This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

Document number: SD-WM-DP-183

Section 3 **of** 4

Title: 222S Lab Analytical Report for Tank 241C106 Grab Samples 6C-96-1 Thru 6C-96-16 & 6C-96-17-FB [Pgs. 1183 Thru 1782]

Date: 08/06/1996 **Revision:** A000

Originator: Esch RA
Co: WHC

Recipient:
Co:

References: EDT-614793

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 16N12E Date: 04/10/96 Time: 09:03:40

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.83 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	14.90	97.99
3	1.50	139.20	89.30
4	2.00	373.20	62.70
5	2.50	512.10	27.12
6	3.00	557.90	8.21
7	3.50	569.20	1.99
8	4.00	573.70	0.78
9	4.50	575.20	0.26
10	5.00	576.60	0.24
11	5.50	577.60	0.17
12	6.00	578.50	0.16
13	6.50	579.30	0.14
14	7.00	580.10	0.14
15	7.50	580.60	0.09
16	8.00	581.10	0.09
17	8.50	581.70	0.10
18	9.00	582.20	0.09
19	9.50	582.90	0.12
20	10.00	583.30	0.07
21	10.50	583.90	0.10
22	11.00	584.30	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 20.12972 micrograms carbon
BLANK FACTOR = 20.12972 / 10.99985 = +1.8E+00 ug/min Carbon

SAMPLE RESULTS:
(584.3 - 20.12453)(1)/(1) = +5.642E+02 g/L Carbon
(584.3 - 20.12453)(1)/(1)(12) = +4.701E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

$\frac{564.2}{.200ml} = \frac{2821}{3000} = 94.03$

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLANK Date: 04/10/96 Time: 09:15:51

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .81 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	1.50	73.33
3	1.50	3.00	50.00
4	2.00	3.80	21.05
5	2.50	4.40	13.64
6	3.00	4.70	6.38
7	3.50	5.10	7.84
8	4.00	5.40	5.56
9	4.50	5.70	5.26
10	5.00	5.90	3.39
11	5.50	6.20	4.84
12	6.00	6.60	6.06
13	6.50	6.80	2.94
14	7.00	7.00	2.86
15	7.50	7.30	4.11
16	8.00	7.70	5.19
17	8.50	7.80	1.28
18	9.00	8.10	3.70
19	9.50	8.40	3.57
20	10.00	8.60	2.33
21	10.50	8.90	3.37
22	11.00	9.20	3.26

USER INPUT BLANK VALUE
BLANK VALUE = 8.909877 micrograms carbon
BLANK FACTOR = 8.909877 / 10.99985 = +8.1E-01 ug/min Carbon

SAMPLE RESULTS:
(9.2 - 8.909852)(1)/(1) = +2.9E-01 g/L Carbon
(9.2 - 8.909852)(1)/(1)(12) = +2.4E-02 Molar Carbon

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

|9.20 - 8.90| = .3

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLANK Date: 04/10/96 Time: 09:36:13

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.83 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	1.10	81.82
3	1.51	3.50	68.57
4	2.00	7.40	52.70
5	2.50	9.70	23.71
6	3.00	11.10	12.61
7	3.50	11.60	4.31
8	4.00	12.30	5.69
9	4.50	12.60	2.38
10	5.00	13.10	3.82
11	5.50	13.40	2.24
12	6.00	13.80	2.90
13	6.50	14.20	2.82
14	7.00	14.60	2.74
15	7.50	14.90	2.01
16	8.00	15.30	2.61
17	8.50	15.70	2.55
18	9.00	16.00	1.88
19	9.50	16.40	2.44
20	10.00	16.60	1.20
21	10.50	16.90	1.78
22	11.00	17.10	1.17

USER INPUT BLANK VALUE
BLANK VALUE = 20.12972 micrograms carbon
BLANK FACTOR = 20.12972 / 10.99985 = +1.8E+00 ug/min Carbon

SAMPLE RESULTS:
(17.1 - 20.12788)(1)/(1) = < 5.00 E-3 g/L Carbon
(17.1 - 20.12788)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

|17.10-20.10| = 3

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T001560 Date: 04/10/96 Time: 12:34:06

