- 6.53E-02	1.08E+00	2.34E-04 +/- 1.14E-05
9	400.66	1.09E-01 +/- 5.96E-02	1.07E+00	1.86E-04 +/- 1.20E-05
10	413.70	2.08E-01 +/- 4.88E-02	1.07E+00	1.81E-04 +/- 1.21E-05
11	964.13	5.21E-02 +/- 2.13E-02	1.05E+00	1.01E-04 +/- 4.92E-06
12	1085.91	3.47E-02 +/- 1.74E-02	1.04E+00	9.33E-05 +/- 4.42E-06

Summed Spectrum

Peak Locate Report

Sample ID: LL85001028TRU
Peak Locate Performed on: 10-05-02 4:00:27 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192
Peak Search Sensitivity: 5.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	47.43	0.3080	23.64	6.05
2	70.54	0.0423	35.18	301.24
3	100.12	0.2726	49.96	6.18
4	120.05	0.0623	59.92	147.25
5	198.17	0.1900	98.95	15.24
6	206.89	0.2430	103.31	8.54
7	223.10	0.2799	111.40	7.28
8	259.45	0.1619	129.57	19.58
9	288.39	0.2950	144.02	7.05
10	372.21	0.1544	185.91	20.16
11	416.91	0.1752	208.24	15.58
12	477.72	0.2968	238.62	6.97
13	624.80	0.2814	312.10	6.46
14	666.33	0.2391	332.85	8.61
15	690.99	0.2408	345.17	7.36
16	750.91	0.1735	375.11	14.81
17	786.74	0.2428	393.01	6.89
18	828.27	0.1719	413.76	14.34
19	904.79	0.3048	451.99	5.02
20	1167.41	0.2530	583.20	5.29
21	5236.59	0.2061	2616.23	5.92

Errors quoted at 1.000 sigma

Summed Spectrum

Peak Analysis Report

Sample ID: LL85001028TRU
Peak Analysis Performed on: 10-05-02 4:00:27 PM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	44-	50	47.43	23.64	1.28E+03	69.84	1.71E+03
2	67-	73	70.54	35.18	1.85E+06	1361.32	2.68E+03
3	96-	103	100.12	49.96	7.25E+03	239.00	2.25E+04
4	116-	123	120.05	59.92	2.85E+05	584.94	2.80E+04
5	194-	201	198.17	98.95	4.17E+03	123.34	5.51E+03
6	203-	210	206.89	103.31	9.08E+02	113.22	5.24E+03
7	219-	226	223.10	111.40	8.43E+02	86.98	3.19E+03
8	255-	263	259.45	129.57	4.57E+03	100.73	2.58E+03
9	284-	292	288.39	144.02	6.28E+02	70.08	2.00E+03
10	367-	376	372.21	185.91	3.82E+03	84.04	1.44E+03
11	412-	421	416.91	208.24	1.43E+03	71.76	1.56E+03
12	473-	482	477.72	238.62	3.82E+02	44.26	6.95E+02
13	619-	629	624.80	312.10	3.35E+02	34.95	3.73E+02
14	661-	671	666.33	332.85	3.72E+02	41.86	5.63E+02
15	685-	696	690.99	345.17	3.76E+02	36.87	3.91E+02
16	745-	756	750.91	375.11	1.20E+03	47.66	4.26E+02
17	781-	791	786.74	393.01	3.92E+02	29.04	1.90E+02
18	822-	833	828.27	413.76	1.18E+03	39.25	1.46E+02
19	899-	910	904.79	451.99	1.21E+02	20.42	1.18E+02
20	1161-	1173	1167.41	583.20	2.02E+02	19.83	7.29E+01
21	5226-	5246	5236.59	2616.23	1.58E+02	12.94	2.52E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Summed Spectrum

Nuclide Identification Report

Sample ID: LL85001028TRU
Nuclide Library Used: C:\WAS\NLIB\LLNL.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Pulser	1.000	35.10*	100.00	3.183E+05	7.762E+05
U-235	0.997	185.71*	57.20	5.519E+00	1.625E-01
Np-237	0.761	300.10	6.63		
		311.90*	38.60	8.014E-01	8.379E-02
Pu-239	1.000	413.70*	0.00	8.707E+04	3.309E+03
Pu-239A	0.995	129.29*	0.01	7.367E+04	2.416E+03

* = Energy line found in the spectrum.
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10-05-02 4:00:27 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	23.64	1.1147E+01	5.47
3	49.96	6.3305E+01	3.30
4	59.92	2.4876E+03	0.23
5	98.95	3.6413E+01	2.96
6	103.31	7.9287E+00	12.47
7	111.40	7.3628E+00	10.32
9	144.02	5.4817E+00	11.17
11	208.24	1.2531E+01	5.00
12	238.62	3.3347E+00	11.59
14	332.85	3.2532E+00	11.24
15	345.17	3.2822E+00	9.81
16	375.11	1.0503E+01	3.96
17	393.01	3.4256E+00	7.40
19	451.99	1.0582E+00	16.85
20	583.20	1.7656E+00	9.81
21	2616.23	1.3843E+00	8.16

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Combined Segment NID

NID Results Combiner Mode: Sum Activities

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		3.89E+07	+/-	1.98E+08		1.61E+03	+/-	8.16E+03
SE-75	<	4.92E-02	+/-	3.49E-03	<	2.03E-06	+/-	1.44E-07
EU-152x		2.48E-02	+/-	1.01E-02		1.02E-06	+/-	4.19E-07
U-233	<	2.39E+03	+/-	2.11E+02	<	9.86E-02	+/-	8.71E-03
U-235		6.26E+00	+/-	2.54E-01		2.59E-04	+/-	1.05E-05
Np-237		8.40E-01	+/-	8.40E-02		3.47E-05	+/-	3.47E-06
Pu-238	<	5.73E+03	+/-	7.19E+02	<	2.37E-01	+/-	2.97E-02
U-238		1.22E+00	+/-	6.23E-01		5.04E-05	+/-	2.57E-05
Pu-239		9.20E+04	+/-	3.43E+03		3.80E+00	+/-	1.42E-01
Pu-239A		8.82E+04	+/-	2.50E+03		3.64E+00	+/-	1.03E-01
Am-241		1.06E+04	+/-	3.33E+03		4.39E-01	+/-	1.38E-01
Pu-241		1.86E+04	+/-	1.04E+04		7.68E-01	+/-	4.32E-01

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	2.90E+00	+/-	1.17E-01
Np-237	1.19E-03	+/-	1.19E-04
U-238	3.63E+00	+/-	1.86E+00
Pu-239	1.48E+00	+/-	5.53E-02
Pu-239A	1.42E+00	+/-	4.02E-02
Am-241	3.10E-03	+/-	9.74E-04
Pu-241	1.80E-04	+/-	1.01E-04

Summed Spectrum

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		3.18E+05	+/-	7.76E+05		1.32E+01	+/-	3.21E+01
SE-75	<	1.84E-01	+/-	1.57E-03	<	7.59E-06	+/-	6.50E-08
EU-152x	<	3.52E-01	+/-	6.69E-03	<	1.46E-05	+/-	2.76E-07
U-233	<	9.88E+03	+/-	2.03E+02	<	4.08E-01	+/-	8.40E-03
U-235		5.52E+00	+/-	1.63E-01		2.28E-04	+/-	6.72E-06
Np-237		8.01E-01	+/-	8.38E-02		3.31E-05	+/-	3.46E-06
Pu-238	<	2.27E+04	+/-	3.25E+02	<	9.37E-01	+/-	1.34E-02
U-238	<	1.10E+01	+/-	1.74E-01	<	4.53E-04	+/-	7.21E-06
Pu-239		8.71E+04	+/-	3.31E+03		3.60E+00	+/-	1.37E-01
Pu-239A		7.37E+04	+/-	2.42E+03		3.04E+00	+/-	9.98E-02
Am-241	<	2.48E+04	+/-	2.10E+02	<	1.02E+00	+/-	8.70E-03
Pu-241	<	1.27E+05	+/-	1.87E+03	<	5.23E+00	+/-	7.72E-02

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	2.56E+00	+/-	7.53E-02
Np-237	1.14E-03	+/-	1.19E-04
Pu-239	1.40E+00	+/-	5.33E-02
Pu-239A	1.19E+00	+/-	3.89E-02

Final Non-Uniformity Results

Source Longitudinal Ratio:	0.965	+/-	17.2646
Matrix Longitudinal Ratio:	0.465	+/-	0.0126
Source Vertical Ratio:	0.488	+/-	0.2663
Matrix Vertical Ratio:	0.637	+/-	0.0060

NUDS could not find the transmission peak in one radial segment.

LAWRENCE LIVERMORE NATIONAL LABORATORY

WASTE DISPOSAL REQUISITION

W 217609

H1. Label/Waste Type:
- ☐ Non-Haz (N)
- ☐ RCRA Haz (H)
- ☐ CA Haz (C)
- ☐ NTS LLW (L)
- ☐ Low-Level (R)
- ☐ LLW Mixed (F)
- ☐ LLW Combined (S)
- ☒ TRU (T)
- ☐ TRU Mixed (X)

1. Container ID Number or Tank ID or for TRU Waste, TRU Waste Container Serial No.: Q – LL85-001028 TRU –

H2. CCC: DS

H3. Storage Restrictions: Not acceptable at the following locations: ☑ 233 ☐ 514 ☐ 612 ☐ 693 ☐ 696 CWAA ☑ 169 ☑ 361 ☐ 612-4

2. Container Use/Acceptability: ☐ On-site use only; ☒ Acceptable for off-site use
Container Manufacturer Serial No./Batch No. TC 6/7/02 G5581 / B3 42576 ☐ N/A
Employee No.: 733144 Initials: RP Date: 12-13-01

3. RMMA: ☒ Yes ☐ No

4. Waste Form: ☒ Solid ☐ Liquid ☐ Gas ☐ Sludge

H4. Hazardous Properties: ☐ Toxic ☐ Corrosive ☐ Ignitable ☐ Reactive

5. Outer Container Type: ☐ Box ☐ Sack ☐ Can ☐ SWB ☐ Carboy ☐ Tub ☒ Drum ☐ Bag ☐ Tank – Fixed ☐ Tank – Portable ☐ Transportainer
Other: _____

6. Outer Container Size/Vol: ☐ 1 gal ☒ 55 gal ☐ 67 cu ft ☐ 2 gal ☐ 85 gal ☐ 1 × 1 × 1.5 ☐ 5 gal ☐ 330 gal ☐ 2 × 4 × 7 ☐ 10 gal ☐ 660 gal ☐ 4 × 4 × 7 ☐ 12 gal ☐ 750 gal ☐ 1 cu yd ☐ 20 gal ☐ 1000 gal ☐ 8 × 8 × 20 ☐ 30 gal ☐ 5000 gal ☐ 8 × 8 × 40
Other: _____ ☐ gal _____ ☐ cu ft

7. Building No.: 332
8. Room No.: 1378
9. Location: AT GEN
10. Workplace Start Date: 12/14/01
11. Workplace End Date: 01/03/02
12. Account No.: 548L-50
13. Directorate: DNI
14. WEF/PKE/SAW/PIW: ☐ WEF ☒ PKE ☐ SAW ☐ PIW Specify No. 243, 244, 245 ☐ N/A
15. Source Code: A940
16. Inner Containers: ☒ Yes ☒ No

17. Item No.	18. Spent or Unused (S/U)	19. Organic or Inorganic (O/I)	20. Waste Form (S,SL,L,G)	21. Waste Description (For multiple parcels, list Parcel Card Nos.)	22. Hazardous Constituents and Concentrations	23. Item Container Size	24. Quantity per Item Amount	Units	25. Analysis Sample No.	Physical Waste Data: 26. Aqueous Only pH	Normality	27. Flash Point
				P050688 ✓								
				P050690 ✓								
				P050691 ✓								
				P050696								
				P050762 ✓								
				P050763 ✓								
				~~P050764~~ AEG 01/04/02 HVS 010302								

28. Does the waste contain radioactive components? ☒ Yes ☐ No ☐ To be analyzed
(If yes or TBA, complete Page 3 as applicable to waste type.)

This section (Steps 29–30) is required for Hazardous Waste generated in a RMMA

29. Was the waste kept isolated from any operation that could have produced radioactive contamination (using a glove box, vent hood, etc.)? ☐ Yes ☐ No (If no, full rad analysis required)

30. Was the waste exposed to particle beams capable of inducing radioactivity by activation? ☐ Yes ☒ No (If yes, full rad analysis required)

HVS 060702

31. ☒ Generator: I certify, to the best of my knowledge, that the information provided on this requisition is correct. I understand that I may be liable to State and Federal prosecution by intentionally providing false information. I have obtained this information by:
HVS 010302
☒ Direct knowledge of the waste generating process ☐ Analytical Data
☐ Obtaining sufficient information from others knowledgeable of the waste generating process

☒ Container Custodian: I certify that the waste parcels identified on this form are contained in this waste container and have been packaged in accordance with the requirements specified in the appropriate LLNL TRU or Low-Level Waste Program Certification and Quality Assurance Program.

Generator or Container Custodian Name (Print – Last, First): Simmons, Harry
Signature: Harry S
Employee No.: 000806 L-Code: 361 Ext.: 35810 Date: 010302

H5. Inspected By: Signature: Employee No.: Date:

H6. Characterization Chemist Approval: ☐ Acceptable for Sampling GMP (Initials) Exempt: ☐ OP ☐ SA ☒ DE
Signature: ☐ WEF Employee No.: Date:

H7. RCA Approval: ☐ Overpack for final shipment to NTS ☐ Meets SCAL
☐ Decay Program (Initials) _____ ☐ NTS Certified (Initials) _____ ☐ WIPP Certified (Initials) _____
☐ On-site Treatment
Signature: ☐ WEF Employee No.: Date:

☐ On Hold – Pending S&A

☐ Released

31A. Gross Weight 56.0 kg TARE = 31.8 kg

Radioactive page attached: ☒ Yes ☐ N/A

Continuation page(s) attached: ☐ Yes ☒ N/A

32. Waste Profile No., TRU Waste Form No., or Bin No.: 5-5420
HVS 060702

☐ HWM Use Only

LL-5344 (4/01)

WASTE DISPOSAL REQUISITION

REQUISITION No.: W 217609

H8.

Item	RCH Prefix	RCH	P	Origin Code	Form Code	EPA No.	DTSC No.	MSDS No.	Hazardous Properties T	C	I	R
1	V	8A	N	1	~~B319~~	—	—		☐	☐	☐	☐
					B409				☐	☐	☐	☐
					EMP				☐	☐	☐	☐
					6-10-02				☐	☐	☐	☐
									☐	☐	☐	☐
									☐	☐	☐	☐
									☐	☐	☐	☐
									☐	☐	☐	☐

H9. Hazardous Appendix
Chemist Review
SCIL (Single Container Inventory Limits) Exceeded ☐ Yes ☒ No

pH results obtained by (*Check all that apply*) ☒ N/A

☐ Meter (Calibrated) ☐ Paper ☐ MSDS ☐ Analytical

Initial: _____

Employee No. _____ Date _____

CC Rule (*VOC's greater or less than 500 ppm level 1, 2, 3*) ☒ N/A:

☐ CC/> 500/A ☐ CC/< 500/A

☐ CC/> 500/B ☐ CC/< 500/B

A = Generator Knowledge B = Analytical Data

MPC: S-5420

☐ WEF CC Initials: EMP

H10. RCO

☐ Req tracking:

_____ Initials _____ Date

☐ TWMS:

_____ Initials _____ Date

H11.

☐ No disposal option:

Approved Exemption Request No. _____ Date _____

H12. NORM Rad Screening Conducted

☐ Yes ☐ No (N/A)

Employee No.: _____ Date: _____

Background Reading:

_____ microR/hr

Reading on Item:

_____ microR/hr

H13. RMMA Certification:

Shipping Emp. #: | CC

H14. WDAR #:

WASTE DISPOSAL REQUISITION
RADIOACTIVE WASTE

REQUISITION No.: W 217609

33. Moderators/Reflectors: Quantity of beryllium: 0 grams
Enriched in deuterium ☐ Yes ☒ No Carbon (e.g., graphite) 0 grams

34. Waste Package Seals (WPS)Applied: ☐ N/A ☒ Yes
WPS No(s): K564, L02800 AC 6/20/02

35. MBA Quantity: ☐ Yes ☐ No

Items 36 to 39 are not required if Parcel Cards were used for documentation.

36. Method(s) used to identify radionuclides and/or determine activity: (Check all that apply)

☐ Process Knowledge ☐ Mass ☐ Mass Balance ☐ Liquid Scintillation Counting
☐ Alpha Spectrometry ☐ Tritium off gas measurement ☐ See attached methodology
☐ Dose-to-Curie ☐ Gamma Spectrometry ☐ High Sensitivity Neutron Instrument
☐ Segmented Gamma Scanner ☐ Other: _____
☐ AVLIS Method (☐ A ☐ B ☐ C)

(Complete the following when a meter is used to determine activity):

Survey meter model: _____ Serial Number: _____
Meter Reading: _____ cpm, dpm, mR/hr (circle)
Calibration due date: _____
Check source jig No.: _____ Detector response (± 30%) ☐ Satisfactory

40. Radiological Data: ☐ See attached sheet

Item	Radionuclide	Quantity	Units (Ci, g)	α / PE - Ci	Pu – Eq. gram

37. Does this waste contain any of the following?

Friable Asbestos: ☐ Yes ☐ No
PCBs: ☐ Yes ☐ No
Pyrophorics: ☐ Yes ☐ No
(e.g., uranium turnings that could spontaneously combust if exposed to air)
Explosives: ☐ Yes ☐ No
(e.g., TNT, PETN that exhibit explosive properties).
Chelating Agents: ☐ Yes ☐ No
(e.g., Radiac Wash, >1% by weight)
Compressed Gases: ☐ Yes ☐ No
(e.g., aerosol cans)
Free Liquids: ☐ Yes ☐ No
Classified Material: ☐ Yes ☐ No
Explanations/Comments:

Plutonium grades: ☒ Weapons ☐ Fuel ☐ Reactor ☐ Mixed ☐ Am enriched
☒ Enriched Uranium: 1 % U-234 93 % U-235 6 % U-238

41. Weight (Note: If AVLIS Method C, mass, HSNI, SGS or activity per unit mass is used to determine the activity of the waste, a calibrated scale shall be used).
☐ Estimated Weight ☐ Weighed on Calibrated Scale Initials: _____

Gross Weight/Unit	Tare Weight/Unit	Scale Serial No.	Calibration Due Date
	70 lbs		

42. Rad. Survey (mR/hr):

βγ @ Contact	βγ @ 1 Meter	Neutron @ Contact

Swipe Data: ☐ Complies with on-site transfer requirements
☐ Complies with 10 CFR 835 criteria for unrestricted release

Performed By (print and signature): _____
Date: Employee No.: Ext:

Item 38 and 39 are only required for waste destined for NTS. This includes waste that will be treated prior to final disposal (e.g., LSC, and pyrophoric uranium turnings).

38. Packaging Procedure followed: ☐ WCP-8 ☐ Packaging Instruction No.: _____
☐ EX-404 ☐ Other (describe):

39. Verifier Certification: I verify that, to the best of my knowledge, the information supplied by the waste generator on this form is complete and accurate, and that by visual inspection the waste is accurately described.