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .81 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	3.00	93.33
3	1.50	82.30	96.35
4	2.00	272.20	69.76
5	2.50	468.60	41.91
6	3.00	607.80	22.90
7	3.50	686.80	11.50
8	4.00	726.30	5.44
9	4.50	742.90	2.23
10	5.00	749.50	0.88
11	5.50	752.60	0.41
12	6.00	754.00	0.19
13	6.50	755.10	0.15
14	7.00	755.90	0.11
15	7.50	756.60	0.09
16	8.00	757.30	0.09
17	8.50	757.90	0.08
18	9.00	758.50	0.08
19	9.50	759.10	0.08
20	10.00	759.50	0.05
21	10.50	760.00	0.07
22	11.00	760.60	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 8.909877 micrograms carbon
BLANK FACTOR = 8.909877 / 10.99985 = +8.1E-01 ug/min Carbon

SAMPLE RESULTS:
(760.6 - 8.909703)(1)/(1) = +7.517E+02 g/L Carbon
(760.6 - 8.909703)(1)/(1)(12) = +6.264E+01 Molar Carbon

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

$\frac{757.7}{.0285g} = 2.6375^{E4}$

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001560 Date: 04/10/96 Time: 12:46:10

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.83 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	22.80	97.81
3	1.51	84.80	73.11
4	2.01	152.00	44.21
5	2.51	213.80	28.91
6	3.01	258.10	17.16
7	3.51	292.00	11.61
8	4.01	319.30	8.55
9	4.50	342.20	6.69
10	5.00	362.70	5.65
11	5.50	379.50	4.43
12	6.00	395.50	4.05
13	6.50	409.40	3.40
14	7.00	422.10	3.01
15	7.50	432.70	2.45
16	8.00	442.00	2.10
17	8.50	450.80	1.95
18	9.00	457.80	1.53
19	9.50	464.30	1.40
20	10.00	469.30	1.07
21	10.50	474.10	1.01
22	11.00	477.40	0.69

USER INPUT BLANK VALUE
BLANK VALUE = 20.12972 micrograms carbon
BLANK FACTOR = 20.12972 / 10.99985 = +1.8E+00 ug/min Carbon

SAMPLE RESULTS:
(477.4 - 20.13112)(1)/(1) = +4.573E+02 g/L Carbon
(477.4 - 20.13112)(1)/(1)(12) = +3.811E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

$\frac{457.3}{.02859} = 1.6046^{E4}$

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1560 DUP Date: 04/10/96 Time: 12:59:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .81 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.60	0.00
2	1.01	3.20	81.25
3	1.51	89.10	96.41
4	2.01	274.90	67.59
5	2.51	457.00	39.85
6	3.01	586.00	22.01
7	3.50	662.30	11.52
8	4.00	701.20	5.55
9	4.50	717.60	2.29
10	5.00	723.90	0.87
11	5.50	726.20	0.32
12	6.00	727.60	0.19
13	6.50	728.70	0.15
14	7.00	729.40	0.10
15	7.50	730.10	0.10
16	8.00	730.90	0.11
17	8.50	731.40	0.07
18	9.00	732.10	0.10
19	9.50	732.70	0.08
20	10.00	733.30	0.08
21	10.50	733.90	0.08
22	11.00	734.40	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 8.909877 micrograms carbon
BLANK FACTOR = 8.909877 / 10.99985 = +8.1E-01 ug/min Carbon

SAMPLE RESULTS:
(734.4 - 8.909753)(1)/(1) = +7.255E+02 g/L Carbon
(734.4 - 8.909753)(1)/(1)(12) = +6.046E+01 Molar Carbon

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

$\frac{725.5}{.0273g} = 2.6575^{e4}$

1188

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1560 DUP Date: 04/10/96 Time: 13:13:11

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.83 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	17.80	98.31
3	1.51	77.10	76.91
4	2.00	136.80	43.64
5	2.50	188.70	27.50
6	3.00	223.90	15.72
7	3.50	248.40	9.86
8	4.00	268.00	7.31
9	4.50	285.20	6.03
10	5.00	299.60	4.81
11	5.50	312.80	4.22
12	6.00	324.30	3.55
13	6.50	335.50	3.34
14	7.00	344.60	2.64
15	7.50	352.80	2.32
16	8.00	360.20	2.05
17	8.50	366.60	1.75
18	9.00	372.20	1.50
19	9.50	376.80	1.22
20	10.00	381.00	1.10
21	10.50	384.60	0.94
22	11.00	387.50	0.75

USER INPUT BLANK VALUE
BLANK VALUE = 20.12972 micrograms carbon
BLANK FACTOR = 20.12972 / 10.99985 = +1.8E+00 ug/min Carbon

SAMPLE RESULTS:
(387.5 - 20.12442)(1)/(1) = +3.674E+02 g/L Carbon
(387.5 - 20.12442)(1)/(1)(12) = +3.061E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jacque Steele 11/10/96
JL STEELE 00000

$\frac{367.4}{.0273g} = 1.3458^{E4}$

1189

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1560 SPIKE Date: 04/10/96 Time: 13:29:32

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .81 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	3.60	94.44
3	1.51	105.50	96.59
4	2.01	356.40	70.40
5	2.50	616.90	42.23
6	3.00	800.90	22.97
7	3.50	912.30	12.21
8	4.00	973.60	6.30
9	4.50	1004.40	3.07
10	5.00	1016.30	1.17
11	5.50	1021.00	0.46
12	6.00	1023.20	0.22
13	6.50	1024.50	0.13
14	7.00	1025.40	0.09
15	7.50	1026.20	0.08
16	8.00	1026.90	0.07
17	8.50	1027.40	0.05
18	9.00	1028.20	0.08
19	9.50	1028.70	0.05
20	10.00	1029.20	0.05
21	10.50	1029.70	0.05
22	11.00	1030.20	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 8.909877 micrograms carbon
BLANK FACTOR = 8.909877 / 10.99985 = +8.1E-01 ug/min Carbon

SAMPLE RESULTS:
(1030.2 - 8.90911)(1)/(1) = +1.0213E+03 g/L Carbon
(1030.2 - 8.90911)(1)/(1)(12) = +8.5108E+01 Molar Carbon

Sample Run By: Jackie Steele 4-10-96
JL STEELE 00000

1190

$$\frac{1030.20}{\frac{760.60}{.0285} \times .0263 + 300} = \frac{1030.20}{\cancel{1005.218}\ 1001.89} = \cancel{97.6\%}\ 102.83\%$$

4-10-96

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1560 SPIKE Date: 04/10/96 Time: 13:42:09

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.83 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.50	60.00
3	1.51	17.70	97.18
4	2.00	79.50	77.74
5	2.50	196.20	59.48
6	3.00	310.30	36.77
7	3.50	378.80	18.08
8	4.00	416.40	9.03
9	4.50	441.90	5.77
10	5.00	460.90	4.12
11	5.50	478.10	3.60
12	6.00	493.40	3.10
13	6.50	507.20	2.72
14	7.00	519.00	2.27
15	7.50	529.70	2.02
16	8.00	538.80	1.69
17	8.50	546.70	1.45
18	9.00	553.30	1.19
19	9.50	559.30	1.07
20	10.00	564.50	0.92
21	10.50	568.70	0.74
22	11.00	572.70	0.70

USER INPUT BLANK VALUE
BLANK VALUE = 20.12972 micrograms carbon
BLANK FACTOR = 20.12972 / 10.99985 = +1.8E+00 ug/min Carbon

SAMPLE RESULTS:
(572.7 - 20.12788)(1)/(1) = +5.526E+02 g/L Carbon
(572.7 - 20.12788)(1)/(1)(12) = +4.605E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

1191

$$\frac{572.70}{\frac{477.40}{.0285} \times .0263 + 300} = \frac{572.70}{740.55} = 77.33\%$$

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001686 Date: 04/10/96 Time: 13:56:44

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .81 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.00	0.00
2	1.01	6.50	84.62
3	1.51	58.90	88.96
4	2.00	150.40	60.84
5	2.50	242.80	38.06
6	3.00	333.70	27.24
7	3.50	432.90	22.92
8	4.00	506.10	14.46
9	4.50	549.30	7.86
10	5.00	577.50	4.88
11	5.50	594.10	2.79
12	6.00	604.10	1.66
13	6.50	610.60	1.06
14	7.00	615.40	0.78
15	7.50	619.10	0.60
16	8.00	621.90	0.45
17	8.50	624.00	0.34
18	9.00	625.50	0.24
19	9.50	626.60	0.18
20	10.00	627.60	0.16
21	10.50	628.30	0.11
22	11.00	628.90	0.10