Verifier Name (print and sign): _____
Employee No.: _____ Date: _____

43. Container Type:
☒ DOT Type A
☐ DOT Type B
☐ Other

H15. Radiological Appendix:
☐ Liquid waste containing >1 Ci of Pu-Equivalent activity
☐ Contains > 10 grams fissionable material
RCA Initials: _____

RADIOASSAY DATA SHEET

Batch Number: 2002-13

Radio Assay Method: SGS

Procedure ID & Rev: OP-B332-005

Software Version: GWAS V2.3A RADA V2.1

DRUM INFORMATION

Drum Package ID: LL85301244TR
Sequence Number: 1067
Assay Date & Time: 10-05-2002 4:12:36 PM
Report Generated: 10-07-2002 8:36:43 AM
Drum Package GROSS Weight: 89.80 kg NET Weight: 59.70 kg

IDC Number: LL85301244 TRU

QC Replicate (Yes/No): No Passed (Yes/No): _____

Operator Name (Printed): LEE CALDEIRA

Operator Signature: [signature] Date: 10/7/02

Independent Reviewer: [signature] Date: 10/10/02

Expert Reviewer: Kenneth Raschke Date: 10-10-02

Tech. Supv/QA Officer: [signature] Date: 10/14/02

ACTIVITY INFORMATION

Waste Classification: (TRU or LLW): TRU

Total Alpha Activity: 5.327E-01 +/- 1.606E-01 Ci

****
* I S O T O P I C I N F O R M A T I O N *
****

Isotope	Measured Mass (g)	Mass Uncertainty (g)
Pu-238	2.159E-03	9.349E-04
Pu-239	5.887E+00	2.480E+00
Pu-240	4.054E-01	1.716E-01
Pu-241	1.192E-02	5.070E-03
Pu-242	1.709E-03	8.089E-04
Am-241	1.051E-02	4.446E-03
*Am-243	N/A	N/A
*Np-237	N/A	N/A
U-235	3.163E-01	1.470E-01
*U-238	N/A	N/A
*U-233	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 6.31E+00 +/- 2.49E+00 g

****
* M G A R E S U L T S *
****

NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	3.423E-02	5.10E+00
Pu-239	9.332E+01	1.50E-01
Pu-240	6.427E+00	2.14E+00
Pu-241	1.889E-01	3.00E+00
Pu-242	2.710E-02	1.10E+01
Am-241	1.666E-01	2.07E+00
U-235	5.015E+00	1.00E+01

```
*******************************************
*  A C T I V I T Y   I N F O R M A T I O N *
*******************************************
```

Procedure ID & Rev: OP-B332-005
Software Version: GWAS V2.3A RADA V2.1

Assay Date & Time: 10-05-2002 4:12:36 PM
Report Generated: 10-07-2002 8:36:46 AM

Drum Package ID: LL85301244TR
Sequence Number: 1067

Waste Classification (TRU or LLW): TRU

			Errors at 1.96 sigma	
Total Alpha Activity :	5.327E-01	+/-	1.606E-01	Ci
Total TRU Activity :	8.923E+03	+/-	2.690E+03	nCi/g
Pu-239 Equiv Activity:	5.536E-01	+/-	1.608E-01	Ci
Fissile Gram Equiv Mass:	6.239E+00	+/-	2.493E+00	g
Total Decay Heat:	1.688E-02	+/-	5.045E-03	W
TMU Value:	42.13 %			

```
*******************************************
* I S O T O P I C   I N F O R M A T I O N *
*******************************************
```

Isotope	Act (Ci)	1.96 Sigma Act Error (Ci)	Measured Mass (g)	1.96 Sigma Mass Error
Pu-238	3.74E-02	1.62E-02	2.16E-03	9.35E-04
Pu-239	3.66E-01	1.54E-01	5.89E+00	2.48E+00
Pu-240	9.32E-02	3.95E-02	4.05E-01	1.72E-01
Pu-241	1.24E+00	5.27E-01	1.19E-02	5.07E-03
Pu-242	6.79E-06	3.21E-06	1.71E-03	8.09E-04
Am-241	3.65E-02	1.54E-02	1.05E-02	4.45E-03
*Am-243	N/A	N/A	N/A	N/A
*Np-237	N/A	N/A	N/A	N/A
U-235	6.93E-07	3.22E-07	3.16E-01	1.47E-01
*U-238	N/A	N/A	N/A	N/A
*U-233	N/A	N/A	N/A	N/A

* = Activity/Mass below detectable limit.

Total Pu Mass: 6.31E+00 +/- 2.49E+00 g

```
*********************************
*     M G A   R E S U L T S     *
*********************************
```

NUCLIDE	% Weight	% Error(1-Sigma)
Pu-238	3.423E-02	5.10E+00
Pu-239	9.332E+01	1.50E-01
Pu-240	6.427E+00	2.14E+00
Pu-241	1.889E-01	3.00E+00
Pu-242	2.710E-02	1.10E+01
Am-241	1.666E-01	2.07E+00
U-235	5.015E+00	1.00E+01

SGS Expert Review Checklist

Container Identification #: LL85301244TRU_____ Original Assay Date:10-05-2002_

1. *WCP-41, §6.1:* A MGA report ☒ is present or ☐ expert review has provided isotopic ratios from SGS or AK. Comment (if any):
2. *WCP-41, §6.1:* MGA and AK ☒ agree as to radiological composition or, if not, ☐ expert review has resolved this. Comment (if any):
3. *WCP-41, §6.2.1:* ☒ Pu-238 ≤ 2% by weight of total Pu or, if not, ☐ expert review has addressed this and assigned a Pu-240 value. Comment (if any):
4. *WCP-41, §6.2.2:* ☐ Neither Np-237 nor U-235 is identified by MGA or ☒ expert review has addressed possible interferences from these radionuclides.
   Comment (if any): U-235 is identified by MGA and GWAS. There is no interference.
5. *WCP-41, §6.2.2.2:* ☒ Am-241 separation date is 1950 or later or ☐ expert review has addressed possible interferences. Comment (if any):
6. *WCP-41, §6.3.1.1.a:* ☒ Bulk density of waste ≤ 0.6 g/rnl or ☐ expert review has addressed the high density of the drum. Comment (if any):
7. *WCP-41, §6.3.1.2.a:* ☐ Transmission in every segment ≥ 0.1% for the Se-75 peaks at 136 keV or 265 keV or ☒ expert review has addressed the low transmission.
   Comment (if any): The 136 keV transmission is zero in one segment and low in two others. However the 265 keV transmission value is okay and the 129/413 ratio in those segments which are low shows little difference with the other segments.
8. *WCP-41, §6.3.1.2.a:* ☒ Transmission in every segment ≥ 1% for the Se-75 peak at 401 keV or ☐ expert review has addressed the low transmission. Comment (if any):
9. *WCP-41, §6.3.1.3.b:* ☒ Dead time in every segment ≤ 50% or ☐ expert review has addressed the high dead time. Comment (if any):
10. *WCP-41, §6.3.1.3.c:* ☒ Pu-239 masses determined from the 414 keV peak and the 129 keV peak agree by a factor of < 2.5 or ☐ expert review has addressed possible matrix inhomogeneity. Comment (if any):
11. *WCP-41, §6.3.2.3:* Cs-137 (☐ has) (☒ has not) been identified by expert review. If it has, Sr-90 is reported ☐ at an activity ratio to Cs-137of 0.39 for Pu fission or ☐ at a ratio of 1 for U-235 fission or, ☐ if both Pu and U are present, the expert reviewer has determined the ratio. Comment (if any):
12. *WCP-41, §6.3.2.4:* ☐ No unusual nuclides are identified (none other than the 10 required to be reported to WIPP) or ☒ the expert reviewer has checked for interferences from unusual nuclides. Comment (if any): U-235 is identified by both MGA and GWAS. There is no interference.

SGS Expert Review Checklist

Container Identification #: LL85301244TRU_____ Original Assay Date:10-05-2002_

13. *WCP-41, §6.3.3:* For waste drums (☐ NA for standards), ☐ the Summed Spectrum report value for Pu-239 and the Combined Segment NID report for Pu-239 agree within 95% confidence limits (the same as for replicates of unknowns) or ☒ expert review has addressed the difference. Comment (if any): The summed NID and the combined NID differ. This is expected from the uniformity measurements.

14. *WCP-41, §6.4:* ☒ The SGS Summed Spectrum and Combined Segment NID reports agree as to the ratios by weight of several radionuclides, such as those of Am-241, Pu-241, Np-237, Am-243, and U-235 to Pu-239, and MGA results agree as to identifying these radionuclides or ☐ expert review has resolved this. Comment (if any):

15. *WCP-41, §6.6.1:* ☒ All reported radionuclide masses are above 2.5 times the uncorrected MDA or ☐ expert review has calculated transmission-corrected MDAs and taken appropriate action. Comment (if any):

16. *WCP-41, §6.6.2:* ☒ Any changes to reported quantities of individual radionuclides have been entered into the RADA program and a new radioassay data sheet has been produced, showing revised derivative quantities, and included in the batch data report, along with the marked up original. Comment (if any):

17. *CP-41, §6.7:* ☒ Counting statistics are adequate for normal passive count time of 120 seconds per segment or ☐ Counting statistics are adequate for long passive count time of 600 seconds per segment or ☐ expert review has rejected the count and ordered a longer count time. Comment (if any):