USER INPUT BLANK VALUE
BLANK VALUE = 8.909877 micrograms carbon
BLANK FACTOR = 8.909877 / 10.99985 = +8.1E-01 ug/min Carbon

SAMPLE RESULTS:
(628.9 - 8.912076)(1)/(1) = +6.200E+02 g/L Carbon
(628.9 - 8.912076)(1)/(1)(12) = +5.167E+01 Molar Carbon

Sample Run By: Jeanne Steele 4/10/96
JL STEELE 00000

$\frac{620.0}{.0267g} = 2.3221^{E4}$

1192

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001686 Date: 04/10/96 Time: 14:08:50

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.83 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	38.90	98.97
3	1.51	188.60	79.37
4	2.00	290.60	35.10
5	2.50	357.10	18.62
6	3.00	397.20	10.10
7	3.50	423.20	6.14
8	4.00	442.30	4.32
9	4.50	458.60	3.55
10	5.00	472.30	2.90
11	5.50	484.90	2.60
12	6.00	495.90	2.22
13	6.50	505.80	1.96
14	7.00	514.20	1.63
15	7.50	521.70	1.44
16	8.00	528.20	1.23
17	8.50	533.90	1.07
18	9.00	538.90	0.93
19	9.50	543.40	0.83
20	10.00	547.20	0.69
21	10.50	550.40	0.58
22	11.00	553.20	0.51

USER INPUT BLANK VALUE
BLANK VALUE = 20.12972 micrograms carbon
BLANK FACTOR = 20.12972 / 10.99985 = +1.8E+00 ug/min Carbon

SAMPLE RESULTS:
(553.2 - 20.12643)(1)/(1) = +5.331E+02 g/L Carbon
(553.2 - 20.12643)(1)/(1)(12) = +4.442E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

$\frac{533.1}{.02679} = 1.9966^{E4}$

1193

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1686 DUP Date: 04/10/96 Time: 14:27:28

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .81 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	1.30	92.31
3	1.50	67.10	98.06
4	2.00	223.90	70.03
5	2.51	350.90	36.19
6	3.00	432.60	18.89
7	3.50	479.50	9.78
8	4.00	502.50	4.58
9	4.50	512.00	1.86
10	5.00	515.50	0.68
11	5.50	517.30	0.35
12	6.00	518.20	0.17
13	6.50	519.10	0.17
14	7.00	519.80	0.13
15	7.50	520.50	0.13
16	8.00	521.30	0.15
17	8.50	521.80	0.10
18	9.00	522.30	0.10
19	9.50	522.90	0.11
20	10.00	523.40	0.10
21	10.50	524.00	0.11
22	11.00	524.60	0.11

USER INPUT BLANK VALUE
BLANK VALUE = 8.909877 micrograms carbon
BLANK FACTOR = 8.909877 / 10.99985 = +8.1E-01 ug/min Carbon

SAMPLE RESULTS:
(524.6 - 8.909011)(1)/(1) = +5.157E+02 g/L Carbon
(524.6 - 8.909011)(1)/(1)(12) = +4.297E+01 Molar Carbon

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

515.7 / .02269 = 2.2819E4

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 1686 DUP Date: 04/10/96 Time: 14:39:40

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.83 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.00	13.10	96.18
3	1.50	100.80	87.00
4	2.00	180.40	44.12
5	2.50	239.30	24.61
6	3.00	275.00	12.98
7	3.50	298.30	7.81
8	4.00	315.10	5.33
9	4.50	329.00	4.22
10	5.00	340.90	3.49
11	5.50	351.50	3.02
12	6.00	360.90	2.60
13	6.50	369.70	2.38
14	7.00	377.50	2.07
15	7.50	384.00	1.69
16	8.00	389.90	1.51
17	8.50	394.70	1.22
18	9.00	399.00	1.08
19	9.50	402.70	0.92
20	10.00	405.90	0.79
21	10.50	408.50	0.64
22	11.00	410.80	0.56

USER INPUT BLANK VALUE
BLANK VALUE = 20.12972 micrograms carbon
BLANK FACTOR = 20.12972 / 10.99985 = +1.8E+00 ug/min Carbon

SAMPLE RESULTS:
(410.8 - 20.12631)(1)/(1) = +3.907E+02 g/L Carbon
(410.8 - 20.12631)(1)/(1)(12) = +3.256E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 4/10/96
JL STEELE 00000

$\frac{390.7}{.022kg} = 1.728E4$

1195

RADIOCHEMICAL ANALYSES

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LABCORE Data Entry Template for Worklist# 6201

Analyst: S.C.L **Instrument:** AB00 16 **Book#** 43B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine Sample Size using Ludlum.For Spike use:0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK-PREP				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T000539	0		@ALPHA01	LIQUID	96000082	C-106 GRAB
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T000539	0		@ALPHA01	LIQUID		
6	SPK	S96T000539	0		@ALPHA01	LIQUID		

Final page for worklist # 6201

Sue C Lai 3-8-96
Analyst Signature **Date**

Sharon L Holden 3/11/96
Analyst Signature **Date**

M B Brown 3/11/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6201

Analyst: scl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine Sample Size using Ludlum.For Spike use:0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.53E-05	1.57E-5	102.610	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.21E+00	4.210	% Ct. Error
2	BLNK-PREP		0	@ALPHA01	ALPHA01	LIQUID	1	<3.84E-3		uCi/mL
2	BLNK-PREP		0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	1.00E+00	3.92E-01	0.390	uCi/mL
4	SAMPLE	S96T000539	0	@ALPHA01	ALPHA01	LIQUID	N/A	1.15E+00	9.650e-003	uCi/mL
4	SAMPLE	S96T000539	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.03E+00	0.000	% Ct. Error
5	DUP	S96T000539	0	@ALPHA01	ALPHA01	LIQUID	1.15E+0	1.14E+0	0.870	RPD
5	DUP	S96T000539	0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.97E+00	4.970	% Ct. Error
6	SPK	S96T000539	0	@ALPHA01	ALPHA01	LIQUID	3.92E-02	4.27E-02	108.930	% Recovery

Final page for worklist# 6201

Analyst Signature Date

Analyst Signature Date

3/12/96

Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2218	2182
6201	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		73.763	72.563
Batch Number	Standard Value in µCi/mL		1.53E-05	
96001848	Concentration in µCi/L	=	1.58E-02	
Rep #	Replicate Concentration in µCi/L	=	1.55E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.5664E-02	
Sample Prep				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)			
WL6201	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
SLH				
Chemist				
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL		1.57E-05	DETECTION LEVEL
Analyst				
SCL				
Date Complete				9.46E-08 µCi/mL
03/11/96	RELATIVE COUNTING ERROR	=	4.2%	
Analysis Date				
03/08/96				
Analysis Time				
10:30 AM				
Sample Point				
C-106 GRAB				

Analyst:		SLH	Date: 11-Mar-96
Signature of Chemist:	[signature]	SLF	Date: 3/12/96

STANDARD.WB1 Rev. 1.0 508101ML

1200

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) LIQUIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	3	1
6201	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Prep Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176

Sample Number			
96001848	Blank Concentration in µCi/L	<	3.84E+00
Replicate	Replicate Concentration in µCi/L	<	3.84E+00
0	Maximum Concentration in µCi/L	<	3.8362E+00

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample Wt	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
03/11/96	
Analysis Date	
03/08/96	
Analysis Time	
10:30 AM	
Sample Point	
C-106 GRAB	

ALPHA TOTAL in µCi/mL (Maximum)	=	< 3.84E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			9.65E-03 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:	SCL		Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/11/96

BLANK.WB1 Rev. 1.0 508101ML

1201

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1536	1624
6201	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		51.030	53.963

96001848	Blank Concentration in µCi/L 1.11E+03
	Replicate Concentration in µCi/L 1.18E+03
0	Average Concentration in µCi/L 1.1465E+03

N/A

S96T000539

WB27808

SLH

SLF

SCL

03/11/96

03/08/96

10:30 AM

C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Average)	=	1.15E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		5.0%	9.65E-03 µCi/mL

Analyst:		SCL	Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/12/96

SAMPLE.WB1 Rev. 1.0 508101MU

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1568	1573
6201	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		52.097	52.263

96001848	Blank Concentration in µCi/L 1.14E+03
	Replicate Concentration in µCi/L 1.14E+03
0	Average Concentration in µCi/L 1.1396E+03