Kenneth Raschke	Kenneth Raschke	10-10-02
Expert Reviewer (print)	Signature	Date

```
*********************************************************************
*****                    M G A   R E P O R T                    *****
*********************************************************************
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Report generated on: 10-05-02 5:09:19 PM

MGA version: MGA V9.5 CI

Spectrum ID: 11201067.CNF Sens : 30.0% LT: 55.5 Mins DT: 1.00
Measurement date: 10-05-02 Declared date: 10-05-02

Sample ID: LL85301244TRU Detector: Total counts: 1.159E+06

Pu g/cm2 = 0.2864 Cd g/cm2 = 1.5845 FWHM at 122 keV = 630 eV
QFIT = 1.00 FWHM at 208 keV = 742 eV
NQFIT = 1.00

Isotope	Relative to Pu-239	%* Err	% Err	Relative to Pu-241	%* Err	Isotope analysis at Meas. date % weight	%Err	Decl. date % weight	%Err
Pu-238	0.000367	5.1	5.0	0.1812	5.4	0.03423	5.10	0.03423	5.10
Pu-239	1.000000	0.0	1.1	493.9201	3.0	93.32292	0.15	93.32292	0.15
Pu-240	0.068866	2.3	2.1	34.0144	3.3	6.42680	2.14	6.42680	2.14
Pu-241	0.002025	3.0	2.7	1.0000	0.0	0.18894	3.00	0.18894	3.00
Pu-242	(New alg.)			0.1434	(11)	0.02710	(11)	0.02710	(11)
Am-241	0.001785	2.1	1.8	0.8815	3.1	0.16655	2.07	0.16655	2.07
U-235	0.053736	10.0	10.0			5.01479	10.02	5.01479	10.02

Pu-240 effective (meas. date) = 6.559 +/- 2.36%
U-237 separated more than 10 days ago
Am-241 separated about 12.949 +/- 0.713 years ago
Am/Pu-241 weight ratio = 0.88148 +/- 3.22%

Messages :

Lead x-rays detected.
Calculations in MGAABS didn't converge : results may be suspect.
Efficiency curvature boundary reached.
17 MGA parameter(s) defaulted, starting from parameter 8.

Notes : * = Error in ratio
1.000 sigma errors

Gamma Waste Assay

Sample Information

File Name: C:\WAS\DATA\1100\11101067.S11
Sample ID: LL85301244TRU Count Sequence Number: 1067
Assay Start: 10-05-02 4:12:38 PM
Description 1: UNKNOWN
Description 2: 2002-13
Location: 7715
Comment:
Waste Type:
Weight: Gross: 89800.0 g Net: 59700.0 g
Density: 0.287 g /ml

Container Type: 55 Gal Galv 66.3
Container: Volume: 208000. ml Full: 100.0 %

System Configuration

Counter ID Number: SGS
Arrangement Description: SGS
Segments: Number: 16 Offset: 0
Scanning Platform: Start: 934 mm Delta: -51 mm
Count Type: 55 Gal Galv 66.3
Collimator/Geometry Setting: 0
Transmission Mode: Two pass
Transmission Source: 0

Errors quoted at 1.000 sigma
Reference Source Date: Reference Source Rate: 1.01E+03 cps
Geometric Correction Factor(SWCONTGCF): 0.760
Date of efficiency calibration approval: 4-16-2002 3:26:49 PM
Mu Factors response file: Lucite
Transmission Calib. Time: 4-16-2002 10:03:42 AM 324888

Reviewed by: [signature] Date: 10/5/02

Segment Results

Segment: 1 Detector: DET01 (# 1) Position: 1

Elapsed Live Time: 113.37 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.029 +/- 0.0005
SE-75	279.53	0.000 +/- 0.0000	0.032 +/- 0.0007
SE-75	400.65	0.000 +/- 0.0000	0.047 +/- 0.0011

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.58	9.58E-01 +/- 1.86E-01	4.10E+00	1.09E-07 +/- 1.34E-06
2	35.10	1.01E+03 +/- 4.80E+00	4.10E+00	2.61E-06 +/- 1.64E-05
3	59.92	9.82E+01 +/- 1.15E+00	4.10E+00	3.83E-05 +/- 7.44E-05
4	98.76	4.77E+00 +/- 5.42E-01	4.10E+00	1.39E-04 +/- 4.09E-05
5	104.47	7.61E-01 +/- 4.07E-01	4.10E+00	1.52E-04 +/- 3.12E-05
6	111.34	1.72E+00 +/- 3.70E-01	4.10E+00	1.66E-04 +/- 2.09E-05
7	129.29	9.40E+00 +/- 4.07E-01	4.10E+00	1.95E-04 +/- 1.38E-05
8	148.57	1.03E+00 +/- 2.64E-01	3.90E+00	2.15E-04 +/- 2.55E-05
9	208.31	3.06E+00 +/- 2.75E-01	3.27E+00	2.30E-04 +/- 2.81E-05
10	311.90	1.64E+00 +/- 1.73E-01	2.75E+00	2.00E-04 +/- 1.03E-05
11	333.10	7.33E-01 +/- 1.58E-01	2.70E+00	1.92E-04 +/- 1.04E-05
12	345.07	8.80E-01 +/- 1.24E-01	2.68E+00	1.88E-04 +/- 1.07E-05
13	368.84	2.06E-01 +/- 9.55E-02	2.63E+00	1.80E-04 +/- 1.16E-05
14	375.04	2.53E+00 +/- 1.78E-01	2.62E+00	1.78E-04 +/- 1.18E-05
15	393.15	8.55E-01 +/- 1.14E-01	2.59E+00	1.72E-04 +/- 1.23E-05
16	413.70	1.99E+00 +/- 1.52E-01	2.55E+00	1.65E-04 +/- 1.27E-05
17	662.42	5.30E-02 +/- 3.45E-02	2.17E+00	1.12E-04 +/- 8.14E-06
18	778.90	3.53E-02 +/- 1.77E-02	2.05E+00	9.79E-05 +/- 5.69E-06
19	1274.95	2.30E-01 +/- 4.51E-02	1.76E+00	6.64E-05 +/- 3.57E-06

Segment: 2 Detector: DET01 (# 1) Position: 2

Elapsed Live Time: 113.07 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.011 +/- 0.0003
SE-75	279.53	0.000 +/- 0.0000	0.012 +/- 0.0005
SE-75	400.65	0.000 +/- 0.0000	0.021 +/- 0.0007

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	24.01	1.11E+00 +/- 2.53E-01	4.10E+00	1.01E-09 +/- 9.11E-09
2	35.10	1.01E+03 +/- 4.78E+00	4.10E+00	2.21E-07 +/- 1.06E-06
3	59.91	1.38E+02 +/- 1.41E+00	4.10E+00	2.27E-05 +/- 3.37E-05
4	98.81	8.14E+00 +/- 6.05E-01	4.10E+00	1.84E-04 +/- 4.23E-05
5	104.36	1.61E+00 +/- 4.03E-01	4.10E+00	2.10E-04 +/- 3.47E-05
6	111.28	2.61E+00 +/- 4.66E-01	4.10E+00	2.41E-04 +/- 2.52E-05
7	129.29	1.41E+01 +/- 4.88E-01	4.10E+00	3.07E-04 +/- 1.84E-05
8	148.57	1.18E+00 +/- 3.19E-01	4.03E+00	3.54E-04 +/- 3.27E-05
9	208.21	5.16E+00 +/- 3.37E-01	3.76E+00	3.88E-04 +/- 3.71E-05
10	238.63	6.01E-01 +/- 1.99E-01	3.64E+00	3.73E-04 +/- 2.80E-05
11	279.54	2.34E-01 +/- 1.49E-01	3.45E+00	3.43E-04 +/- 1.77E-05
12	300.10	5.80E-01 +/- 1.75E-01	3.39E+00	3.27E-04 +/- 1.48E-05
13	311.90	2.67E+00 +/- 2.20E-01	3.35E+00	3.18E-04 +/- 1.39E-05
14	332.97	1.30E+00 +/- 1.94E-01	3.29E+00	3.02E-04 +/- 1.34E-05
15	344.97	1.02E+00 +/- 1.86E-01	3.25E+00	2.94E-04 +/- 1.34E-05
16	375.20	3.00E+00 +/- 2.18E-01	3.17E+00	2.74E-04 +/- 1.40E-05
17	382.85	3.91E-01 +/- 1.14E-01	3.15E+00	2.69E-04 +/- 1.42E-05
18	393.08	1.23E+00 +/- 1.46E-01	3.12E+00	2.63E-04 +/- 1.43E-05
19	413.70	3.47E+00 +/- 1.98E-01	3.07E+00	2.51E-04 +/- 1.46E-05
20	451.65	4.25E-01 +/- 8.30E-02	2.97E+00	2.32E-04 +/- 1.45E-05
21	511.28	1.22E+00 +/- 1.11E-01	2.83E+00	2.07E-04 +/- 1.34E-05
22	583.42	4.55E-01 +/- 7.48E-02	2.69E+00	1.84E-04 +/- 1.14E-05
23	1112.12	3.50E-02 +/- 1.75E-02	2.10E+00	1.11E-04 +/- 4.80E-06

Segment: 3 Detector: DET01 (# 1) Position: 3

Elapsed Live Time: 113.04 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Some transmission peaks rejected.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.000 +/- 0.0000
SE-75	264.65	0.000 +/- 0.0000	0.016 +/- 0.0004
SE-75	279.53	0.000 +/- 0.0000	0.017 +/- 0.0006
SE-75	400.65	0.000 +/- 0.0000	0.029 +/- 0.0009

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.68	1.32E+00 +/- 2.22E-01	4.10E+00	1.40E-08 +/- 1.33E-07
2	35.10	1.01E+03 +/- 4.78E+00	4.10E+00	1.07E-06 +/- 5.27E-06
3	49.40	3.63E+00 +/- 7.98E-01	4.10E+00	1.38E-05 +/- 3.38E-05
4	59.90	1.46E+02 +/- 1.49E+00	4.10E+00	3.88E-05 +/- 5.93E-05
5	98.77	9.16E+00 +/- 5.98E-01	4.10E+00	2.01E-04 +/- 4.75E-05
6	104.53	1.05E+00 +/- 4.87E-01	4.05E+00	2.24E-04 +/- 3.75E-05
7	111.35	2.76E+00 +/- 4.12E-01	3.99E+00	2.49E-04 +/- 2.65E-05
8	129.29	1.24E+01 +/- 4.73E-01	3.87E+00	3.02E-04 +/- 1.84E-05
9	148.57	8.35E-01 +/- 3.08E-01	3.76E+00	3.39E-04 +/- 3.24E-05
10	197.29	3.68E-01 +/- 2.39E-01	3.53E+00	3.67E-04 +/- 3.89E-05
11	208.25	4.54E+00 +/- 3.40E-01	3.48E+00	3.66E-04 +/- 3.64E-05
12	239.22	6.71E-01 +/- 1.94E-01	3.36E+00	3.55E-04 +/- 2.76E-05
13	244.70	2.98E-01 +/- 1.73E-01	3.34E+00	3.52E-04 +/- 2.60E-05
14	264.66	2.48E-01 +/- 1.62E-01	3.27E+00	3.41E-04 +/- 2.08E-05
15	300.10	4.89E-01 +/- 1.67E-01	3.17E+00	3.20E-04 +/- 1.49E-05
16	311.90	2.14E+00 +/- 1.99E-01	3.13E+00	3.13E-04 +/- 1.40E-05
17	332.95	1.25E+00 +/- 1.85E-01	3.07E+00	3.00E-04 +/- 1.35E-05
18	345.13	9.61E-01 +/- 1.76E-01	3.03E+00	2.93E-04 +/- 1.36E-05
19	375.08	3.42E+00 +/- 2.28E-01	2.95E+00	2.76E-04 +/- 1.43E-05
20	383.15	2.38E-01 +/- 1.07E-01	2.93E+00	2.72E-04 +/- 1.46E-05
21	393.07	1.10E+00 +/- 1.39E-01	2.90E+00	2.67E-04 +/- 1.48E-05
22	413.70	3.06E+00 +/- 1.84E-01	2.85E+00	2.57E-04 +/- 1.52E-05
23	451.84	3.89E-01 +/- 8.13E-02	2.76E+00	2.40E-04 +/- 1.54E-05
24	583.44	4.72E-01 +/- 7.59E-02	2.51E+00	1.96E-04 +/- 1.25E-05
25	860.79	1.58E-01 +/- 3.72E-02	2.17E+00	1.46E-04 +/- 6.67E-06
26	1001.03	4.38E-02 +/- 1.96E-02	2.05E+00	1.31E-04 +/- 5.70E-06
27	1085.91	8.76E-03 +/- 8.76E-03	2.00E+00	1.23E-04 +/- 5.23E-06

Segment: 4 Detector: DET01 (# 1) Position: 4

Elapsed Live Time: 113.13 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.149 +/- 0.0067
SE-75	264.65	0.000 +/- 0.0000	0.228 +/- 0.0018
SE-75	279.53	0.000 +/- 0.0000	0.232 +/- 0.0024
SE-75	400.65	0.000 +/- 0.0000	0.276 +/- 0.0031

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.62	1.20E+00 +/- 2.31E-01	4.10E+00	3.65E-06 +/- 5.02E-06
2	35.10	1.01E+03 +/- 4.80E+00	2.80E+00	2.00E-05 +/- 1.66E-05
3	59.92	1.45E+02 +/- 1.54E+00	2.19E+00	9.95E-05 +/- 3.40E-05
4	98.85	5.90E+00 +/- 5.06E-01	1.97E+00	2.40E-04 +/- 2.42E-05
5	111.49	9.72E-01 +/- 4.00E-01	1.94E+00	2.74E-04 +/- 1.96E-05
6	129.29	8.68E+00 +/- 3.96E-01	1.90E+00	3.12E-04 +/- 1.61E-05
7	148.57	9.02E-01 +/- 2.67E-01	1.86E+00	3.40E-04 +/- 1.63E-05
8	203.52	5.24E-01 +/- 2.23E-01	1.76E+00	3.70E-04 +/- 1.94E-05
9	208.19	3.04E+00 +/- 2.81E-01	1.75E+00	3.71E-04 +/- 1.94E-05
10	279.54	2.70E-01 +/- 1.34E-01	1.66E+00	3.53E-04 +/- 1.66E-05
11	300.10	2.24E-01 +/- 1.43E-01	1.64E+00	3.44E-04 +/- 1.54E-05
12	311.90	1.32E+00 +/- 1.61E-01	1.63E+00	3.38E-04 +/- 1.48E-05
13	332.99	6.78E-01 +/- 1.64E-01	1.61E+00	3.28E-04 +/- 1.37E-05
14	345.24	8.10E-01 +/- 1.26E-01	1.60E+00	3.21E-04 +/- 1.32E-05
15	375.22	1.99E+00 +/- 1.73E-01	1.58E+00	3.06E-04 +/- 1.21E-05
16	382.88	5.80E-01 +/- 1.24E-01	1.58E+00	3.02E-04 +/- 1.18E-05
17	393.03	6.77E-01 +/- 1.14E-01	1.57E+00	2.97E-04 +/- 1.16E-05
18	400.66	1.62E-01 +/- 8.53E-02	1.57E+00	2.94E-04 +/- 1.14E-05
19	413.70	1.84E+00 +/- 1.53E-01	1.56E+00	2.87E-04 +/- 1.11E-05
20	451.30	4.24E-01 +/- 7.03E-02	1.53E+00	2.70E-04 +/- 1.06E-05
21	867.39	8.84E-03 +/- 8.84E-03	1.37E+00	1.50E-04 +/- 6.50E-06
22	1001.03	1.77E-02 +/- 1.25E-02	1.33E+00	1.30E-04 +/- 4.96E-06
23	1112.12	1.77E-02 +/- 1.25E-02	1.31E+00	1.17E-04 +/- 4.26E-06
24	2615.78	1.79E-01 +/- 4.60E-02	1.21E+00	5.76E-05 +/- 1.96E-05

Segment: 5 Detector: DET01 (# 1) Position: 5

Elapsed Live Time: 112.22 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.113 +/- 0.0066
SE-75	264.65	0.000 +/- 0.0000	0.220 +/- 0.0018
SE-75	279.53	0.000 +/- 0.0000	0.230 +/- 0.0023
SE-75	400.65	0.000 +/- 0.0000	0.276 +/- 0.0031

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.68	2.23E+00 +/- 2.83E-01	4.10E+00	1.99E-06 +/- 2.83E-06
2	35.10	1.01E+03 +/- 4.80E+00	3.14E+00	1.48E-05 +/- 1.27E-05
3	49.93	1.46E+01 +/- 1.15E+00	2.56E+00	5.58E-05 +/- 2.74E-05
4	59.88	5.73E+02 +/- 3.29E+00	2.40E+00	9.45E-05 +/- 3.31E-05
5	98.84	9.75E+00 +/- 5.76E-01	2.15E+00	2.49E-04 +/- 2.52E-05
6	103.51	2.73E+00 +/- 5.41E-01	2.13E+00	2.64E-04 +/- 2.32E-05
7	111.12	2.16E+00 +/- 4.16E-01	2.11E+00	2.86E-04 +/- 2.04E-05
8	129.29	9.19E+00 +/- 4.38E-01	2.06E+00	3.26E-04 +/- 1.67E-05
9	148.57	1.51E+00 +/- 2.75E-01	2.00E+00	3.54E-04 +/- 1.71E-05
10	208.25	4.99E+00 +/- 3.16E-01	1.81E+00	3.75E-04 +/- 2.04E-05
11	311.90	3.94E-01 +/- 1.44E-01	1.63E+00	3.26E-04 +/- 1.48E-05
12	332.87	8.12E-01 +/- 1.75E-01	1.62E+00	3.14E-04 +/- 1.36E-05
13	345.36	8.72E-01 +/- 1.55E-01	1.61E+00	3.06E-04 +/- 1.30E-05
14	375.02	2.58E+00 +/- 1.88E-01	1.59E+00	2.90E-04 +/- 1.18E-05
15	382.96	1.82E-01 +/- 1.22E-01	1.58E+00	2.85E-04 +/- 1.16E-05
16	393.12	7.67E-01 +/- 1.21E-01	1.57E+00	2.80E-04 +/- 1.13E-05
17	413.70	2.49E+00 +/- 1.65E-01	1.56E+00	2.69E-04 +/- 1.09E-05
18	662.42	5.86E-02 +/- 3.64E-02	1.43E+00	1.79E-04 +/- 8.77E-06
19	778.90	5.33E-02 +/- 2.51E-02	1.39E+00	1.54E-04 +/- 7.51E-06
20	867.39	1.43E-02 +/- 1.32E-02	1.37E+00	1.40E-04 +/- 6.44E-06

Segment: 6 Detector: DET01 (# 1) Position: 6

Elapsed Live Time: 111.99 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.082 +/- 0.0056
SE-75	264.65	0.000 +/- 0.0000	0.169 +/- 0.0015
SE-75	279.53	0.000 +/- 0.0000	0.173 +/- 0.0019
SE-75	400.65	0.000 +/- 0.0000	0.217 +/- 0.0027

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.70	2.85E+00 +/- 3.17E-01	4.10E+00	7.83E-07 +/- 1.08E-06
2	35.10	1.01E+03 +/- 4.80E+00	3.53E+00	8.04E-06 +/- 6.71E-06
3	49.91	1.92E+01 +/- 1.15E+00	2.85E+00	3.77E-05 +/- 1.82E-05
4	59.85	6.88E+02 +/- 3.73E+00	2.66E+00	6.99E-05 +/- 2.41E-05
5	75.38	7.62E-01 +/- 3.25E-01	2.49E+00	1.31E-04 +/- 2.73E-05
6	98.96	1.08E+01 +/- 5.96E-01	2.35E+00	2.23E-04 +/- 2.25E-05
7	103.43	3.84E+00 +/- 5.37E-01	2.34E+00	2.38E-04 +/- 2.11E-05
8	111.47	1.21E+00 +/- 4.49E-01	2.31E+00	2.64E-04 +/- 1.89E-05
9	129.29	1.05E+01 +/- 4.56E-01	2.25E+00	3.10E-04 +/- 1.61E-05
10	148.57	1.12E+00 +/- 2.76E-01	2.18E+00	3.45E-04 +/- 1.67E-05
11	208.22	5.01E+00 +/- 3.17E-01	1.97E+00	3.81E-04 +/- 2.03E-05
12	311.90	5.71E-01 +/- 1.31E-01	1.77E+00	3.39E-04 +/- 1.51E-05
13	332.79	1.03E+00 +/- 1.76E-01	1.75E+00	3.26E-04 +/- 1.39E-05
14	344.90	1.14E+00 +/- 1.67E-01	1.74E+00	3.19E-04 +/- 1.33E-05
15	375.23	3.07E+00 +/- 2.06E-01	1.71E+00	3.02E-04 +/- 1.21E-05
16	382.86	3.05E-01 +/- 1.12E-01	1.71E+00	2.97E-04 +/- 1.19E-05
17	392.96	1.33E+00 +/- 1.18E-01	1.70E+00	2.92E-04 +/- 1.16E-05
18	413.70	2.82E+00 +/- 1.78E-01	1.68E+00	2.81E-04 +/- 1.11E-05
19	422.66	1.62E-01 +/- 7.85E-02	1.67E+00	2.76E-04 +/- 1.09E-05
20	583.33	1.65E-01 +/- 5.15E-02	1.56E+00	2.09E-04 +/- 9.45E-06
21	662.42	1.10E-01 +/- 5.31E-02	1.52E+00	1.86E-04 +/- 8.77E-06
22	778.90	1.77E-02 +/- 1.25E-02	1.47E+00	1.61E-04 +/- 7.48E-06

Segment: 7 Detector: DET01 (# 1) Position: 7

Elapsed Live Time: 112.91 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.084 +/- 0.0053
SE-75	264.65	0.000 +/- 0.0000	0.147 +/- 0.0013
SE-75	279.53	0.000 +/- 0.0000	0.151 +/- 0.0018
SE-75	400.65	0.000 +/- 0.0000	0.193 +/- 0.0025

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.62	1.26E+00 +/- 2.32E-01	4.10E+00	9.26E-09 +/- 8.83E-08
2	35.10	1.01E+03 +/- 4.79E+00	3.50E+00	9.59E-07 +/- 4.73E-06
3	59.88	3.38E+02 +/- 2.32E+00	2.64E+00	4.11E-05 +/- 6.28E-05
4	98.87	5.09E+00 +/- 4.36E-01	2.34E+00	2.21E-04 +/- 5.17E-05
5	103.36	3.13E+00 +/- 2.73E-01	2.32E+00	2.41E-04 +/- 4.30E-05
6	111.36	1.05E+00 +/- 3.02E-01	2.29E+00	2.73E-04 +/- 2.86E-05
7	129.29	4.04E+00 +/- 3.38E-01	2.24E+00	3.30E-04 +/- 1.98E-05
8	148.57	5.28E-01 +/- 2.14E-01	2.18E+00	3.68E-04 +/- 3.49E-05
9	185.71	3.28E-01 +/- 1.60E-01	2.08E+00	3.94E-04 +/- 4.30E-05
10	208.19	2.78E+00 +/- 2.31E-01	2.02E+00	3.91E-04 +/- 3.83E-05
11	279.54	1.87E-01 +/- 1.14E-01	1.88E+00	3.50E-04 +/- 1.84E-05
12	311.90	2.66E-01 +/- 1.04E-01	1.84E+00	3.27E-04 +/- 1.48E-05
13	375.07	1.49E+00 +/- 1.59E-01	1.78E+00	2.88E-04 +/- 1.54E-05
14	392.93	5.21E-01 +/- 9.69E-02	1.76E+00	2.78E-04 +/- 1.59E-05
15	413.70	1.40E+00 +/- 1.25E-01	1.74E+00	2.67E-04 +/- 1.63E-05
16	964.13	1.98E-02 +/- 1.71E-02	1.45E+00	1.35E-04 +/- 6.00E-06
17	1112.12	2.98E-02 +/- 1.95E-02	1.41E+00	1.20E-04 +/- 5.13E-06
18	1408.01	8.82E-03 +/- 1.98E-02	1.36E+00	9.90E-05 +/- 6.54E-06

Segment: 8 Detector: DET01 (# 1) Position: 8

Elapsed Live Time: 113.26 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.075 +/- 0.0052
SE-75	264.65	0.000 +/- 0.0000	0.137 +/- 0.0013
SE-75	279.53	0.000 +/- 0.0000	0.142 +/- 0.0017
SE-75	400.65	0.000 +/- 0.0000	0.182 +/- 0.0024

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.84	9.98E-01 +/- 2.01E-01	4.10E+00	6.30E-09 +/- 5.88E-08
2	35.10	1.01E+03 +/- 4.78E+00	3.64E+00	6.89E-07 +/- 3.37E-06
3	59.91	1.99E+02 +/- 1.67E+00	2.73E+00	3.44E-05 +/- 5.21E-05
4	67.54	5.78E-01 +/- 2.20E-01	2.63E+00	6.00E-05 +/- 6.49E-05
5	98.86	3.84E+00 +/- 3.92E-01	2.41E+00	1.99E-04 +/- 4.65E-05
6	110.97	1.07E+00 +/- 3.13E-01	2.37E+00	2.48E-04 +/- 2.68E-05
7	129.29	4.75E+00 +/- 3.20E-01	2.31E+00	3.05E-04 +/- 1.85E-05
8	148.57	4.37E-01 +/- 2.14E-01	2.25E+00	3.45E-04 +/- 3.27E-05
9	208.26	1.71E+00 +/- 2.16E-01	2.07E+00	3.76E-04 +/- 3.72E-05
10	300.10	3.81E-01 +/- 1.05E-01	1.89E+00	3.30E-04 +/- 1.53E-05
11	311.90	3.85E-01 +/- 1.03E-01	1.88E+00	3.23E-04 +/- 1.44E-05
12	332.67	2.21E-01 +/- 1.33E-01	1.85E+00	3.10E-04 +/- 1.38E-05
13	375.10	1.37E+00 +/- 1.43E-01	1.81E+00	2.86E-04 +/- 1.46E-05
14	392.97	5.92E-01 +/- 8.93E-02	1.79E+00	2.77E-04 +/- 1.50E-05
15	400.66	1.37E-01 +/- 6.58E-02	1.78E+00	2.73E-04 +/- 1.52E-05
16	413.70	1.23E+00 +/- 1.18E-01	1.77E+00	2.66E-04 +/- 1.54E-05
17	778.90	4.37E-02 +/- 1.95E-02	1.53E+00	1.59E-04 +/- 7.73E-06

Segment: 9 Detector: DET01 (# 1) Position: 9

Elapsed Live Time: 113.33 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.053 +/- 0.0047
SE-75	264.65	0.000 +/- 0.0000	0.110 +/- 0.0011
SE-75	279.53	0.000 +/- 0.0000	0.114 +/- 0.0015
SE-75	400.65	0.000 +/- 0.0000	0.143 +/- 0.0021

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	4.07E+00	1.75E-05 +/- 8.88E-05
2	49.86	4.17E+00 +/- 6.18E-01	3.25E+00	6.13E-05 +/- 1.51E-04
3	59.93	1.54E+02 +/- 1.45E+00	3.01E+00	1.01E-04 +/- 1.59E-04
4	98.79	4.36E+00 +/- 4.30E-01	2.64E+00	2.51E-04 +/- 6.06E-05

5	111.13	1.18E+00	+/-	3.30E-01	2.59E+00	2.86E-04	+/- 3.09E-05
6	129.29	6.74E+00	+/-	3.44E-01	2.52E+00	3.23E-04	+/- 1.97E-05
7	148.57	4.01E-01	+/-	2.26E-01	2.44E+00	3.48E-04	+/- 3.41E-05
8	185.71	2.18E-01	+/-	1.31E-01	2.30E+00	3.67E-04	+/- 4.18E-05
9	208.26	2.17E+00	+/-	2.50E-01	2.22E+00	3.66E-04	+/- 3.76E-05
10	244.70	2.20E-01	+/-	1.24E-01	2.11E+00	3.54E-04	+/- 2.70E-05
11	311.90	5.35E-01	+/-	1.15E-01	2.00E+00	3.20E-04	+/- 1.45E-05
12	332.90	7.26E-01	+/-	1.38E-01	1.98E+00	3.08E-04	+/- 1.39E-05
13	375.20	1.93E+00	+/-	1.67E-01	1.94E+00	2.86E-04	+/- 1.49E-05
14	393.21	7.05E-01	+/-	1.01E-01	1.92E+00	2.77E-04	+/- 1.55E-05
15	413.70	1.83E+00	+/-	1.39E-01	1.90E+00	2.67E-04	+/- 1.59E-05
16	451.55	2.62E-01	+/-	7.18E-02	1.86E+00	2.50E-04	+/- 1.61E-05
17	511.02	4.33E-01	+/-	7.59E-02	1.80E+00	2.26E-04	+/- 1.52E-05
18	662.42	6.35E-02	+/-	4.01E-02	1.69E+00	1.82E-04	+/- 1.04E-05
19	867.39	1.75E-02	+/-	1.23E-02	1.58E+00	1.46E-04	+/- 6.48E-06
20	964.13	8.73E-03	+/-	1.59E-02	1.54E+00	1.34E-04	+/- 5.82E-06
21	1001.03	8.73E-03	+/-	8.73E-03	1.53E+00	1.30E-04	+/- 5.63E-06

Segment: 10 Detector: DET01 (# 1) Position: 10

Elapsed Live Time: 113.41 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.082 +/- 0.0052
SE-75	264.65	0.000 +/- 0.0000	0.144 +/- 0.0013
SE-75	279.53	0.000 +/- 0.0000	0.148 +/- 0.0018
SE-75	400.65	0.000 +/- 0.0000	0.185 +/- 0.0024

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	35.10	1.01E+03	+/-	4.78E+00	3.52E+00	5.68E-06	+/-	4.74E-06
2	59.92	1.26E+02	+/-	1.29E+00	2.65E+00	6.49E-05	+/-	2.23E-05
3	98.88	4.14E+00	+/-	4.08E-01	2.35E+00	2.31E-04	+/-	2.33E-05
4	111.13	1.27E+00	+/-	3.29E-01	2.31E+00	2.77E-04	+/-	1.99E-05
5	129.29	7.13E+00	+/-	3.49E-01	2.25E+00	3.30E-04	+/-	1.70E-05
6	203.45	8.49E-01	+/-	1.98E-01	2.04E+00	4.02E-04	+/-	2.09E-05
7	208.20	2.29E+00	+/-	2.40E-01	2.03E+00	4.01E-04	+/-	2.09E-05
8	311.90	4.73E-01	+/-	1.22E-01	1.86E+00	3.45E-04	+/-	1.50E-05
9	332.97	2.55E-01	+/-	1.28E-01	1.84E+00	3.31E-04	+/-	1.38E-05
10	345.14	6.86E-01	+/-	1.21E-01	1.83E+00	3.22E-04	+/-	1.32E-05
11	375.07	1.54E+00	+/-	1.61E-01	1.80E+00	3.03E-04	+/-	1.20E-05
12	383.12	1.58E-01	+/-	1.03E-01	1.79E+00	2.97E-04	+/-	1.18E-05
13	393.20	9.89E-01	+/-	1.11E-01	1.78E+00	2.91E-04	+/-	1.15E-05

14	413.70	1.59E+00	+/-	1.25E-01	1.76E+00	2.79E-04	+/-	1.11E-05
15	451.76	2.21E-01	+/-	6.39E-02	1.73E+00	2.58E-04	+/-	1.05E-05
16	582.92	1.16E-01	+/-	4.62E-02	1.63E+00	2.03E-04	+/-	9.53E-06
17	662.42	6.06E-02	+/-	3.82E-02	1.58E+00	1.80E-04	+/-	8.83E-06
18	867.39	3.54E-02	+/-	2.84E-02	1.49E+00	1.42E-04	+/-	6.49E-06

Segment: 11 Detector: DET01 (# 1) Position: 11

Elapsed Live Time: 113.59 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.072 +/- 0.0048
SE-75	264.65	0.000 +/- 0.0000	0.125 +/- 0.0012
SE-75	279.53	0.000 +/- 0.0000	0.129 +/- 0.0016
SE-75	400.65	0.000 +/- 0.0000	0.167 +/- 0.0023

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.79	7.48E-01	+/-	1.56E-01	4.10E+00	5.65E-07	+/-	7.73E-07
2	35.10	1.01E+03	+/-	4.77E+00	3.69E+00	6.75E-06	+/-	5.60E-06
3	59.90	7.30E+01	+/-	9.64E-01	2.76E+00	6.81E-05	+/-	2.32E-05
4	98.84	3.09E+00	+/-	3.49E-01	2.44E+00	2.28E-04	+/-	2.29E-05
5	111.46	5.62E-01	+/-	2.90E-01	2.39E+00	2.72E-04	+/-	1.93E-05
6	129.29	4.67E+00	+/-	2.99E-01	2.33E+00	3.21E-04	+/-	1.65E-05
7	185.71	2.81E-01	+/-	1.64E-01	2.17E+00	3.87E-04	+/-	1.99E-05