N/A

S96T000539

WB27806

SLH

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF

SCL

03/11/96

03/08/96

10:30 AM

C-106 GRAB

ALPHA TOTAL in µCi/mL (Average) =	1.14E+00		DETECTION LEVEL
RELATIVE COUNTING ERROR	5.0%		9.65E-03 µCi/mL

Analyst:	SCL		Date: 11-Mar-96
Signature of Chemist:	SLF		Date: 3/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

				SPIKE	REPLICATE
[illegible]	DETECTOR NUMBER			16	16
SPK	DISH SIZE 1 , 2 , or 5		(MS)	2	2
[illegible]	TOTAL COUNTS		(TC)	64058	55534
6201	COUNT TIME in MINUTES		(CT)	30	30
[illegible]	BACKGROUND in cpm		(BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	1.000	1.000
[illegible]	SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR		(DDF)	1	1
[illegible]	SPIKE VOLUME in mL		(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR		(SDF)	1	1
[illegible]	SPIKE BOOK NUMBER		(Spk BN)	119B43	119B43
96001848	SPIKE VALUE in µCi/mL		(SVal)	3.9201E-02	3.9201E-02
[illegible]	INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/mL		(S+S)	4.66E+01	4.04E+01
[illegible]	AVERAGE or MAXIMUM µCi/mL in SAMPLE			1.1239E-04	

N/A

[illegible]

S96T000539

[illegible]

WB27806

[illegible]

SLH

[illegible]

SLF

[illegible]

SCL

[illegible]

03/11/96

[illegible]

03/08/96

[illegible]

10:30 AM

[illegible]

C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.92E-02
QC FOUND	=	4.27E-02
AVG. PERCENT SPIKE RECOVERY	=	108.8%

Analyst:		SLH	Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/12/96

SPIKE.WB1 Rev. 1.0 508101ML

03/07/96 09:49
A-0004-1

LABCORE Data Entry Template for Worklist# 6273

Analyst: S.C.L **Instrument:** AB00 14 **Book#** 43B 56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine Sample Size using Ludlum.For Spike use:0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK-PREP				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T001024	0		@ALPHA01	LIQUID	96000174	C-106 GRAB
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T001024	0		@ALPHA01	LIQUID		
6	SPK	S96T001024	0		@ALPHA01	LIQUID		

Final page for worklist # 6273

Sue C Lai 3-8-96
Analyst Signature **Date**

Luciana Z Cahuane 3/11/96
Analyst Signature **Date**

R B Brown 3/11/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6273

Analyst: scl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine Sample Size using Ludlum.For Spike use:0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.53E-05	1.35E-5	88.240	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.21E+00	4.210	% Ct. Error
2	BLNK-PREP		0	@ALPHA01	ALPHA01	LIQUID	1	<4.98E-3		uCi/mL
2	BLNK-PREP		0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	1.00E+00	9.58E-01	0.960	uCi/mL
4	SAMPLE	S96T001024	0	@ALPHA01	ALPHA01	LIQUID	N/A	9.28E-01	1.160e-002	uCi/mL
4	SAMPLE	S96T001024	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.11E+00	0.000	% Ct. Error
5	DUP	S96T001024	0	@ALPHA01	ALPHA01	LIQUID	9.28E-1	8.80E-1	5.310	RPD
5	DUP	S96T001024	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.38E+00	5.380	% Ct. Error
6	SPK	S96T001024	0	@ALPHA01	ALPHA01	LIQUID	3.92E-02	3.64E-02	92.860	% Recovery

Final page for worklist# 6273

Analyst Signature **Date** **Analyst Signature** **Date**

3/12/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	5	5
Work List	GROSS COUNTS	(GC)	2206	2275
6273	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2484	0.2484
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		73.133	75.433
Batch Number	Standard Value in µCi/mL		1.53E-05	
96001919	Concentration in µCi/L	=	1.33E-02	
Rerun	Replicate Concentration in µCi/L	=	1.37E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3471E-02	
Sample Prep				
N/A				
Sample #				
WL6273				
Instrument Code				
WB27807				
Prepared By				
SZC				
Chemist				
SFL				
Analyst				
SCL				
Date Complete				
03/11/96				
Analysis Date				
03/08/96				
Analysis Time				
11:40 AM				
Sample Point				
C-106 GRAB				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL		1.35E-05	
RELATIVE COUNTING ERROR	=	4.2%	1.14E-07 µCi/mL

Analyst:	SZC		Date: 11-Mar-96
Signature of Chemist:		SFL	Date: 3/12/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) LIQUIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	5	5
Work List	GROSS COUNTS	(GC)	11	12
6273	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2484	0.2484
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.269	0.269
Batch Number				
96001919	Blank Concentration in µCi/L	<	4.98E+00	
Rerun	Replicate Concentration in µCi/L	<	4.98E+00	
0	Maximum Concentration in µCi/L	<	4.9843E+00	

Sample Prep: N/A

Sample #: WL6273

Instrument Code: WB27807

Prepared By: SZC

Chemist: SFL

Analyst: SCL

Date Complete: 03/11/96

Analysis Date: 03/08/96

Analysis Time: 11:40 AM

Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum) = < 4.98E-03		DETECTION LEVEL
LESS Than Value was Determined from Lc.		
RELATIVE COUNTING ERROR	500.0%	1.16E-02 µCi/mL

Analyst:		SCL	Date: 11-Mar-96
Signature of Chemist:		SFL	Date: 3/12/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	5	5
Work List	GROSS COUNTS	(GC)	1530	1504
6273	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2484	0.2484
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		50.600	49.733
Batch Number				
96001919	Blank Concentration in µCi/L		9.36E+02	
Rerun	Replicate Concentration in µCi/L		9.20E+02	
0	Average Concentration in µCi/L		9.2801E+02	

Sample Prep: N/A

Sample #: S96T001024

Instrument Code: WB27807

Prepared By: SZC

Chemist: SFL

Analyst: SCL

Date Complete: 03/11/96

Analysis Date: 03/08/96

Analysis Time: 11:40 AM

Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Average) =	9.28E-01	
RELATIVE COUNTING ERROR	5.1%	1.16E-02 µCi/mL

Analyst:		SCL	Date: 11-Mar-96
Signature of Chemist:		SFL	Date: 3/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	5	5
Work List	GROSS COUNTS	(GC)	1514	1363
6273	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2484	0.2484
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		50.067	45.033

Batch Number	
96001919	Blank Concentration in µCi/L 9.26E+02
Rerun	Replicate Concentration in µCi/L 8.33E+02
0	Average Concentration in µCi/L 8.7961E+02
Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T001024	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SFL	ALPHA TOTAL in µCi/mL (Average) = 8.80E-01
Analyst	
SCL	
Date Complete	
03/11/96	RELATIVE COUNTING ERROR 5.4%
Analysis Date	
03/08/96	
Analysis Time	
11:40 AM	
Sample Point	
C-106 GRAB	

DETECTION LEVEL
1.16E-02 µCi/mL

Analyst:		SCL	Date: 11-Mar-96
Signature of Chemist:		SFL	Date: 3/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

1210

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
DETECTOR NUMBER			14	14
DISH SIZE 1 , 2 , or 5		(MS)	5	5
TOTAL COUNTS		(TC)	60366	63111
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.4	0.4
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	1.000	1.000
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	10201	10201
DIGEST DILUTION FACTOR		(DDF)	1	1
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	119B43	119B43
SPIKE VALUE in µCi/mL		(SVal)	3.9201E-02	3.9201E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2484	0.2484
SAMPLE + SPIKE µCi/mL		(S+S)	3.72E+01	3.89E+01
AVERAGE or MAXIMUM µCi/mL in SAMPLE			9.2801E-01	

Type	SPK
Work List	6273
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96001919
Rerun	0
Sample Prep	N/A
Sample #	S96T001024
Instrument Code	WB27807
Prepared By	SZC
Chemist	SFL
Analyst	SCL
Date Complete	03/11/96
Analysis Date	03/08/96
Analysis Time	11:40 AM
Sample Point	C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.92E-02
QC FOUND	=	3.64E-02
AVG. PERCENT SPIKE RECOVERY	=	92.9%

Analyst:		SZC	Date: 11-Mar-96
Signature of Chemist:		SFL	Date: 3/12/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 6864

Analyst: AKL **Instrument:** AB00 #16 **Book#** 43B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new (Field Blank Parent)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T000855	0		@ALPHA01	LIQUID	96000082	C-106 GRAB
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T000855	0		@ALPHA01	LIQUID		
6	SPK	S96T000855	0		@ALPHA01	LIQUID		