8	208.35	1.32E+00	+/-	1.88E-01	2.11E+00	3.89E-04	+/-	2.04E-05
9	311.90	6.88E-01	+/-	1.13E-01	1.93E+00	3.37E-04	+/-	1.49E-05
10	332.94	3.92E-01	+/-	1.07E-01	1.90E+00	3.24E-04	+/-	1.37E-05
11	345.04	3.12E-01	+/-	1.01E-01	1.89E+00	3.16E-04	+/-	1.31E-05
12	375.00	1.14E+00	+/-	1.28E-01	1.86E+00	2.97E-04	+/-	1.19E-05
13	383.03	1.34E-01	+/-	6.56E-02	1.85E+00	2.93E-04	+/-	1.17E-05
14	393.00	4.47E-01	+/-	8.74E-02	1.84E+00	2.87E-04	+/-	1.14E-05
15	413.70	1.09E+00	+/-	1.14E-01	1.82E+00	2.75E-04	+/-	1.09E-05
16	443.98	7.08E-02	+/-	3.61E-02	1.79E+00	2.59E-04	+/-	1.04E-05
17	511.39	5.00E-01	+/-	8.00E-02	1.73E+00	2.29E-04	+/-	9.82E-06
18	662.42	4.92E-02	+/-	2.63E-02	1.62E+00	1.80E-04	+/-	8.65E-06
19	867.39	3.48E-02	+/-	1.74E-02	1.53E+00	1.43E-04	+/-	6.39E-06
20	964.13	8.71E-03	+/-	8.71E-03	1.49E+00	1.32E-04	+/-	5.35E-06
21	1112.12	8.71E-03	+/-	8.71E-03	1.45E+00	1.20E-04	+/-	4.37E-06

Segment: 12 Detector: DET01 (# 1) Position: 12

Elapsed Live Time: 113.73 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.092 +/- 0.0055
SE-75	264.65	0.000 +/- 0.0000	0.146 +/- 0.0013
SE-75	279.53	0.000 +/- 0.0000	0.149 +/- 0.0018
SE-75	400.65	0.000 +/- 0.0000	0.185 +/- 0.0024

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	3.39E+00	7.63E-06 +/- 6.33E-06
2	59.92	3.32E+01 +/- 6.80E-01	2.57E+00	6.75E-05 +/- 2.31E-05
3	129.29	1.89E+00 +/- 2.17E-01	2.19E+00	3.04E-04 +/- 1.59E-05
4	185.71	6.33E-01 +/- 1.48E-01	2.05E+00	3.72E-04 +/- 1.93E-05
5	208.32	6.45E-01 +/- 1.50E-01	2.00E+00	3.76E-04 +/- 1.99E-05
6	300.10	3.95E-01 +/- 8.89E-02	1.87E+00	3.43E-04 +/- 1.55E-05
7	311.90	4.73E-01 +/- 1.12E-01	1.86E+00	3.36E-04 +/- 1.48E-05
8	413.70	4.13E-01 +/- 8.19E-02	1.76E+00	2.79E-04 +/- 1.09E-05
9	511.15	7.96E-01 +/- 9.44E-02	1.68E+00	2.34E-04 +/- 9.75E-06
10	867.39	2.17E-02 +/- 1.59E-02	1.49E+00	1.45E-04 +/- 6.27E-06

Segment: 13 Detector: DET01 (# 1) Position: 13

Elapsed Live Time: 113.79 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.122 +/- 0.0059
SE-75	264.65	0.000 +/- 0.0000	0.171 +/- 0.0015
SE-75	279.53	0.000 +/- 0.0000	0.174 +/- 0.0019
SE-75	400.65	0.000 +/- 0.0000	0.207 +/- 0.0026

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	3.04E+00	1.10E-05 +/- 9.51E-06
2	59.86	2.17E+01 +/- 5.43E-01	2.34E+00	8.20E-05 +/- 2.89E-05
3	129.29	7.24E-01 +/- 1.71E-01	2.02E+00	3.21E-04 +/- 1.67E-05
4	152.68	2.57E-01 +/- 1.44E-01	1.97E+00	3.57E-04 +/- 1.76E-05
5	185.71	4.63E-01 +/- 1.43E-01	1.92E+00	3.79E-04 +/- 2.03E-05
6	300.10	1.82E-01 +/- 8.18E-02	1.79E+00	3.40E-04 +/- 1.57E-05
7	311.90	6.45E-01 +/- 1.07E-01	1.78E+00	3.33E-04 +/- 1.50E-05
8	374.92	1.81E-01 +/- 7.09E-02	1.73E+00	2.96E-04 +/- 1.20E-05
9	400.66	1.39E-01 +/- 5.43E-02	1.71E+00	2.81E-04 +/- 1.13E-05
10	413.70	1.60E-01 +/- 7.17E-02	1.70E+00	2.74E-04 +/- 1.10E-05
11	778.90	3.88E-02 +/- 2.58E-02	1.49E+00	1.54E-04 +/- 7.54E-06
12	867.39	8.70E-03 +/- 8.70E-03	1.46E+00	1.40E-04 +/- 6.42E-06
13	1408.01	8.70E-03 +/- 8.70E-03	1.34E+00	9.60E-05 +/- 6.10E-06

Segment: 14 Detector: DET01 (# 1) Position: 14

Elapsed Live Time: 113.82 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.347 +/- 0.0094
SE-75	264.65	0.000 +/- 0.0000	0.420 +/- 0.0030
SE-75	279.53	0.000 +/- 0.0000	0.419 +/- 0.0036
SE-75	400.65	0.000 +/- 0.0000	0.463 +/- 0.0044

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.89E+00	8.94E-06 +/- 4.41E-05
2	59.89	1.42E+01 +/- 4.48E-01	1.60E+00	8.17E-05 +/- 1.25E-04
3	129.29	5.18E-01 +/- 1.53E-01	1.46E+00	3.17E-04 +/- 1.90E-05
4	185.71	4.90E-01 +/- 1.35E-01	1.42E+00	3.64E-04 +/- 4.04E-05
5	300.10	1.58E-01 +/- 8.13E-02	1.36E+00	3.25E-04 +/- 1.51E-05
6	311.90	5.73E-01 +/- 1.02E-01	1.35E+00	3.18E-04 +/- 1.42E-05
7	375.10	1.73E-01 +/- 6.53E-02	1.33E+00	2.85E-04 +/- 1.46E-05
8	413.70	1.53E-01 +/- 6.74E-02	1.32E+00	2.67E-04 +/- 1.56E-05

9	584.10	1.70E-01	+/-	4.18E-02	1.26E+00	2.04E-04	+/- 1.28E-05
10	867.39	8.69E-03	+/-	8.69E-03	1.21E+00	1.44E-04	+/- 6.47E-06
11	964.13	8.69E-03	+/-	8.69E-03	1.20E+00	1.31E-04	+/- 5.72E-06
12	1085.91	3.34E-02	+/-	2.30E-02	1.18E+00	1.18E-04	+/- 5.01E-06
13	1408.01	8.69E-03	+/-	8.69E-03	1.16E+00	9.39E-05	+/- 6.30E-06

Segment: 15 Detector: DET01 (# 1) Position: 15

Elapsed Live Time: 113.87 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.667 +/- 0.0136
SE-75	264.65	0.000 +/- 0.0000	0.756 +/- 0.0051
SE-75	279.53	0.000 +/- 0.0000	0.760 +/- 0.0058
SE-75	400.65	0.000 +/- 0.0000	0.792 +/- 0.0066

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	35.10	1.01E+03	+/-	4.76E+00	1.30E+00	1.45E-08	+/-	6.96E-08
2	59.96	6.92E+00	+/-	3.09E-01	1.21E+00	1.15E-05	+/-	1.70E-05
3	129.29	4.92E-01	+/-	1.42E-01	1.16E+00	3.37E-04	+/-	1.99E-05
4	400.66	1.49E-01	+/-	6.19E-02	1.09E+00	2.59E-04	+/-	1.48E-05
5	413.70	7.84E-02	+/-	3.91E-02	1.09E+00	2.52E-04	+/-	1.49E-05
6	443.98	9.56E-02	+/-	4.48E-02	1.09E+00	2.37E-04	+/-	1.50E-05
7	964.13	7.46E-02	+/-	3.08E-02	1.06E+00	1.35E-04	+/-	5.77E-06
8	1085.91	2.61E-02	+/-	1.51E-02	1.05E+00	1.24E-04	+/-	5.17E-06

Segment: 16 Detector: DET01 (# 1) Position: 16

Elapsed Live Time: 113.89 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.553 +/- 0.0123
SE-75	264.65	0.000 +/- 0.0000	0.670 +/- 0.0046
SE-75	279.53	0.000 +/- 0.0000	0.670 +/- 0.0052
SE-75	400.65	0.000 +/- 0.0000	0.714 +/- 0.0061

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.46E+00	9.52E-10 +/- 5.35E-09
2	59.87	2.09E+00 +/- 2.12E-01	1.31E+00	3.50E-06 +/- 6.10E-06
3	129.29	1.94E-01 +/- 1.26E-01	1.24E+00	2.29E-04 +/- 1.54E-05
4	311.90	1.15E-01 +/- 6.47E-02	1.15E+00	2.34E-04 +/- 1.14E-05
5	400.66	1.52E-01 +/- 5.24E-02	1.13E+00	1.86E-04 +/- 1.20E-05
6	413.70	7.58E-02 +/- 5.11E-02	1.13E+00	1.81E-04 +/- 1.21E-05
7	662.42	8.69E-02 +/- 2.75E-02	1.10E+00	1.26E-04 +/- 8.22E-06
8	778.90	3.60E-02 +/- 2.13E-02	1.09E+00	1.14E-04 +/- 6.23E-06
9	1408.01	8.69E-03 +/- 8.69E-03	1.07E+00	7.39E-05 +/- 5.32E-06

Summed Spectrum

Peak Locate Report

Sample ID: LL85301244TRU
Peak Locate Performed on: 10-05-02 5:09:20 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192
Peak Search Sensitivity: 5.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	47.51	0.2640	23.68	7.31
2	70.54	0.0424	35.18	301.95
3	99.97	0.2881	49.89	7.15
4	119.99	0.0619	59.89	147.60
5	197.96	0.1656	98.84	19.09
6	208.36	0.2425	104.04	6.32
7	222.97	0.2083	111.34	11.59
8	259.46	0.1302	129.57	29.55
9	298.07	0.2489	148.86	9.35
10	416.91	0.1346	208.24	27.24
11	478.15	0.2837	238.83	5.47
12	600.85	0.3175	300.14	5.30
13	624.55	0.1792	311.98	14.40
14	666.49	0.1968	332.93	11.37
15	690.86	0.1964	345.10	10.92
16	750.94	0.1376	375.12	23.80
17	766.70	0.2469	383.00	8.14
18	786.91	0.1898	393.10	12.33
19	828.24	0.1403	413.75	22.01
20	846.13	0.2804	422.68	5.58
21	904.01	0.2386	451.60	7.31
22	1023.04	0.2275	511.07	6.34
23	1167.60	0.2281	583.29	7.63
24	2551.81	0.2179	1274.87	6.04
25	5236.29	0.1984	2616.08	6.04

Errors quoted at 1.000 sigma

Summed Spectrum

Peak Analysis Report

Sample ID: LL85301244TRU
Peak Analysis Performed on: 10-05-02 5:09:20 PM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	45-	50	47.51	23.68	1.55E+03	84.49	2.90E+03
2	67-	73	70.54	35.18	1.84E+06	1360.79	4.19E+03
3	96-	103	99.97	49.89	9.08E+03	319.25	4.24E+04
4	116-	123	119.99	59.89	3.13E+05	640.10	4.67E+04
5	194-	201	197.96	98.84	8.26E+03	193.68	1.45E+04
6	206-	212	208.36	104.04	2.91E+03	134.67	7.55E+03
7	219-	226	222.97	111.34	2.21E+03	140.59	8.47E+03
8	255-	263	259.46	129.57	1.12E+04	151.24	5.45E+03
9	293-	302	298.07	148.86	7.88E+02	110.07	5.00E+03
10	412-	421	416.91	208.24	4.26E+03	108.53	3.25E+03
11	473-	482	478.15	238.83	5.48E+02	64.29	1.59E+03
12	595-	605	600.85	300.14	3.54E+02	54.44	1.09E+03
13	619-	629	624.55	311.98	1.48E+03	61.11	9.50E+02
14	661-	671	666.49	332.93	9.16E+02	61.57	1.19E+03
15	685-	695	690.86	345.10	8.79E+02	56.90	9.67E+02
16	745-	756	750.94	375.12	2.81E+03	71.07	8.92E+02
17	764-	771	766.70	383.00	1.39E+02	45.89	6.76E+02
18	781-	792	786.91	393.10	1.10E+03	45.41	3.86E+02
19	822-	833	828.24	413.75	2.70E+03	59.66	3.43E+02
20	840-	851	846.13	422.68	1.41E+02	28.01	2.55E+02
21	898-	909	904.01	451.60	3.98E+02	29.35	1.85E+02
22	1017-	1028	1023.04	511.07	9.30E+02	37.79	1.99E+02
23	1161-	1173	1167.60	583.29	3.83E+02	24.77	8.76E+01
24	2544-	2559	2551.81	1274.87	2.36E+02	18.74	3.82E+01
25	5226-	5246	5236.29	2616.08	2.16E+02	15.01	2.52E+00

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Summed Spectrum

Nuclide Identification Report

Sample ID: LL85301244TRU
Nuclide Library Used: C:\WAS\NLIB\LLNL.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Pulser	0.999	35.10*	100.00	2.436E+06	4.860E+06
Np-237	1.000	300.10*	6.63	6.545E+00	1.008E+00
		311.90*	38.60	4.784E+00	1.998E-01
Pu-239	1.000	413.70*	0.00	2.673E+05	7.573E+03
Pu-239A	0.995	129.29*	0.01	2.592E+05	6.502E+03
Pu-241	0.994	148.57*	0.00	5.333E+05	7.484E+04

* = Energy line found in the spectrum.
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10-05-02 5:09:20 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	23.68	1.3612E+01	5.44
3	49.89	7.9469E+01	3.52
4	59.89	2.7407E+03	0.22
5	98.84	7.2327E+01	2.35
6	104.04	2.5482E+01	4.63
7	111.34	1.9311E+01	6.37
10	208.24	3.7285E+01	2.55
11	238.83	4.8012E+00	11.72
14	332.93	8.0157E+00	6.73
15	345.10	7.6933E+00	6.48
16	375.12	2.4619E+01	2.53
17	383.00	1.2160E+00	33.04
18	393.10	9.6009E+00	4.14
20	422.68	1.2381E+00	19.81
21	451.60	3.4811E+00	7.38
22	511.07	8.1388E+00	4.07
23	583.29	3.3564E+00	6.46
24	1274.87	2.0647E+00	7.95
25	2616.08	1.8952E+00	6.94

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Combined Segment NID

NID Results Combiner Mode: Sum Activities

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		4.52E+07	+/-	2.35E+08		7.57E+02	+/-	3.94E+03
SE-75	<	1.10E-01	+/-	7.80E-03	<	1.84E-06	+/-	1.31E-07
EU-152x	<	2.42E-01	+/-	1.84E-02	<	4.05E-06	+/-	3.09E-07
U-233	<	5.28E+03	+/-	4.66E+02	<	8.84E-02	+/-	7.81E-03
U-235		5.86E-01	+/-	9.31E-02		9.82E-06	+/-	1.56E-06
Np-237		7.55E+00	+/-	3.36E-01		1.26E-04	+/-	5.64E-06
Pu-238		4.10E+03	+/-	2.30E+03		6.86E-02	+/-	3.85E-02
U-238		3.13E+00	+/-	1.13E+00		5.25E-05	+/-	1.89E-05
Pu-239		3.66E+05	+/-	1.18E+04		6.12E+00	+/-	1.97E-01
Pu-239A		4.09E+05	+/-	1.15E+04		6.85E+00	+/-	1.92E-01
Am-241		3.18E+04	+/-	7.06E+03		5.33E-01	+/-	1.18E-01
Pu-241		1.02E+06	+/-	1.20E+05		1.71E+01	+/-	2.02E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	2.72E-01	+/-	4.31E-02
Np-237	1.07E-02	+/-	4.78E-04
Pu-238	2.39E-04	+/-	1.34E-04
U-238	9.34E+00	+/-	3.37E+00
Pu-239	5.89E+00	+/-	1.89E-01
Pu-239A	6.59E+00	+/-	1.85E-01
Am-241	9.29E-03	+/-	2.06E-03
Pu-241	9.89E-03	+/-	1.16E-03

Summed Spectrum

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		2.44E+06	+/-	4.86E+06		4.08E+01	+/-	8.14E+01
SE-75	<	3.88E-01	+/-	2.74E-03	<	6.50E-06	+/-	4.59E-08
EU-152x	<	5.04E-01	+/-	7.67E-03	<	8.45E-06	+/-	1.29E-07
U-233	<	2.09E+04	+/-	3.83E+02	<	3.51E-01	+/-	6.41E-03
U-235	<	6.23E-01	+/-	1.19E-02	<	1.04E-05	+/-	1.99E-07
Np-237		4.85E+00	+/-	1.96E-01		8.13E-05	+/-	3.28E-06
Pu-238	<	4.81E+04	+/-	6.27E+02	<	8.05E-01	+/-	1.05E-02
U-238	<	1.50E+01	+/-	2.30E-01	<	2.51E-04	+/-	3.85E-06
Pu-239		2.67E+05	+/-	7.57E+03		4.48E+00	+/-	1.27E-01
Pu-239A		2.59E+05	+/-	6.50E+03		4.34E+00	+/-	1.09E-01
Am-241	<	3.72E+04	+/-	2.57E+02	<	6.23E-01	+/-	4.31E-03
Pu-241		5.33E+05	+/-	7.48E+04		8.93E+00	+/-	1.25E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
Np-237	6.89E-03	+/-	2.78E-04
Pu-239	4.30E+00	+/-	1.22E-01
Pu-239A	4.17E+00	+/-	1.05E-01
Pu-241	5.16E-03	+/-	7.24E-04

Final Non-Uniformity Results

Source Longitudinal Ratio:	0.950	+/-	10.6929
Matrix Longitudinal Ratio:	0.922	+/-	0.0518
Source Vertical Ratio:	0.702	+/-	0.3552
Matrix Vertical Ratio:	0.987	+/-	0.0291

NUDS could not find the transmission peak in one radial segment.

LAWRENCE LIVERMORE NATIONAL LABORATORY

WASTE DISPOSAL REQUISITION

W 221314

H1. Label/Waste Type:
- ☐ Non-Haz (N)
- ☐ RCRA Haz (H)
- ☐ CA Haz (C)
- ☐ NTS LLW (L)
- ☐ Low-Level (R)
- ☐ LLW Mixed (F)
- ☐ LLW Combined (S)
- ☒ TRU (T)
- ☐ TRU Mixed (X)

H2. CCC: DS

H3. Storage Restrictions
Not acceptable at the following locations:
☑ 233 ☑ 514 ☐ 612 ☐ 693 ☐ 696
CWAA ☑ 169 ☑ 361 ☐ 612-4

1. Container ID Number or Tank ID or for TRU Waste, TRU Waste Container Serial No.:
Q – LL85-301244 TRU- HVS 050702

2. Container Use/Acceptability: ☐ On-site use only; ☑ Acceptable for off-site use
Container Manufacturer Serial No./Batch No. B520483 ☐ N/A
Employee No.: 691484 Initials: WAP Date: 05-01-02

3. RMMA: ☐ Yes ☐ No

4. Waste Form: ☒ Solid ☐ Liquid ☐ Gas ☐ Sludge

H4. Hazardous Properties: ☐ Toxic ☐ Corrosive ☐ Ignitable ☐ Reactive

5. Outer Container Type: ☐ Box ☐ Sack ☐ Can ☐ SWB ☒ Carboy ☐ Tub ☒ Drum ☐ Bag ☐ Tank – Fixed ☐ Tank – Portable ☐ Transportainer
Other: _____

6. Outer Container Size/Vol:
☐ 1 gal ☒ 55 gal ☐ 67 cu ft
☐ 2 gal ☐ 85 gal ☐ 1 × 1 × 1.5
☐ 5 gal ☐ 330 gal ☐ 2 × 4 × 7
☐ 10 gal ☐ 660 gal ☐ 4 × 4 × 7
☐ 12 gal ☐ 750 gal ☐ 1 cu yd
☐ 20 gal ☐ 1000 gal ☐ 8 × 8 × 20
☐ 30 gal ☐ 5000 gal ☐ 8 × 8 × 40
Other: _____ ☐ gal
_____ ☐ cu ft

7. Building No.: 332
8. Room No.: 1378
9. Location: AT GEN
10. Workplace Start Date: 05/07/02
11. Workplace End Date: 06/06/02
12. Account No.: 5481-50
13. Directorate: DNT
14. WEF/PKE/SAW/PIW: ☐ WEF ☒ PKE ☐ SAW ☐ PIW
Specify No.: 245, 247 ☐ N/A
15. Source Code: A940
16. Inner Containers ☐ Yes ☒ No

17. Item No.	18. Spent or Unused (S/U)	19. Organic or Inorganic (O/I)	20. Waste Form (S,SL,L,G)	21. Waste Description (For multiple parcels, list Parcel Card Nos.)	22. Hazardous Constituents and Concentrations	23. Item Container Size	24. Quantity per Item Amount	Units	25. Analysis Sample No.	Physical Waste Data: 26. Aqueous Only pH	Normality	27. Flash Point
				P050597								
				P050605								
				P050604								
				P052298								

28. Does the waste contain radioactive components?
☐ Yes ☐ No ☐ To be analyzed
(If yes or TBA, complete Page 3 as applicable to waste type.)

This section (Steps 29–30) is required for Hazardous Waste generated in a RMMA

29. Was the waste kept isolated from any operation that could have produced radioactive contamination (using a glove box, vent hood, etc.)? N/A
☐ Yes ☐ No (If no, full rad analysis required)

30. Was the waste exposed to particle beams capable of inducing radioactivity by activation?
☐ Yes ☒ No (If yes, full rad analysis required)

31. ☐ Generator: I certify, to the best of my knowledge, that the information provided on this requisition is correct. I understand that I may be liable to State and Federal prosecution by intentionally providing false information. I have obtained this information by:
☐ Direct knowledge of the waste generating process ☐ Analytical Data
☐ Obtaining sufficient information from others knowledgeable of the waste generating process

☒ Container Custodian: I certify that the waste parcels identified on this form are contained in this waste container and have been packaged in accordance with the requirements specified in the appropriate LLNL TRU or Low-Level Waste Program Certification and Quality Assurance Program.

Generator or Container Custodian Name (Print – Last, First): Summers, Harry V.
Signature: Harry V. Summers
Employee No.: 000806 L-Code: 361 Ext.: 35810 Date: 06/06/02

H5. Inspected By: Signature: Employee No.: Date:

H6. Characterization Chemist Approval:
☐ Acceptable for Sampling _____ (Initials) Exempt: ☐ OP ☐ SA ☐ DE
Signature: ☐ WEF Employee No.: Date:

H7. RCA Approval: ☐ Overpack for final shipment to NTS ☐ Meets SCAL
☐ Decay Program (Initials) _____ ☐ NTS Certified (Initials) _____ ☐ WIPP Certified (Initials) _____
☐ On-site Treatment
Signature: ☐ WEF Employee No.: Date:

☐ On Hold – Pending S&A
☐ Released

31A. Gross Weight 89.8 Kg
TARE = 30.1 Kg

Radioactive page attached: ☒ Yes ☐ N/A
Continuation page(s) attached: ☐ Yes ☒ N/A

32. Waste Profile No., TRU Waste Form No., or Bin No.: 1, 2b

☐ HWM Use Only

LL-5344 (4/01)

WASTE DISPOSAL REQUISITION

REQUISITION No.: W 221314

H8.

Item	RCH Prefix	RCH	P	Origin Code	Form Code	EPA No.	DTSC No.	MSDS No.	Hazardous Properties T	C	I	R
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑
									❑	❑	❑	❑

H9. **Hazardous Appendix**
Chemist Review
SCIL (Single Container Inventory Limits) Exceeded ❑ Yes ❑ No

pH results obtained by (*Check all that apply*) ❑ N/A

❑ Meter (Calibrated) ❑ Paper ❑ MSDS ❑ Analytical

Initial: _____

Employee No. _____ Date _____

CC Rule (*VOC's greater or less than 500 ppm level 1, 2, 3*) ❑ N/A:

❑ CC/> 500/A ❑ CC/< 500/A

❑ CC/> 500/B ❑ CC/< 500/B

A = Generator Knowledge B = Analytical Data

MPC: _____

❑ WEF CC initials: _____

H10. **RCO**

❑ Req tracking:

_____ Initials _____ Date

❑ TWMS:

_____ Initials _____ Date

H11.

❑ No disposal option:

Approved Exemption Request No. _____ Date _____

H12. NORM Rad Screening Conducted

❑ Yes ❑ No N/A

Employee No.: _____ Date: _____

Background Reading:

_____ mR/hr

Reading on Item:

_____ mR/hr

H13. RMMA Certification:

Shipping Emp. #: | CC

H14. WDAR #:

WASTE DISPOSAL REQUISITION
RADIOACTIVE WASTE

REQUISITION No.: W 2 2 1 3 1 4

33. Moderators/Reflectors: Quantity of beryllium: 0 grams
Enriched in deuterium ☐ Yes ☒ No Carbon (e.g., graphite) 0 grams

34. Waste Package Seals (WPS)Applied: ☐ N/A ☒ Yes
WPS No(s): K781 L02747 TC 10/4/02

35. MBA Quantity: ☐ Yes ☐ No

Items 36 to 39 are not required if Parcel Cards were used for documentation.

36. Method(s) used to identify radionuclides and/or determine activity: (Check all that apply)

☐ Process Knowledge ☐ Mass ☐ Mass Balance ☐ Liquid Scintillation Counting
☐ Alpha Spectrometry ☐ Tritium off gas measurement ☐ See attached methodology
☐ Dose-to-Curie ☐ Gamma Spectrometry ☐ High Sensitivity Neutron Instrument
☐ Segmented Gamma Scanner ☐ Other:
☐ AVLIS Method (☐ A ☐ B ☐ C)

(Complete the following when a meter is used to determine activity)

N/A see attached parcel cards TC 10/7/02

Survey meter model: Serial Number:
Meter Reading: cpm, dpm, mR/hr (circle)
Calibration due date:
Check source jig No.: Detector response (± 30%) ☐ Satisfactory

40. Radiological Data: ☐ See attached sheet

Item	Radionuclide	Quantity	Units (Ci, g)	α / PE - Ci	Pu – Eq. gram

37. Does this waste contain any of the following?

Friable Asbestos: ☐ Yes ☐ No
PCBs: ☐ Yes ☐ No
Pyrophorics: ☐ Yes ☐ No (e.g., uranium turnings that could spontaneously combust if exposed to air)
Explosives: ☐ Yes ☐ No (e.g., TNT, PETN that exhibit explosive properties)
Chelating Agents: ☐ Yes ☐ No (e.g., Radiac Wash, >1% by weight)
Compressed Gases: ☐ Yes ☐ No (e.g., aerosol cans)
Free Liquids: ☐ Yes ☐ No
Classified Material: ☐ Yes ☐ No
Explanations/Comments:

Plutonium grades: ☒ Weapons ☐ Fuel ☐ Reactor ☐ Mixed ☐ Am enriched
☐ Enriched Uranium: ____% U-234 ____% U-235 ____% U-238

41. Weight (Note: If AVLIS Method C, mass, HSNI, SGS or activity per unit mass is used to determine the activity of the waste, a calibrated scale shall be used).
☐ Estimated Weight ☐ Weighed on Calibrated Scale Initials: _____

Gross Weight/Unit	Tare Weight/Unit	Scale Serial No.	Calibration Due Date

42. Rad. Survey (mR/hr):

βγ @ Contact	βγ @ 1 Meter	Neutron @ Contact

Swipe Data: ☐ Complies with on-site transfer requirements
☐ Complies with 10 CFR 835 criteria for unrestricted release

Performed By (print and signature):
Date: Employee No.: Ext:

Item 38 and 39 are only required for waste destined for NTS. This includes waste that will be treated prior to final disposal (e.g., LSC, and pyrophoric uranium turnings).

38. Packaging Procedure followed: ☐ WCP-8 ☐ Packaging Instruction No.:
☐ EX-404 ☐ Other (describe):

39. Verifier Certification: I verify that, to the best of my knowledge, the information supplied by the waste generator on this form is complete and accurate, and that by visual inspection the waste is accurately described.

Verifier Name (print and sign):
Employee No.: Date:

43. Container Type:
☒ DOT Type A
☐ DOT Type B
☐ Other

H15. Radiological Appendix:
☐ Liquid waste containing >1 Ci of Pu-Equivalent activity
☐ Contains > 10 grams fissionable material
RCA Initials:

```
*************************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E        *****
*************************************************************************
```

Last Results Report
10-05-02 6:31:03 PM

QA File: C:\WAS\CTRS\CTR1\ARR1\T11_BCK.QA
Sample ID: B1069
Sample Quantity: 1.0000E+00
Sample Date: 10-05-02 6:25:19 PM
Measurement Date: 10-05-02 6:28:46 PM
Elapsed Live Time: 100.0 seconds
Elapsed Real Time: 115.9 seconds

Parameter Description [Mean +/- Std. Dev.]	Value	Deviation/Flags	< LU : SD : UD : BS >
400.6 keV Centroid [0.00+/-0.00]	8.0198E+02	0.00	< : : : >
400.6 keV FWHM [0.00+/-0.00]	1.6329E+00	0.00	< : : : >
Peak centroid 136 KeV [0.00+/-0.00]	2.7266E+02	0.00	< : : : >
Peak area 400 keV [0.00+/-0.00]	7.0755E+04	0.00	< : : : >
Peak counts/second [0.00+/-0.00]	7.0755E+02	0.00	< : : : >

Flags Key: LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-SIgma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)


```
*************************************************************************
*****        G E N I E   Q U A L I T Y   A S S U R A N C E        *****
*************************************************************************
```

Last Results Report
10-05-02 6:31:10 PM

QA File: C:\WAS\CTRS\CTR1\ARR1\S11_BCK.QA
Sample ID: B1069
Sample Quantity: 1.0000E+00
Sample Date: 10-05-02 6:25:19 PM
Measurement Date: 10-05-02 6:25:18 PM
Elapsed Live Time: 200.0 seconds
Elapsed Real Time: 201.9 seconds

Parameter Description	Value	Deviation/Flags

[Mean +/- Std. Dev.]		< LU : SD : UD : BS >
Ref. Peak	3.5198E+01	0.00
[0.00+/-0.00]		< : : : >
Upper CPS Reg	3.3465E+01	0.00
[0.00+/-0.00]		< : : : >
Peak counts/second	1.0084E+03	0.00
[0.00+/-0.00]		< : : : >
Pulser FWHM	1.2461E+00	0.00
[0.00+/-0.00]		< : : : >

Flags Key:
LU = Lower/Upper Bounds Test (Ab = Above, Be = Below)
SD = Sample Driven N-Sigma Test (In = Investigate, Ac = Action)
UD = User Driven N-SIgma Test (In = Investigate, Ac = Action)
BS = Measurement Bias Test (In = Investigate, Ac = Action)

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*********************************************************************
*****                    M G A   R E P O R T                    *****
*********************************************************************
```

Report generated on: 10-05-02 7:32:54 PM

MGA version: MGA V9.5 CI

Spectrum ID: 11201070.CNF Sens : 30.0% LT: 46.9 Mins DT: 16.27
Measurement date: 10-05-02 Declared date: 10-05-02

Sample ID: S1001070 Detector: Total counts: 1.363E+07

Pu g/cm2 = 0.8140 Cd g/cm2 = 1.7973 FWHM at 122 keV = 638 eV
QFIT = 1.07 FWHM at 208 keV = 807 eV
NQFIT = 1.00

Isotope	Relative to Pu-239	%* Err	% Err	Relative to Pu-241	%* Err	Isotope analysis at Meas. date % weight	%Err	Decl. date % weight	%Err
Pu-238	0.000086	6.5	6.5	0.0347	6.5	0.00805	6.52	0.00805	6.52
Pu-239	1.000000	0.0	0.3	405.5700	0.5	94.11958	0.04	94.11958	0.04
Pu-240	0.059598	0.8	0.8	24.1710	0.8	5.60931	0.75	5.60931	0.75
Pu-241	0.002466	0.5	0.4	1.0000	0.0	0.23207	0.50	0.23207	0.50
Pu-242	(New alg.	)		0.1335	(10)	0.03099	(10)	0.03099	(10)
Am-241	0.004760	0.4	0.3	1.9306	0.5	0.44803	0.42	0.44803	0.42

Pu-240 effective (meas. date) = 5.682 +/- 0.81%
Am-241 separated about 22.250 +/- 0.134 years ago
Am/Pu-241 weight ratio = 1.93059 +/- 0.53%

Messages :

Lead x-rays detected.
Calculations in MGAABS didn't converge : results may be suspect.
17 MGA parameter(s) defaulted, starting from parameter 8.

Notes : * = Error in ratio
1.000 sigma errors

Gamma Waste Assay

Sample Information

File Name: C:\WAS\DATA\1100\11101070.S11
Sample ID: S1001070 Count Sequence Number: 1070
Assay Start: 10-05-02 6:36:11 PM
Description 1: 100G SOURCE DRUM
Description 2: 2002-13
Location: 7715
Comment:
Waste Type:
Weight: Gross: 54000.0 g Net: 22200.0 g
Density: 0.107 g /ml

Container Type: 55 Gal Galv
Container: Volume: 208000. ml Full: 100.0 %

System Configuration

Counter ID Number: SGS
Arrangement Description: SGS
Segments: Number: 16 Offset: 0
Scanning Platform: Start: 934 mm Delta: -51 mm
Count Type: Daily 100g Drum Check
Collimator/Geometry Setting: 0
Transmission Mode: Two pass
Transmission Source: 0

Errors quoted at 1.000 sigma
Reference Source Date: Reference Source Rate: 1.01E+03 cps
Geometric Correction Factor(SWCONTGCF): 0.760
Date of efficiency calibration approval: 4-16-2002 3:26:49 PM
Mu Factors response file: Lucite
Transmission Calib. Time: 4-16-2002 8:52:25 AM 315551

Reviewed by: _____ Date: _____

Segment Results

Segment: 1 Detector: DET01 (# 1) Position: 1

Elapsed Live Time: 113.13 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.329 +/- 0.0100
SE-75	264.65	0.000 +/- 0.0000	0.425 +/- 0.0031
SE-75	279.53	0.000 +/- 0.0000	0.438 +/- 0.0037
SE-75	400.65	0.000 +/- 0.0000	0.484 +/- 0.0046

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.79E+00	1.94E+00	2.61E-06 +/- 1.64E-05
2	49.05	5.38E+00 +/- 7.05E-01	1.71E+00	1.68E-05 +/- 5.35E-05
3	57.38	1.80E+01 +/- 1.02E+00	1.65E+00	3.26E-05 +/- 7.09E-05
4	59.79	1.63E+01 +/- 8.64E-01	1.63E+00	3.80E-05 +/- 7.42E-05
5	67.39	2.85E+00 +/- 4.04E-01	1.60E+00	5.68E-05 +/- 7.90E-05
6	300.10	3.84E-01 +/- 2.22E-01	1.34E+00	2.04E-04 +/- 1.08E-05
7	400.66	1.24E-01 +/- 5.81E-02	1.30E+00	1.69E-04 +/- 1.25E-05
8	413.70	9.83E-02 +/- 4.88E-02	1.30E+00	1.65E-04 +/- 1.27E-05
9	1408.01	2.04E-02 +/- 1.87E-02	1.15E+00	6.19E-05 +/- 4.71E-06

Segment: 2 Detector: DET01 (# 1) Position: 2

Elapsed Live Time: 112.87 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.345 +/- 0.0107
SE-75	264.65	0.000 +/- 0.0000	0.484 +/- 0.0034
SE-75	279.53	0.000 +/- 0.0000	0.491 +/- 0.0041
SE-75	400.65	0.000 +/- 0.0000	0.549 +/- 0.0050

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.58	1.80E+00 +/- 2.79E-01	2.56E+00	7.37E-10 +/- 6.85E-09
2	35.10	1.01E+03 +/- 4.79E+00	1.90E+00	2.21E-07 +/- 1.06E-06
3	59.94	5.97E+01 +/- 1.19E+00	1.60E+00	2.28E-05 +/- 3.38E-05
4	67.56	2.57E+00 +/- 4.46E-01	1.57E+00	4.42E-05 +/- 4.67E-05
5	279.54	3.55E-01 +/- 2.00E-01	1.29E+00	3.43E-04 +/- 1.77E-05
6	300.10	4.07E-01 +/- 2.18E-01	1.29E+00	3.27E-04 +/- 1.48E-05
7	443.98	8.95E-02 +/- 5.38E-02	1.23E+00	2.36E-04 +/- 1.45E-05
8	778.90	8.78E-03 +/- 1.60E-02	1.17E+00	1.44E-04 +/- 6.92E-06
9	964.13	8.78E-03 +/- 8.78E-03	1.15E+00	1.23E-04 +/- 5.48E-06
10	1085.91	8.78E-03 +/- 8.78E-03	1.14E+00	1.13E-04 +/- 4.92E-06

Segment: 3 Detector: DET01 (# 1) Position: 3

Elapsed Live Time: 111.87 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.315 +/- 0.0105
SE-75	264.65	0.000 +/- 0.0000	0.448 +/- 0.0032
SE-75	279.53	0.000 +/- 0.0000	0.457 +/- 0.0039
SE-75	400.65	0.000 +/- 0.0000	0.516 +/- 0.0048

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.63	3.69E+00 +/- 3.84E-01	2.72E+00	1.36E-08 +/- 1.30E-07
2	35.10	1.01E+03 +/- 4.82E+00	1.98E+00	1.07E-06 +/- 5.27E-06
3	59.85	1.48E+02 +/- 1.69E+00	1.66E+00	3.87E-05 +/- 5.92E-05
4	67.61	5.66E+00 +/- 5.62E-01	1.62E+00	6.57E-05 +/- 7.11E-05
5	75.22	1.81E+00 +/- 6.50E-01	1.60E+00	9.70E-05 +/- 7.46E-05
6	98.90	1.28E+01 +/- 9.53E-01	1.55E+00	2.01E-04 +/- 4.73E-05
7	103.58	4.86E+00 +/- 9.14E-01	1.54E+00	2.20E-04 +/- 3.91E-05
8	111.44	2.01E+00 +/- 7.83E-01	1.53E+00	2.49E-04 +/- 2.63E-05
9	129.29	6.76E+00 +/- 6.47E-01	1.51E+00	3.02E-04 +/- 1.84E-05
10	185.71	9.97E-01 +/- 5.21E-01	1.43E+00	3.67E-04 +/- 4.05E-05
11	203.53	1.16E+00 +/- 4.53E-01	1.40E+00	3.67E-04 +/- 3.75E-05
12	208.19	6.95E+00 +/- 5.17E-01	1.40E+00	3.66E-04 +/- 3.64E-05
13	332.76	2.39E+00 +/- 3.56E-01	1.30E+00	3.00E-04 +/- 1.35E-05
14	345.01	2.72E+00 +/- 3.19E-01	1.30E+00	2.93E-04 +/- 1.36E-05
15	375.02	6.15E+00 +/- 3.24E-01	1.28E+00	2.76E-04 +/- 1.43E-05
16	392.82	1.95E+00 +/- 2.02E-01	1.28E+00	2.67E-04 +/- 1.48E-05
17	413.70	5.77E+00 +/- 2.58E-01	1.27E+00	2.57E-04 +/- 1.52E-05
18	422.59	2.70E-01 +/- 9.71E-02	1.27E+00	2.53E-04 +/- 1.53E-05
19	451.39	8.16E-01 +/- 1.13E-01	1.26E+00	2.40E-04 +/- 1.54E-05
20	662.42	3.12E-01 +/- 6.56E-02	1.21E+00	1.78E-04 +/- 1.02E-05
21	1085.91	8.85E-03 +/- 8.85E-03	1.16E+00	1.23E-04 +/- 5.23E-06
22	1112.12	8.85E-03 +/- 8.85E-03	1.15E+00	1.21E-04 +/- 5.09E-06
23	1408.01	1.77E-02 +/- 1.25E-02	1.14E+00	1.03E-04 +/- 6.77E-06

Segment: 4 Detector: DET01 (# 1) Position: 4

Elapsed Live Time: 105.04 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.369 +/- 0.0123
SE-75	264.65	0.000 +/- 0.0000	0.514 +/- 0.0037
SE-75	279.53	0.000 +/- 0.0000	0.519 +/- 0.0045
SE-75	400.65	0.000 +/- 0.0000	0.577 +/- 0.0054

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.62	1.68E+01	+/-	7.95E-01	2.44E+00	3.65E-06	+/-	5.02E-06
2	35.10	1.01E+03	+/-	4.98E+00	1.83E+00	2.00E-05	+/-	1.66E-05
3	49.87	3.45E+01	+/-	1.66E+00	1.62E+00	6.24E-05	+/-	2.99E-05
4	59.79	1.19E+03	+/-	5.91E+00	1.56E+00	9.90E-05	+/-	3.39E-05
5	67.38	7.54E+00	+/-	8.85E-01	1.53E+00	1.29E-04	+/-	3.44E-05
6	75.25	6.15E+00	+/-	1.05E+00	1.51E+00	1.59E-04	+/-	3.31E-05
7	98.89	1.48E+02	+/-	2.24E+00	1.46E+00	2.40E-04	+/-	2.42E-05
8	103.56	8.24E+01	+/-	2.23E+00	1.46E+00	2.54E-04	+/-	2.23E-05
9	111.30	2.44E+01	+/-	1.62E+00	1.45E+00	2.74E-04	+/-	1.97E-05
10	117.24	1.34E+01	+/-	1.24E+00	1.44E+00	2.88E-04	+/-	1.80E-05
11	129.29	9.85E+01	+/-	1.42E+00	1.43E+00	3.12E-04	+/-	1.61E-05
12	146.26	2.03E+01	+/-	1.07E+00	1.41E+00	3.38E-04	+/-	1.61E-05
13	148.57	1.31E+01	+/-	9.03E-01	1.41E+00	3.40E-04	+/-	1.63E-05
14	160.97	1.88E+00	+/-	9.21E-01	1.39E+00	3.53E-04	+/-	1.73E-05
15	164.84	2.99E+00	+/-	9.07E-01	1.38E+00	3.56E-04	+/-	1.76E-05
16	171.51	5.00E+00	+/-	8.45E-01	1.37E+00	3.60E-04	+/-	1.81E-05
17	189.55	2.75E+00	+/-	7.50E-01	1.35E+00	3.68E-04	+/-	1.91E-05
18	195.76	5.13E+00	+/-	8.69E-01	1.34E+00	3.69E-04	+/-	1.93E-05
19	208.15	1.05E+02	+/-	1.46E+00	1.33E+00	3.71E-04	+/-	1.94E-05
20	244.70	2.56E+00	+/-	6.05E-01	1.29E+00	3.65E-04	+/-	1.85E-05
21	255.44	3.64E+00	+/-	6.38E-01	1.28E+00	3.62E-04	+/-	1.80E-05
22	267.51	4.30E+00	+/-	4.58E-01	1.27E+00	3.58E-04	+/-	1.73E-05
23	297.48	2.88E+00	+/-	5.53E-01	1.26E+00	3.45E-04	+/-	1.56E-05
24	311.90	2.57E+00	+/-	5.60E-01	1.26E+00	3.38E-04	+/-	1.48E-05
25	323.88	4.40E+00	+/-	5.72E-01	1.25E+00	3.32E-04	+/-	1.42E-05
26	332.73	2.79E+01	+/-	9.01E-01	1.25E+00	3.28E-04	+/-	1.37E-05
27	335.90	3.74E+00	+/-	6.91E-01	1.25E+00	3.26E-04	+/-	1.36E-05
28	345.07	2.98E+01	+/-	6.61E-01	1.24E+00	3.21E-04	+/-	1.32E-05
29	368.28	1.35E+01	+/-	5.51E-01	1.23E+00	3.10E-04	+/-	1.23E-05
30	375.08	7.27E+01	+/-	1.08E+00	1.23E+00	3.06E-04	+/-	1.21E-05
31	382.88	6.56E+00	+/-	5.15E-01	1.23E+00	3.02E-04	+/-	1.18E-05
32	392.90	2.73E+01	+/-	5.98E-01	1.23E+00	2.98E-04	+/-	1.16E-05
33	413.70	7.62E+01	+/-	9.28E-01	1.22E+00	2.87E-04	+/-	1.11E-05
34	422.63	4.00E+00	+/-	3.58E-01	1.22E+00	2.83E-04	+/-	1.10E-05
35	451.47	8.32E+00	+/-	3.41E-01	1.21E+00	2.70E-04	+/-	1.06E-05
36	618.84	6.39E-01	+/-	1.19E-01	1.18E+00	2.07E-04	+/-	9.44E-06
37	645.76	4.10E-01	+/-	1.00E-01	1.17E+00	1.99E-04	+/-	9.20E-06
38	662.42	3.90E+00	+/-	2.14E-01	1.17E+00	1.95E-04	+/-	9.03E-06
39	688.65	2.42E-01	+/-	8.96E-02	1.17E+00	1.88E-04	+/-	8.75E-06
40	721.92	1.68E+00	+/-	1.48E-01	1.16E+00	1.80E-04	+/-	8.37E-06
41	769.09	5.67E-01	+/-	8.26E-02	1.16E+00	1.69E-04	+/-	7.78E-06
42	1408.01	9.37E-03	+/-	9.37E-03	1.11E+00	9.34E-05	+/-	5.87E-06

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Corrected Peak Count Rate (CpS)

Segment: 5 Detector: DET01 (# 1) Position: 5

Elapsed Live Time: 93.94 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.193 +/- 0.0018
SE-75	279.53	0.000 +/- 0.0000	0.219 +/- 0.0026
SE-75	400.65	0.000 +/- 0.0000	0.347 +/- 0.0040

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.54	3.40E+01 +/- 1.23E+00	4.10E+00	1.92E-06 +/- 2.74E-06
2	35.10	1.01E+03 +/- 5.26E+00	4.10E+00	1.48E-05 +/- 1.27E-05
3	49.75	8.96E+01 +/- 2.70E+00	4.10E+00	5.52E-05 +/- 2.73E-05
4	59.65	3.50E+03 +/- 1.55E+01	4.10E+00	9.35E-05 +/- 3.30E-05
5	67.24	1.24E+01 +/- 1.29E+00	4.10E+00	1.26E-04 +/- 3.45E-05
6	75.04	1.27E+01 +/- 1.53E+00	4.10E+00	1.59E-04 +/- 3.39E-05
7	98.77	3.70E+02 +/- 3.75E+00	4.10E+00	2.49E-04 +/- 2.52E-05
8	103.42	2.23E+02 +/- 3.36E+00	4.10E+00	2.64E-04 +/- 2.33E-05
9	111.15	5.54E+01 +/- 2.55E+00	4.10E+00	2.86E-04 +/- 2.04E-05
10	114.50	7.80E+00 +/- 2.53E+00	4.10E+00	2.95E-04 +/- 1.94E-05
11	116.90	3.53E+01 +/- 1.96E+00	4.10E+00	3.00E-04 +/- 1.87E-05
12	129.29	2.25E+02 +/- 2.39E+00	4.10E+00	3.26E-04 +/- 1.67E-05
13	146.33	4.17E+00 +/- 1.17E+00	3.26E+00	3.52E-04 +/- 1.70E-05
14	148.57	3.77E+01 +/- 1.54E+00	3.16E+00	3.54E-04 +/- 1.71E-05
15	160.81	4.92E+00 +/- 1.43E+00	2.78E+00	3.65E-04 +/- 1.83E-05
16	164.61	7.14E+00 +/- 1.18E+00	2.70E+00	3.68E-04 +/- 1.86E-05
17	171.26	1.30E+01 +/- 1.29E+00	2.57E+00	3.71E-04 +/- 1.92E-05
18	179.07	8.88E+00 +/- 1.14E+00	2.45E+00	3.74E-04 +/- 1.97E-05
19	189.22	8.58E+00 +/- 1.06E+00	2.32E+00	3.76E-04 +/- 2.02E-05
20	195.66	1.13E+01 +/- 1.25E+00	2.24E+00	3.76E-04 +/- 2.03E-05
21	207.96	2.17E+02 +/- 2.44E+00	2.12E+00	3.75E-04 +/- 2.04E-05
22	244.70	2.70E+00 +/- 8.78E-01	1.86E+00	3.63E-04 +/- 1.90E-05

23	255.31	1.07E+01	+/-	8.49E-01	1.80E+00	3.58E-04	+/-	1.84E-05
24	267.52	8.60E+00	+/-	6.49E-01	1.74E+00	3.52E-04	+/-	1.76E-05
25	297.38	5.65E+00	+/-	7.61E-01	1.64E+00	3.35E-04	+/-	1.57E-05
26	311.90	6.18E+00	+/-	7.75E-01	1.61E+00	3.26E-04	+/-	1.48E-05
27	320.61	3.92E+00	+/-	7.51E-01	1.59E+00	3.21E-04	+/-	1.43E-05
28	323.51	4.61E+00	+/-	6.20E-01	1.59E+00	3.19E-04	+/-	1.41E-05
29	332.64	5.41E+01	+/-	1.36E+00	1.57E+00	3.14E-04	+/-	1.36E-05
30	344.90	6.26E+01	+/-	1.00E+00	1.55E+00	3.07E-04	+/-	1.30E-05
31	368.16	2.63E+01	+/-	8.45E-01	1.51E+00	2.93E-04	+/-	1.21E-05
32	374.93	1.75E+02	+/-	1.69E+00	1.49E+00	2.90E-04	+/-	1.18E-05
33	382.71	1.70E+01	+/-	8.99E-01	1.48E+00	2.85E-04	+/-	1.16E-05
34	392.80	6.16E+01	+/-	9.39E-01	1.47E+00	2.80E-04	+/-	1.13E-05
35	400.66	8.42E-01	+/-	4.42E-01	1.46E+00	2.76E-04	+/-	1.11E-05
36	413.70	1.65E+02	+/-	1.52E+00	1.45E+00	2.69E-04	+/-	1.09E-05
37	422.42	9.89E+00	+/-	5.32E-01	1.44E+00	2.65E-04	+/-	1.07E-05
38	451.29	1.90E+01	+/-	5.48E-01	1.43E+00	2.51E-04	+/-	1.03E-05
39	618.77	1.78E+00	+/-	1.93E-01	1.36E+00	1.90E-04	+/-	9.15E-06
40	645.67	1.09E+00	+/-	1.80E-01	1.35E+00	1.83E-04	+/-	8.92E-06
41	651.92	1.14E+00	+/-	1.65E-01	1.35E+00	1.81E-04	+/-	8.87E-06
42	662.42	6.62E+00	+/-	2.98E-01	1.35E+00	1.79E-04	+/-	8.77E-06

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Corrected Peak Count Rate (CpS)
43	688.64	5.83E-01 +/- 1.30E-01	1.34E+00	1.72E-04 +/- 8.51E-06
44	721.64	4.08E+00 +/- 2.26E-01	1.33E+00	1.65E-04 +/- 8.16E-06
45	778.90	8.80E-02 +/- 4.12E-02	1.31E+00	1.54E-04 +/- 7.51E-06
46	867.39	8.92E-02 +/- 3.74E-02	1.29E+00	1.40E-04 +/- 6.44E-06
47	1112.12	6.96E-02 +/- 3.56E-02	1.25E+00	1.14E-04 +/- 4.26E-06
48	1408.01	3.08E-02 +/- 2.36E-02	1.22E+00	9.75E-05 +/- 6.10E-06

Segment: 6 Detector: DET01 (# 1) Position: 6

Elapsed Live Time: 92.25 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.181 +/- 0.0018
SE-75	279.53	0.000 +/- 0.0000	0.202 +/- 0.0025
SE-75	400.65	0.000 +/- 0.0000	0.326 +/- 0.0039

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	21.42	1.19E+01 +/- 1.05E+00	4.10E+00	3.85E-07 +/- 5.97E-07
2	23.51	2.50E+01 +/- 1.16E+00	4.10E+00	7.41E-07 +/- 1.03E-06
3	35.10	1.01E+03 +/- 5.29E+00	4.10E+00	8.04E-06 +/- 6.71E-06
4	49.74	1.07E+02 +/- 2.88E+00	4.10E+00	3.72E-05 +/- 1.80E-05
5	59.65	3.64E+03 +/- 1.62E+01	4.10E+00	6.92E-05 +/- 2.40E-05
6	67.36	1.43E+01 +/- 1.36E+00	4.10E+00	9.84E-05 +/- 2.65E-05
7	75.15	1.74E+01 +/- 1.74E+00	4.10E+00	1.30E-04 +/- 2.73E-05
8	98.76	3.57E+02 +/- 4.14E+00	4.10E+00	2.22E-04 +/- 2.25E-05
9	103.43	2.51E+02 +/- 3.56E+00	4.10E+00	2.38E-04 +/- 2.11E-05
10	111.10	5.83E+01 +/- 2.71E+00	4.10E+00	2.63E-04 +/- 1.90E-05
11	114.41	1.37E+01 +/- 2.67E+00	4.10E+00	2.72E-04 +/- 1.82E-05
12	116.98	3.80E+01 +/- 2.08E+00	4.10E+00	2.80E-04 +/- 1.77E-05
13	129.29	2.50E+02 +/- 2.57E+00	4.10E+00	3.10E-04 +/- 1.61E-05
14	144.10	2.24E+00 +/- 1.23E+00	3.40E+00	3.38E-04 +/- 1.63E-05
15	146.33	6.67E+00 +/- 1.23E+00	3.29E+00	3.42E-04 +/- 1.65E-05
16	148.57	4.39E+01 +/- 1.62E+00	3.20E+00	3.45E-04 +/- 1.67E-05

17	160.84	3.56E+00	+/-	1.51E+00	2.82E+00	3.60E-04	+/-	1.78E-05
18	164.57	7.82E+00	+/-	1.24E+00	2.74E+00	3.64E-04	+/-	1.82E-05
19	171.46	1.24E+01	+/-	1.25E+00	2.61E+00	3.69E-04	+/-	1.88E-05
20	179.07	6.28E+00	+/-	1.20E+00	2.49E+00	3.74E-04	+/-	1.93E-05
21	189.25	1.10E+01	+/-	1.12E+00	2.35E+00	3.78E-04	+/-	1.99E-05
22	195.58	1.17E+01	+/-	1.21E+00	2.28E+00	3.80E-04	+/-	2.01E-05
23	207.93	2.45E+02	+/-	2.61E+00	2.16E+00	3.81E-04	+/-	2.03E-05
24	255.34	1.12E+01	+/-	9.06E-01	1.83E+00	3.69E-04	+/-	1.86E-05
25	267.48	1.05E+01	+/-	6.87E-01	1.77E+00	3.63E-04	+/-	1.78E-05
26	297.38	5.85E+00	+/-	7.99E-01	1.68E+00	3.47E-04	+/-	1.59E-05
27	311.90	7.80E+00	+/-	8.23E-01	1.65E+00	3.39E-04	+/-	1.51E-05
28	320.76	6.87E+00	+/-	9.03E-01	1.63E+00	3.34E-04	+/-	1.46E-05
29	323.66	3.81E+00	+/-	5.94E-01	1.62E+00	3.32E-04	+/-	1.44E-05
30	332.64	6.33E+01	+/-	1.45E+00	1.61E+00	3.27E-04	+/-	1.39E-05
31	344.86	7.19E+01	+/-	1.08E+00	1.58E+00	3.19E-04	+/-	1.33E-05
32	368.37	3.03E+01	+/-	8.81E-01	1.54E+00	3.06E-04	+/-	1.23E-05
33	374.89	1.96E+02	+/-	1.83E+00	1.53E+00	3.02E-04	+/-	1.21E-05
34	382.66	1.91E+01	+/-	9.48E-01	1.51E+00	2.98E-04	+/-	1.19E-05
35	392.75	7.02E+01	+/-	1.03E+00	1.50E+00	2.92E-04	+/-	1.16E-05
36	400.66	1.23E+00	+/-	4.82E-01	1.49E+00	2.88E-04	+/-	1.14E-05
37	413.70	1.87E+02	+/-	1.64E+00	1.48E+00	2.81E-04	+/-	1.11E-05
38	422.44	1.02E+01	+/-	5.72E-01	1.47E+00	2.76E-04	+/-	1.09E-05
39	443.98	5.83E-01	+/-	3.26E-01	1.46E+00	2.65E-04	+/-	1.06E-05
40	451.31	2.21E+01	+/-	5.92E-01	1.46E+00	2.62E-04	+/-	1.05E-05
41	460.82	4.55E-01	+/-	2.06E-01	1.45E+00	2.57E-04	+/-	1.04E-05
42	481.63	7.29E-01	+/-	2.28E-01	1.44E+00	2.48E-04	+/-	1.02E-05

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Corrected Peak Count Rate (CpS)
43	618.69	2.17E+00 +/- 1.83E-01	1.38E+00	1.98E-04 +/- 9.17E-06
44	639.97	8.81E-01 +/- 2.04E-01	1.38E+00	1.92E-04 +/- 8.98E-06
45	645.72	9.81E-01 +/- 1.97E-01	1.37E+00	1.91E-04 +/- 8.93E-06
46	652.10	1.50E+00 +/- 2.04E-01	1.37E+00	1.89E-04 +/- 8.87E-06
47	662.42	7.43E+00 +/- 3.10E-01	1.37E+00	1.86E-04 +/- 8.77E-06
48	688.63	7.34E-01 +/- 1.45E-01	1.36E+00	1.80E-04 +/- 8.51E-06
49	721.84	4.07E+00 +/- 2.43E-01	1.35E+00	1.72E-04 +/- 8.15E-06
50	756.13	4.22E-01 +/- 9.35E-02	1.34E+00	1.65E-04 +/- 7.75E-06
51	769.17	1.21E+00 +/- 1.33E-01	1.34E+00	1.63E-04 +/- 7.60E-06
52	1001.03	4.15E-02 +/- 2.08E-02	1.29E+00	1.30E-04 +/- 4.95E-06

Segment: 7 Detector: DET01 (# 1) Position: 7

Elapsed Live Time: 98.58 sec Elapsed Real Time: 115.00 sec

Analysis Warnings:
Minimum transmission used.

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.005 +/- 0.0025
SE-75	264.65	0.000 +/- 0.0000	0.232 +/- 0.0020
SE-75	279.53	0.000 +/- 0.0000	0.252 +/- 0.0028
SE-75	400.65	0.000 +/- 0.0000	0.362 +/- 0.0040

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.57	2.25E+01 +/- 1.03E+00	4.10E+00	8.98E-09 +/- 8.59E-08
2	35.10	1.01E+03 +/- 5.17E+00	4.10E+00	9.59E-07 +/- 4.73E-06
3	49.82	8.86E+01 +/- 2.57E+00	4.10E+00	1.48E-05 +/- 3.56E-05
4	59.67	2.76E+03 +/- 1.24E+01	4.10E+00	4.04E-05 +/- 6.23E-05
5	67.28	9.43E+00 +/- 1.14E+00	4.10E+00	6.94E-05 +/- 7.62E-05
6	75.04	1.01E+01 +/- 1.34E+00	4.10E+00	1.05E-04 +/- 8.11E-05
7	98.82	2.59E+02 +/- 3.08E+00	4.10E+00	2.21E-04 +/- 5.18E-05
8	103.47	1.50E+02 +/- 2.96E+00	4.10E+00	2.41E-04 +/- 4.28E-05
9	111.24	4.08E+01 +/- 2.12E+00	4.10E+00	2.73E-04 +/- 2.88E-05
10	117.09	2.24E+01 +/- 1.61E+00	4.10E+00	2.94E-04 +/- 2.09E-05
11	129.29	1.73E+02 +/- 1.89E+00	4.10E+00	3.30E-04 +/- 1.98E-05
12	144.16	3.69E+00 +/- 1.17E+00	3.27E+00	3.61E-04 +/- 3.18E-05

13	148.57	3.15E+01	+/-	1.25E+00	3.05E+00	3.68E-04	+/-	3.49E-05
14	164.73	6.31E+00	+/-	9.93E-01	2.58E+00	3.86E-04	+/-	4.19E-05
15	171.45	8.91E+00	+/-	1.03E+00	2.45E+00	3.90E-04	+/-	4.31E-05
16	179.62	4.24E+00	+/-	9.80E-01	2.32E+00	3.93E-04	+/-	4.34E-05
17	189.40	7.39E+00	+/-	9.03E-01	2.20E+00	3.94E-04	+/-	4.25E-05
18	195.78	9.04E+00	+/-	1.06E+00	2.13E+00	3.94E-04	+/-	4.14E-05
19	208.02	1.66E+02	+/-	1.85E+00	2.01E+00	3.91E-04	+/-	3.84E-05
20	244.70	1.39E+00	+/-	6.27E-01	1.76E+00	3.73E-04	+/-	2.70E-05
21	255.36	7.60E+00	+/-	7.19E-01	1.70E+00	3.66E-04	+/-	2.40E-05
22	267.62	5.68E+00	+/-	5.43E-01	1.65E+00	3.58E-04	+/-	2.09E-05
23	297.29	3.88E+00	+/-	6.54E-01	1.58E+00	3.37E-04	+/-	1.59E-05
24	311.90	3.85E+00	+/-	6.56E-01	1.56E+00	3.27E-04	+/-	1.48E-05
25	320.70	1.19E+00	+/-	6.81E-01	1.54E+00	3.22E-04	+/-	1.45E-05
26	323.70	3.24E+00	+/-	5.67E-01	1.54E+00	3.20E-04	+/-	1.44E-05
27	332.66	3.74E+01	+/-	1.10E+00	1.53E+00	3.14E-04	+/-	1.44E-05
28	345.02	4.43E+01	+/-	8.27E-01	1.51E+00	3.06E-04	+/-	1.46E-05
29	368.22	1.89E+01	+/-	7.23E-01	1.48E+00	2.92E-04	+/-	1.52E-05
30	374.98	1.20E+02	+/-	1.35E+00	1.47E+00	2.88E-04	+/-	1.54E-05
31	379.98	1.47E+00	+/-	8.81E-01	1.46E+00	2.85E-04	+/-	1.56E-05
32	382.77	1.09E+01	+/-	7.34E-01	1.46E+00	2.83E-04	+/-	1.56E-05
33	392.81	4.40E+01	+/-	7.76E-01	1.44E+00	2.78E-04	+/-	1.59E-05
34	400.66	6.90E-01	+/-	3.85E-01	1.44E+00	2.74E-04	+/-	1.60E-05
35	413.70	1.12E+02	+/-	1.20E+00	1.43E+00	2.67E-04	+/-	1.63E-05
36	422.45	5.91E+00	+/-	4.50E-01	1.42E+00	2.62E-04	+/-	1.63E-05
37	451.40	1.34E+01	+/-	4.39E-01	1.41E+00	2.49E-04	+/-	1.63E-05
38	598.19	3.77E-01	+/-	1.07E-01	1.35E+00	1.98E-04	+/-	1.27E-05
39	618.55	1.14E+00	+/-	1.51E-01	1.35E+00	1.92E-04	+/-	1.20E-05
40	645.74	4.96E-01	+/-	1.43E-01	1.34E+00	1.86E-04	+/-	1.11E-05
41	662.42	5.57E+00	+/-	2.70E-01	1.33E+00	1.82E-04	+/-	1.06E-05
42	688.95	5.35E-01	+/-	1.11E-01	1.32E+00	1.76E-04	+/-	9.88E-06

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Corrected Peak Count Rate (CpS)
43	721.89	2.17E+00 +/- 1.82E-01	1.32E+00	1.70E-04 +/- 9.04E-06
44	736.89	1.10E-01 +/- 5.21E-02	1.31E+00	1.67E-04 +/- 8.70E-06
45	1085.91	7.01E-02 +/- 2.65E-02	1.25E+00	1.23E-04 +/- 5.27E-06

Segment: 8 Detector: DET01 (# 1) Position: 8

Elapsed Live Time: 108.01 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.274 +/- 0.0110
SE-75	264.65	0.000 +/- 0.0000	0.467 +/- 0.0034
SE-75	279.53	0.000 +/- 0.0000	0.473 +/- 0.0041
SE-75	400.65	0.000 +/- 0.0000	0.539 +/- 0.0051

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	23.74	9.51E+00 +/- 6.14E-01	2.96E+00	5.92E-09 +/- 5.56E-08
2	35.10	1.01E+03 +/- 4.91E+00	2.13E+00	6.89E-07 +/- 3.37E-06
3	49.81	3.39E+01 +/- 1.62E+00	1.84E+00	1.18E-05 +/- 2.83E-05
4	59.82	9.28E+02 +/- 4.86E+00	1.75E+00	3.41E-05 +/- 5.19E-05
5	67.56	7.01E+00 +/- 7.40E-01	1.71E+00	6.01E-05 +/- 6.49E-05
6	98.92	8.28E+01 +/- 1.72E+00	1.62E+00	1.99E-04 +/- 4.64E-05
7	103.51	6.32E+01 +/- 1.22E+00	1.62E+00	2.18E-04 +/- 3.87E-05
8	111.38	1.54E+01 +/- 1.17E+00	1.60E+00	2.49E-04 +/- 2.62E-05
9	117.06	8.35E+00 +/- 9.23E-01	1.59E+00	2.69E-04 +/- 1.94E-05
10	129.29	5.77E+01 +/- 1.08E+00	1.58E+00	3.05E-04 +/- 1.85E-05
11	148.57	1.17E+01 +/- 7.82E-01	1.54E+00	3.45E-04 +/- 3.27E-05
12	160.89	1.50E+00 +/- 7.73E-01	1.51E+00	3.60E-04 +/- 3.85E-05
13	164.77	1.15E+00 +/- 7.06E-01	1.50E+00	3.64E-04 +/- 3.97E-05
14	171.90	3.27E+00 +/- 7.24E-01	1.48E+00	3.69E-04 +/- 4.10E-05
15	208.18	5.00E+01 +/- 1.02E+00	1.41E+00	3.76E-04 +/- 3.72E-05
16	244.70	1.50E+00 +/- 4.64E-01	1.35E+00	3.62E-04 +/- 2.67E-05
17	255.39	1.21E+00 +/- 4.52E-01	1.33E+00	3.57E-04 +/- 2.37E-05
18	267.49	2.05E+00 +/- 3.45E-01	1.32E+00	3.50E-04 +/- 2.08E-05
19	297.47	1.10E+00 +/- 4.46E-01	1.30E+00	3.32E-04 +/- 1.56E-05
20	311.90	1.82E+00 +/- 4.28E-01	1.29E+00	3.23E-04 +/- 1.44E-05
21	323.35	3.15E+00 +/- 4.37E-01	1.29E+00	3.16E-04 +/- 1.39E-05
22	332.79	1.28E+01 +/- 6.30E-01	1.28E+00	3.10E-04 +/- 1.38E-05

23	335.93	1.43E+00	+/-	4.78E-01	1.28E+00	3.08E-04	+/- 1.38E-05
24	345.02	1.20E+01	+/-	5.07E-01	1.28E+00	3.03E-04	+/- 1.38E-05
25	368.37	4.96E+00	+/-	4.04E-01	1.27E+00	2.90E-04	+/- 1.44E-05
26	375.08	3.36E+01	+/-	7.28E-01	1.26E+00	2.86E-04	+/- 1.46E-05
27	382.90	3.18E+00	+/-	3.40E-01	1.26E+00	2.82E-04	+/- 1.48E-05
28	392.88	1.38E+01	+/-	4.14E-01	1.26E+00	2.77E-04	+/- 1.50E-05
29	413.70	3.47E+01	+/-	6.09E-01	1.25E+00	2.66E-04	+/- 1.54E-05
30	422.61	1.25E+00	+/-	2.52E-01	1.25E+00	2.62E-04	+/- 1.55E-05
31	443.98	3.15E-01	+/-	1.13E-01	1.24E+00	2.53E-04	+/- 1.56E-05
32	451.50	3.86E+00	+/-	2.31E-01	1.24E+00	2.49E-04	+/- 1.56E-05
33	646.09	1.72E-01	+/-	8.46E-02	1.20E+00	1.87E-04	+/- 1.08E-05
34	662.42	1.37E+00	+/-	1.41E-01	1.19E+00	1.83E-04	+/- 1.03E-05
35	722.06	6.51E-01	+/-	9.37E-02	1.19E+00	1.70E-04	+/- 8.82E-06
36	737.39	5.65E-02	+/-	3.65E-02	1.18E+00	1.67E-04	+/- 8.49E-06
37	778.90	1.98E-02	+/-	1.81E-02	1.18E+00	1.59E-04	+/- 7.73E-06
38	1408.01	9.15E-03	+/-	9.15E-03	1.13E+00	9.08E-05	+/- 6.30E-06

Segment: 9 Detector: DET01 (# 1) Position: 9

Elapsed Live Time: 112.42 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.303 +/- 0.0105
SE-75	264.65	0.000 +/- 0.0000	0.484 +/- 0.0034
SE-75	279.53	0.000 +/- 0.0000	0.501 +/- 0.0042
SE-75	400.65	0.000 +/- 0.0000	0.558 +/- 0.0051

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)			Correction Factor	Original Efficiency		
1	23.65	2.25E+00	+/-	3.15E-01	2.79E+00	2.56E-06	+/-	2.51E-05
2	35.10	1.01E+03	+/-	4.80E+00	2.03E+00	1.75E-05	+/-	8.88E-05
3	59.87	1.69E+02	+/-	1.72E+00	1.69E+00	1.01E-04	+/-	1.59E-04
4	67.51	5.37E+00	+/-	4.72E-01	1.65E+00	1.33E-04	+/-	1.49E-04
5	99.02	5.55E+00	+/-	8.40E-01	1.57E+00	2.52E-04	+/-	6.00E-05
6	129.29	1.57E+00	+/-	5.15E-01	1.53E+00	3.23E-04	+/-	1.97E-05
7	171.28	8.99E-01	+/-	4.61E-01	1.44E+00	3.63E-04	+/-	4.18E-05
8	185.71	6.92E-01	+/-	3.68E-01	1.42E+00	3.67E-04	+/-	4.18E-05
9	208.27	1.73E+00	+/-	3.62E-01	1.38E+00	3.66E-04	+/-	3.76E-05
10	311.90	6.56E-01	+/-	2.73E-01	1.27E+00	3.20E-04	+/-	1.45E-05
11	374.86	1.38E+00	+/-	1.88E-01	1.25E+00	2.86E-04	+/-	1.49E-05
12	400.66	2.70E-01	+/-	1.09E-01	1.24E+00	2.73E-04	+/-	1.56E-05
13	413.70	7.51E-01	+/-	1.19E-01	1.23E+00	2.67E-04	+/-	1.59E-05
14	662.42	3.99E-02	+/-	3.01E-02	1.18E+00	1.82E-04	+/-	1.04E-05

15	1001.03	2.64E-02 +/-	1.53E-02	1.14E+00	1.30E-04 +/-	5.63E-06

Segment: 10 Detector: DET01 (# 1) Position: 10

Elapsed Live Time: 113.08 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.258 +/- 0.0096
SE-75	264.65	0.000 +/- 0.0000	0.428 +/- 0.0031
SE-75	279.53	0.000 +/- 0.0000	0.444 +/- 0.0038
SE-75	400.65	0.000 +/- 0.0000	0.504 +/- 0.0047

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.80E+00	2.19E+00	5.68E-06 +/- 4.74E-06
2	59.89	7.00E+01 +/- 1.16E+00	1.79E+00	6.48E-05 +/- 2.22E-05
3	67.68	2.64E+00 +/- 3.90E-01	1.75E+00	9.59E-05 +/- 2.55E-05
4	121.11	7.90E-01 +/- 3.69E-01	1.62E+00	3.08E-04 +/- 1.78E-05
5	129.29	6.02E-01 +/- 3.27E-01	1.61E+00	3.30E-04 +/- 1.70E-05
6	264.66	4.24E-01 +/- 2.26E-01	1.36E+00	3.77E-04 +/- 1.82E-05
7	400.66	1.59E-01 +/- 7.93E-02	1.28E+00	2.87E-04 +/- 1.13E-05
8	413.70	2.53E-01 +/- 6.52E-02	1.28E+00	2.79E-04 +/- 1.11E-05

Segment: 11 Detector: DET01 (# 1) Position: 11

Elapsed Live Time: 113.33 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.254 +/- 0.0092
SE-75	264.65	0.000 +/- 0.0000	0.409 +/- 0.0030
SE-75	279.53	0.000 +/- 0.0000	0.414 +/- 0.0036
SE-75	400.65	0.000 +/- 0.0000	0.471 +/- 0.0045

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	2.21E+00	6.75E-06 +/- 5.60E-06
2	59.85	3.00E+01 +/- 8.21E-01	1.81E+00	6.79E-05 +/- 2.32E-05
3	264.66	3.45E-01 +/- 2.10E-01	1.38E+00	3.67E-04 +/- 1.79E-05
4	400.66	8.73E-02 +/- 5.55E-02	1.31E+00	2.82E-04 +/- 1.12E-05

Segment: 12 Detector: DET01 (# 1) Position: 12

Elapsed Live Time: 113.47 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.063 +/- 0.0052
SE-75	264.65	0.000 +/- 0.0000	0.122 +/- 0.0012
SE-75	279.53	0.000 +/- 0.0000	0.127 +/- 0.0016
SE-75	400.65	0.000 +/- 0.0000	0.168 +/- 0.0023

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	3.85E+00	7.63E-06 +/- 6.33E-06
2	59.87	1.46E+01 +/- 6.87E-01	2.87E+00	6.74E-05 +/- 2.31E-05
3	67.62	1.05E+00 +/- 3.37E-01	2.76E+00	9.60E-05 +/- 2.56E-05
4	74.88	1.08E+00 +/- 3.58E-01	2.68E+00	1.25E-04 +/- 2.64E-05
5	778.90	2.62E-02 +/- 1.51E-02	1.56E+00	1.60E-04 +/- 7.32E-06
6	1408.01	8.73E-03 +/- 8.73E-03	1.39E+00	1.02E-04 +/- 6.34E-06

Segment: 13 Detector: DET01 (# 1) Position: 13

Elapsed Live Time: 113.62 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.134 +/- 0.0070
SE-75	264.65	0.000 +/- 0.0000	0.241 +/- 0.0019
SE-75	279.53	0.000 +/- 0.0000	0.249 +/- 0.0025
SE-75	400.65	0.000 +/- 0.0000	0.304 +/- 0.0033

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	2.93E+00	1.10E-05 +/- 9.51E-06
2	60.07	6.58E+00 +/- 5.21E-01	2.27E+00	8.27E-05 +/- 2.90E-05
3	867.39	1.53E-02 +/- 1.57E-02	1.34E+00	1.40E-04 +/- 6.42E-06
4	964.13	2.74E-02 +/- 2.13E-02	1.31E+00	1.27E-04 +/- 5.29E-06

Segment: 14 Detector: DET01 (# 1) Position: 14

Elapsed Live Time: 113.71 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.616 +/- 0.0137
SE-75	264.65	0.000 +/- 0.0000	0.759 +/- 0.0052
SE-75	279.53	0.000 +/- 0.0000	0.766 +/- 0.0059
SE-75	400.65	0.000 +/- 0.0000	0.792 +/- 0.0067

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.77E+00	1.37E+00	8.94E-06 +/- 4.41E-05
2	59.82	3.76E+00 +/- 3.73E-01	1.25E+00	8.14E-05 +/- 1.25E-04
3	400.66	1.57E-01 +/- 5.00E-02	1.09E+00	2.73E-04 +/- 1.53E-05
4	443.98	4.41E-02 +/- 3.20E-02	1.09E+00	2.53E-04 +/- 1.58E-05
5	1408.01	1.74E-02 +/- 1.23E-02	1.05E+00	9.39E-05 +/- 6.30E-06

Segment: 15 Detector: DET01 (# 1) Position: 15

Elapsed Live Time: 113.77 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.711 +/- 0.0143
SE-75	264.65	0.000 +/- 0.0000	0.822 +/- 0.0055
SE-75	279.53	0.000 +/- 0.0000	0.825 +/- 0.0062
SE-75	400.65	0.000 +/- 0.0000	0.859 +/- 0.0071

PEAK ANALYSIS RESULTS

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.76E+00	1.25E+00	1.45E-08 +/- 6.96E-08
2	59.93	1.85E+00 +/- 2.84E-01	1.17E+00	1.14E-05 +/- 1.70E-05
3	244.70	2.58E-01 +/- 1.24E-01	1.08E+00	3.85E-04 +/- 2.72E-05
4	400.66	1.45E-01 +/- 6.47E-02	1.06E+00	2.59E-04 +/- 1.48E-05
5	778.90	4.35E-02 +/- 1.94E-02	1.04E+00	1.56E-04 +/- 7.35E-06
6	1112.12	8.70E-03 +/- 8.70E-03	1.03E+00	1.22E-04 +/- 5.05E-06

Segment: 16 Detector: DET01 (# 1) Position: 16

Elapsed Live Time: 113.79 sec Elapsed Real Time: 115.00 sec

TRANSMISSION RESULTS

Nuclide	Energy	Container Transmission	Sample Transmission
SE-75	136.00	0.000 +/- 0.0000	0.621 +/- 0.0136
SE-75	264.65	0.000 +/- 0.0000	0.757 +/- 0.0051
SE-75	279.53	0.000 +/- 0.0000	0.767 +/- 0.0059
SE-75	400.65	0.000 +/- 0.0000	0.795 +/- 0.0067

P E A K A N A L Y S I S R E S U L T S

Peak No.	Energy (keV)	Net Peak Count Rate (CpS)	Correction Factor	Original Efficiency
1	35.10	1.01E+03 +/- 4.78E+00	1.36E+00	9.52E-10 +/- 5.35E-09
2	400.66	2.02E-01 +/- 5.31E-02	1.09E+00	1.86E-04 +/- 1.20E-05
3	1408.01	8.77E-03 +/- 8.77E-03	1.05E+00	7.39E-05 +/- 5.32E-06

Summed Spectrum

Peak Locate Report

Sample ID: S1001070
Peak Locate Performed on: 10-05-02 7:32:55 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192
Peak Search Sensitivity: 5.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	47.38	0.1774	23.61	18.85
2	70.52	0.0432	35.17	277.06
3	99.76	0.1951	49.78	13.57
4	119.55	0.0468	59.67	251.17
5	135.08	0.2000	67.43	15.15
6	150.49	0.2471	75.13	8.40
7	197.89	0.0869	98.81	67.80
8	207.19	0.0868	103.46	56.12
9	222.68	0.1086	111.20	39.16
10	229.27	0.1644	114.49	19.01
11	234.30	0.1950	117.00	10.57
12	259.03	0.0750	129.36	90.60
13	288.59	0.2185	144.12	12.36
14	293.00	0.3997	146.33	6.26
15	297.58	0.1358	148.62	28.19
16	322.25	0.2198	160.94	5.76
17	329.75	0.1902	164.69	13.61
18	343.27	0.2364	171.44	9.75
19	358.86	0.2592	179.23	6.65
20	379.06	0.2384	189.33	9.83
21	391.79	0.2148	195.68	11.43
22	416.46	0.0674	208.01	102.43
23	487.21	0.3184	243.36	5.05
24	511.22	0.1784	255.36	14.98
25	535.60	0.1815	267.54	14.19
26	595.37	0.2181	297.40	10.54
27	624.11	0.1728	311.76	15.51
28	642.02	0.2803	320.70	5.89
29	647.85	0.2225	323.62	7.85
30	665.96	0.0872	332.67	60.18
31	690.54	0.0879	344.95	54.20
32	737.17	0.1422	368.24	18.99
33	750.63	0.0655	374.97	96.87
34	766.20	0.1196	382.75	35.79
35	786.33	0.0894	392.81	48.48
36	827.98	0.0655	413.62	101.65

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
37	845.74	0.1277	422.49	24.94
38	903.53	0.1075	451.36	33.27
39	1238.44	0.2030	618.69	8.85
40	1292.59	0.2094	645.74	9.09
41	1325.57	0.1301	662.22	21.04
42	1378.63	0.2629	688.73	6.02
43	1444.84	0.1536	721.81	16.43
44	1539.86	0.2517	769.28	5.16
45	2668.29	0.2384	1333.07	5.23

Errors quoted at 1.000 sigma

Summed Spectrum

Peak Analysis Report

Sample ID: S1001070
Peak Analysis Performed on: 10-05-02 7:32:55 PM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	45-	50	47.38	23.61	1.31E+04	241.65	2.34E+04
2	67-	73	70.52	35.17	1.78E+06	1349.43	2.17E+04
3	96-	103	99.76	49.78	4.11E+04	572.77	1.32E+05
4	116-	123	119.55	59.67	1.26E+06	1263.65	1.67E+05
5	131-	138	135.08	67.43	7.72E+03	283.72	3.57E+04
6	146-	154	150.49	75.13	8.02E+03	361.44	5.65E+04
7	194-	201	197.89	98.81	1.28E+05	668.84	1.59E+05
8	203-	211	207.19	103.46	7.55E+04	665.29	1.49E+05
9	218-	226	222.68	111.20	1.91E+04	501.14	1.02E+05
10	226-	233	229.27	114.49	1.81E+03	492.96	1.19E+05
11	233-	238	234.30	117.00	1.12E+04	376.93	6.19E+04
12	255-	263	259.03	129.36	8.47E+04	426.92	4.53E+04
13	284-	292	288.59	144.12	5.52E+02	289.41	3.82E+04
14	292-	297	293.00	146.33	9.21E+02	240.68	3.23E+04
15	295-	304	297.58	148.62	1.32E+04	321.68	3.92E+04
16	318-	326	322.25	160.94	1.86E+03	283.91	3.63E+04
17	326-	333	329.75	164.69	2.86E+03	253.86	3.04E+04
18	339-	347	343.27	171.44	4.46E+03	260.06	2.95E+04
19	354-	363	358.86	179.23	2.27E+03	269.77	3.12E+04
20	374-	383	379.06	189.33	3.09E+03	265.41	2.98E+04
21	387-	396	391.79	195.68	4.22E+03	262.05	2.85E+04
22	412-	420	416.46	208.01	8.56E+04	399.11	3.38E+04
23	482-	491	487.21	243.36	1.23E+03	185.64	1.47E+04
24	506-	515	511.22	255.36	3.53E+03	180.94	1.30E+04
25	531-	540	535.60	267.54	2.50E+03	176.08	1.26E+04
26	590-	600	595.37	297.40	1.97E+03	166.46	1.08E+04
27	619-	629	624.11	311.76	2.30E+03	165.32	1.05E+04
28	638-	646	642.02	320.70	9.85E+02	154.56	1.05E+04
29	646-	652	647.85	323.62	1.67E+03	126.51	7.16E+03
30	660-	670	665.96	332.67	1.89E+04	256.98	1.91E+04
31	688-	695	690.54	344.95	2.24E+04	187.34	6.18E+03
32	732-	742	737.17	368.24	9.56E+03	159.11	6.53E+03
33	745-	755	750.63	374.97	6.09E+04	287.33	9.10E+03
34	765-	771	766.20	382.75	5.69E+03	166.79	6.04E+03
35	781-	791	786.33	392.81	2.19E+04	171.29	3.15E+03
36	822-	833	827.98	413.62	5.80E+04	253.29	2.47E+03
37	840-	851	845.74	422.49	2.97E+03	106.89	3.26E+03

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
38	898-	908	903.53	451.36	6.79E+03	98.30	1.21E+03
39	1232-	1244	1238.44	618.69	6.20E+02	35.75	2.50E+02
40	1288-	1298	1292.59	645.74	3.64E+02	33.39	3.13E+02
41	1319-	1331	1325.57	662.22	2.74E+03	61.10	3.75E+02
42	1372-	1384	1378.63	688.73	2.03E+02	26.65	1.89E+02
43	1438-	1451	1444.84	721.81	1.27E+03	43.11	2.13E+02
44	1533-	1546	1539.86	769.28	4.05E+02	25.92	9.72E+01
45	2660-	2673	2668.29	1333.07	1.13E+02	13.97	2.95E+01

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Summed Spectrum

Nuclide Identification Report

Sample ID: S1001070
Nuclide Library Used: C:\WAS\NLIB\LLNL.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Pulser	1.000	35.10*	100.00	2.763E+05	6.873E+05
Np-237	0.762	300.10	6.63		
		311.90*	38.60	5.603E+00	4.049E-01
Pu-239	0.999	413.70*	0.00	4.380E+06	8.203E+04
Pu-239A	1.000	129.29*	0.01	1.388E+06	3.503E+04
Am-241	0.997	662.42*	0.00	1.113E+06	2.659E+04
Pu-241	1.000	148.57*	0.00	6.520E+06	1.862E+05

* = Energy line found in the spectrum.
Energy Tolerance : 1.500 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10-05-02 7:32:55 PM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	23.61	1.1839E+02	1.85
3	49.78	3.7281E+02	1.40
4	59.67	1.1420E+04	0.14
5	67.43	7.0007E+01	3.68
6	75.13	7.2716E+01	4.51
7	98.81	1.1583E+03	0.53
8	103.46	6.8441E+02	0.89
9	111.20	1.7364E+02	2.62
10	114.49	1.6454E+01	27.17
11	117.00	1.0164E+02	3.36
13	144.12	5.0081E+00	52.40
14	146.33	8.3544E+00	26.12
16	160.94	1.6830E+01	15.30
17	164.69	2.5926E+01	8.88
18	171.44	4.0479E+01	5.83
19	179.23	2.0551E+01	11.90
20	189.33	2.8064E+01	8.58
21	195.68	3.8246E+01	6.21
22	208.01	7.7609E+02	0.48
23	243.36	1.1151E+01	15.10
24	255.36	3.2047E+01	5.12
25	267.54	2.2713E+01	7.03
26	297.40	1.7872E+01	8.45
28	320.70	8.9300E+00	15.69
29	323.62	1.5153E+01	7.57
30	332.67	1.7112E+02	1.37
31	344.95	2.0336E+02	0.84
32	368.24	8.6695E+01	1.67
33	374.97	5.5262E+02	0.48
34	382.75	5.1556E+01	2.94
35	392.81	1.9822E+02	0.79
37	422.49	2.6956E+01	3.60
38	451.36	6.1587E+01	1.45
39	618.69	5.6199E+00	5.77
40	645.74	3.3032E+00	9.17
42	688.73	1.8449E+00	13.10
43	721.81	1.1535E+01	3.39
44	769.28	3.6707E+00	6.40
45	1333.07	1.0291E+00	12.31

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

Combined Segment NID

NID Results Combiner Mode: Sum Activities

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		4.19E+07	+/-	2.19E+08		1.89E+03	+/-	9.88E+03
SE-75	<	4.17E-01	+/-	2.07E-02	<	1.88E-05	+/-	9.31E-07
EU-152x		9.55E-02	+/-	3.09E-02		4.30E-06	+/-	1.39E-06
U-233	<	1.70E+04	+/-	8.70E+02	<	7.65E-01	+/-	3.92E-02
U-235		3.10E-01	+/-	1.20E-01		1.40E-05	+/-	5.39E-06
Np-237		7.44E+00	+/-	5.22E-01		3.35E-04	+/-	2.35E-05
Pu-238	<	4.27E+04	+/-	2.07E+03	<	1.92E+00	+/-	9.34E-02
U-238		2.07E+00	+/-	7.93E-01		9.33E-05	+/-	3.57E-05
Pu-239		5.45E+06	+/-	1.32E+05		2.45E+02	+/-	5.93E+00
Pu-239A		3.89E+06	+/-	1.19E+05		1.75E+02	+/-	5.35E+00
Am-241		1.22E+06	+/-	4.09E+04		5.48E+01	+/-	1.84E+00
Pu-241		1.60E+07	+/-	6.21E+05		7.23E+02	+/-	2.80E+01

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
U-235	1.43E-01	+/-	5.54E-02
Np-237	1.06E-02	+/-	7.42E-04
U-238	6.17E+00	+/-	2.36E+00
Pu-239	8.77E+01	+/-	2.12E+00
Pu-239A	6.27E+01	+/-	1.91E+00
Am-241	3.55E-01	+/-	1.19E-02
Pu-241	1.55E-01	+/-	6.00E-03

Summed Spectrum

Nuclide		Total Activity (uCi)				Concentration (uCi/g)		
Pulser		2.76E+05	+/-	6.87E+05		1.24E+01	+/-	3.10E+01
SE-75	<	9.11E-01	+/-	7.94E-03	<	4.10E-05	+/-	3.58E-07
EU-152x	<	3.50E-01	+/-	6.75E-03	<	1.58E-05	+/-	3.04E-07
U-233	<	4.02E+04	+/-	8.39E+02	<	1.81E+00	+/-	3.78E-02
U-235	<	1.34E+00	+/-	2.63E-02	<	6.02E-05	+/-	1.19E-06
Np-237		5.60E+00	+/-	4.05E-01		2.52E-04	+/-	1.82E-05
Pu-238	<	9.69E+04	+/-	1.41E+03	<	4.36E+00	+/-	6.36E-02
U-238	<	1.04E+01	+/-	1.67E-01	<	4.70E-04	+/-	7.52E-06
Pu-239		4.38E+06	+/-	8.20E+04		1.97E+02	+/-	3.70E+00
Pu-239A		1.39E+06	+/-	3.50E+04		6.25E+01	+/-	1.58E+00
Am-241		1.11E+06	+/-	2.66E+04		5.01E+01	+/-	1.20E+00
Pu-241		6.52E+06	+/-	1.86E+05		2.94E+02	+/-	8.39E+00

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
< = MDA

Nuclide	Mass (g)		
Np-237	7.96E-03	+/-	5.75E-04
Pu-239	7.05E+01	+/-	1.32E+00
Pu-239A	2.23E+01	+/-	5.64E-01
Am-241	3.25E-01	+/-	7.76E-03
Pu-241	6.30E-02	+/-	1.80E-03

Final Non-Uniformity Results

Source Longitudinal Ratio:	0.966	+/-	13.7922
Matrix Longitudinal Ratio:	0.583	+/-	0.0162
Source Vertical Ratio:	0.882	+/-	0.4418
Matrix Vertical Ratio:	0.866	+/-	0.0097

NUDS could not find the transmission peak in one radial segment.

Hazardous Waste Management

HWM

Waste Generator Services

NONCONFORMANCE AND CORRECTIVE ACTION REPORT

No. 02- 1000168
(Enter # on attachments)

SECTION 1: Reporting the nonconformance (To be completed by the person reporting the nonconformance using instructions on workpage of form.)

Reported by: Kellie Goodwin Date: 10/17/02 Extension: 2-4924

Type: ☐ LLW ■ TRUW ☐ Both ☐ Other

Location: Building 332 Room 1377 Area Superblock

Identification: Waste Requisition No. W217609 Container/Equipment Serial No. N/A

Description of Nonconformance: SGS Batch 2002-13, Run 1066, documents a physical problem with the SGS (a cocked filter) that renders the data indeterminate. The scope of the problem is unknown.

☐ See attached for continuation of items in this section.

Status Indicators: ■ 2 HOLD Stickers ☐ 1 HOLD Tag ☐ N/A

SECTION 2: WCP Validation Is the reported nonconformance valid? ■ Yes ☐ No

If not valid, explain: ☐ See attached

Facility Manager: Chris Holm Program/Area: B332

FPOC: David Hiland Evaluated By: Ron Michels (WCP QAO or RCA) Date: 10/17/02

Root cause analysis & action to prevent recurrence required? ■ Yes ☐ No Responsible Individual: David Hiland

QAO Acceptance: Ronald D. Michels (10/17/2002)

WCO Approval: Brian K. Perkins (10/18/2002)

SECTION 3: Nonconformance analysis and proposed corrective action (to be completed by the Responsible Individual)

3A. Cause and scope of the nonconformance, including the effect on the usability of data ☐ See attached

The filter became partially unattached from the SGS SEGE detector. It has been determined this happened on 10/1/02 and was subsequently corrected on 10/10/02. It has also been determined that this had no effect on the data reported to HWM.

3B. Proposed action (Disposition) to correct the nonconformance: ☐ See attached

The batch data report for 2002-13 will be amended to clarify this anomaly had no affect on the data report to HWM.

Projected completion date (required) 10/21/02

3C. Root cause of the nonconformance: ☐ See attached

Slippage of the detector out of position, because it was taped in position in an inadequate manner.

3D. Proposed action to prevent recurrence of the nonconformance: ■ See attached

The filter can not be mechanically attached due to the configuration of the detector. The filter was removed and securely taped in place on 10/10/02.

SECTION 4: Approval of nonconformance analysis and proposed corrective action (to be signed by the WCO and WCP QAO)

Category: ☐ Documentation ☐ Certification ☐ Characterization ☐ Training ■ M&TE ☐ Containers ☐ Use-as-is ☐ Other

Approved: Kem L. Hainebach (10/21/2002)
Waste Certification Official

Concur: Ronald D. Michels (10/21/2002)
WCP Quality Assurance Officer

SECTION 5: Corrective action completed (to be signed by the Responsible Individual)

Completed: Ronald D. Michels (10/21/2002)
Responsible Individual

SECTION 6: Corrective action verified (to be signed by the QAO and WCO)

Verified: Ronald D. Michels (10/21/2002)
WCP Quality Assurance Officer

Verified: Kem L. Hainebach (10/22/2002)
Waste Certification Official

X-Sender: e001209@popup.llnl.gov
X-Mailer: QUALCOMM Windows Eudora Version 5.0
Date: Mon, 21 Oct 2002 15:26:08 -0700
To: Ron Michels <michels2@llnl.gov>, Kem Hainebach <hainebach1@llnl.gov>
From: Kellie Goodwin <goodwin9@llnl.gov>
Subject: NCAR 02-168
Cc: hiland1@llnl.gov, "Bryan B. Bandong" <bandong1@llnl.gov>,
Brian Perkins <perkins15@llnl.gov>, Chris Holm <holm1@llnl.gov>

Ron,

Dave Hiland ask me to provide the following information to you regarding clarification of his response to NCAR 02-1000168;

3A: The only unknowns run during the period of 10/1/02 - 10/10/02 were the seven (7) drums in Batch 2002-13 and the two PDP drums in Batch 2002-11.

None of the results reported to HWM for these runs were affected by the anomaly.

3C: The reference to taped into position in an inadequate manner means that a 1/2" wide piece of vinyl tape was wrapped circumferentially around the edge of the disk shaped filter. This came loose after several years of use.

3D: The old tape was removed and two new pieces of 2" wide vinyl tape were applied radially to the disk at 90 degree opposing angles leaving 3 1/2" x 2" of tape attached to the sides of the cylindrical detector housing. The disk will be checked quarterly to assure it is still in place.

Thanks,
Dave Hiland

SITE PROJECT QUALITY ASSURANCE OFFICER SUMMARY

RADIOASSAY BATCH NUMBER: 2002-13 includes the following containers:

LL85401314TRU	LL85501243TRU	LL85301244TRU	LL85101245TRU	LL85101315TRU
LL85601332TRU	LL85001028TRU			LL85501243TRU replicate

Site Project Manager Project-Level Data Validation Checklist for Radioassay

My signature below assures the following:

1. ☒ Data-generation-level independent technical, technical supervisory, and QA officer review, validation, and verification have been performed as evidenced by the appropriate signature releases on form WCP 0191. The technical supervisor and QA officer signatures may be the same, but must differ from that of the independent technical review.

2. ☒ Radioassay data-generation-level data review checklists (form WCP 0191) are complete.

3. Radioassay batch data reports are complete and data are properly reported:
   The NDA Batch Report Cover Sheet (form WCP 0192) lists the following:
   - ☒ Testing facility name, testing batch number, drum numbers included in that testing batch
   - ☒ Table of contents, with date of each section of the batch data report, where applicable.

   ☒ All pages and sections are present. Sections include: the Cover Sheet, Batch Narrative, any nonconformances, a data-generation-level data validation checklist, operator logbook pages for the batch, a radioassay data sheet, MGA report, and Gamma Waste Assay report for each drum measured, QC measurement reports and control charts for backgrounds and performance checks. All measurement and checks must be in the order they were done. (After they are completed, the batch data report and table of contents must include these project-level checklists and summary.)

   - The Radioassay Data Sheets are separate reports, usually computer generated, for each sample in the radioassay batch. Check that each one includes:
   - ☒ Title "**Radioassay Data Sheet**" *
   - ☒ Method used for NDA (that is, procedure identification)*
   - ☒ TRUCON code, Item Description Code, matrix parameter category, as applicable (only IDC appears on SGS Radioassay Data Sheets)
   - ☒ Date of NDA (radioassay) examination*
   - ☒ Total (Pu-239) fissile gram equivalent masses (g) and associated uncertainty*
   - ☒ Total alpha activity and associated uncertainty (Curies)*
   - ☒ TRU activity concentration ("Total TRU Activity") and associated uncertainty (nCi/g)*
   - ☒ Listing of activities of individual radioisotopes present (Curies) and associated uncertainty (Curies)*
   - ☒ Total Decay Heat (Thermal power) and associated uncertainty (W)*
   - ☒ "QC (Quality Control) replicate" marked Yes or No and, if Yes, "Passed" marked Yes or No. Confirm that the replicate passed by reviewing the data-generation-level data validation checklist.
   - ☒ Operator signature/date
   - ☒ Reviewers' (Independent Reviewer, Expert Reviewer, and Technical Supervisor/QA Officer) signatures/dates

   * Always there for computer-generated Radioassay Data Sheet. However, check carefully because the Expert Reviewer may alter the computer-generated form.

4. Reconciliation with Data Quality Objectives (DQOs):
   - ☒ Data needed to calculate the amount (namely, the mass and activity) of each radionuclide of concern have been reported along with associated errors at the 95% confidence level 1.96σ).
   - ☒ The total activity of the waste container has been reported along with associated errors at the 95% confidence level (1.96σ).

LLNL Site Project Manager Release Ken Hamilton Date 10-22-2002

CONTROLLED FORM

SITE PROJECT QUALITY ASSURANCE OFFICER SUMMARY

RADIOASSAY BATCH NUMBER: 2002-13 includes the following containers:

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LL85601332TRU	LL85001028TRU			LL85501243TRU replicate

Site Project QA Officer Project-Level Data Validation Checklist for Radioassay

My signature below assures the following:

1. The SGS Data-generation-level Batch Data Report Review, Validation, and Verification Checklist for this batch (form WCP 0191, referred to as the DGLDV checklist) indicates that the Radioassay (RA) QC checks were properly performed. Specifically:
   - ☒ Based on its contents, each container falls within the instrument's calibration range for waste matrix, radionuclide, and activity and is in a range for which the quality assurance objectives for precision and accuracy have been verified.
   - ☒ Instrument performance checks (verification checks) were done at frequencies specified by procedure OP-B332-005, including efficiency checks, background checks, and, for spectrometric instruments, energy calibration checks and energy resolution checks. For the SGS, these checks consist of background checks with and without the transmission source exposed and measurements of known standards (STDASH-2 and SGS100).
   - ☒ A replicate measurement was performed once per batch or once per week, whichever is more frequent, and the agreement of the replicates is satisfactory, as indicated on the DGLDV checklist.
2. ☒ The Batch Data Report and radioassay data, therein, are complete and acceptable.
3. ☒ The radioassay system has passed the most recent Nondestructive Assay Performance Demonstration Program cycle relevant to the measurements reported in this batch. (Obtain the latest report from the data generator or from DOE/CAO if the Waste Certification Program does not already have a copy for our files.)

LLNL Site Project QA Officer Release Ron Mueller Date 10/22/02

CONTROLLED FORM

Data Validation Summary

This data validation summary is for (check one):

- ☐ Headspace Gas Sampling
- ☐ Headspace Gas Analysis using the Mobile Gas Analysis System (FTIRS and RGA)
- ☐ Headspace Gas Analysis using GC/MS
- ☐ Real-Time Radiography
- ☐ Visual Examination
- ☒ Radioassay
- ☐ Homogeneous Solids Sampling
- ☐ Homogeneous Solids Analysis

All data in batch # 2002-13 , consisting of the following container serial numbers:

LL85401314TRU	LL85501243TRU	LL85301244TRU	LL85101245TRU	LL85101315TRU
LL85601332TRU	LL85001028TRU			LL85501243TRU replicate

have been validated according to the LLNL TRUW Characterization QAPjP. The project-level data validation was performed in accordance with WCP-40: ☒ yes ☐ no.

If a problem was detected, an explanation and a resolution will be attached (e.g., an NCAR – list NCARs: 02-1000168)

My signature below deems all data are acceptable.

Ken Hamilton
LLNL Site Project Manager

10-22-2002
Date

WCP0182 2/00 Refer to procedure WCP-40

CONTROLLED FORM

SITE PROJECT QUALITY ASSURANCE OFFICER SUMMARY

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LLNL Site Project Manager Release Ken Hamilton Date 10-22-2002

CONTROLLED FORM

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LLNL Site Project QA Officer Release Ron Mueller Date 10/22/02

CONTROLLED FORM

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LLNL Site Project Manager

10-22-2002
Date

WCP0182 2/00 Refer to procedure WCP-40

CONTROLLED FORM