Final page for worklist # 6864

A Lewis 3/27/96
Analyst Signature **Date**

C. Quinn 3/28/96
Analyst Signature **Date**

MGS 3/28/96

Data Entry Comments: The RPD for sample 855 is acceptable due to low sample alpha activity. 4/1/96

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistdata Version 0.0 05/16/95
04/01/96 14:35

LABCORE Completed Worklist Report for Worklist# 6864

Analyst: akl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01 LIQUID	1.53E-05	1.62E-5	105.880	% Recovery
1	STD		0		@ALPHA01	ALPHA01E LIQUID	1.00	4.18E+00	4.180	% Ct. Error
2	BLNK		0		@ALPHA01	ALPHA01 LIQUID	1	<1.44E-6		uCi/mL
2	BLNK		0		@ALPHA01	ALPHA01E LIQUID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01 LIQUID	1.00E+00	8.33E-01	0.830	uCi/mL
4	SAMPLE	S96T000855	0		@ALPHA01	ALPHA01 LIQUID	N/A	3.34E-05	3.850e-006	uCi/mL
4	SAMPLE	S96T000855	0		@ALPHA01	ALPHA01E LIQUID	N/A	2.10E+01	0.000	% Ct. Error
5	DUP	S96T000855	0		@ALPHA01	ALPHA01 LIQUID	3.34E-5	2.05E-5	47.870	RPD
5	DUP	S96T000855	0		@ALPHA01	ALPHA01E LIQUID	1.00	2.78E+01	27.800	% Ct. Error
6	SPK	S96T000855	0		@ALPHA01	ALPHA01 LIQUID	3.59E-02	4.08E-02	113.650	% Recovery

Final page for worklist# 6864

Analyst Signature **Date** **Analyst Signature** **Date**

4/1/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 6864

Analyst: akl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.53E-05	1.62E-5	105.880	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.18E+00	4.180	% Ct. Error
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1	<1.44E-6		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	0.00E+00	8.33E-01	0.000	uCi/mL
4	SAMPLE	S96T000855	0	@ALPHA01	ALPHA01	LIQUID	N/A	3.34E-05	3.850e-006	uCi/mL
4	SAMPLE	S96T000855	0	@ALPHA01	ALPHA01E	LIQUID	N/A	2.10E+01	0.000	% Ct. Error
5	DUP	S96T000855	0	@ALPHA01	ALPHA01	LIQUID	3.34E-5	2.05E-5	47.870	RPD
5	DUP	S96T000855	0	@ALPHA01	ALPHA01E	LIQUID	1.00	2.78E+01	27.800	% Ct. Error
6	SPK	S96T000855	0	@ALPHA01	ALPHA01	LIQUID	3.59E-02	4.08E-02	113.650	% Recovery

Final page for worklist# 6864

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date

Corrected QC actual + yield for BLNK/BKG.

4/1/96

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2337	2211
6864	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		77.800	73.600
Batch Number	Standard Value in µCi/mL		1.53E-05	
96002567	Concentration in µCi/L	=	1.67E-02	
Rerun	Replicate Concentration in µCi/L	=	1.58E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.6207E-02	

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Sample # WL#6864

Instrument Code WB27806

Prepared By CJO

Chemist SLF

Analyst AKL

Date Complete 03/28/96

Analysis Date 03/27/96

Analysis Time 02:00 PM

Sample Point C-106

				DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.62E-05		
RELATIVE COUNTING ERROR	=	4.2%		7.71E-08 µCi/mL

Analyst:		CJO	Date: 28-Mar-96
Signature of Chemist:		SLF	Date: 4/1/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) LIQUIDS

			BLNK	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	3	2
6864	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.135	0.135
Batch Number				
96002567	Blank Concentration in µCi/L	<	1.44E-03	
Rerun	Replicate Concentration in µCi/L	<	1.44E-03	
0	Maximum Concentration in µCi/L	<	1.4421E-03	

Sample Prep: N/A

Sample #: WL#6864

Instrument Code: WB27806

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 03/28/96

Analysis Date: 03/27/96

Analysis Time: 02:00 PM

Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum) = < 1.44E-06		DETECTION LEVEL
LESS Than Value was Determined from Lc.		3.85E-06 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		AKL	Date: 28-Mar-96
Signature of Chemist:		SLF	Date: 4/1/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	97	96
6864	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.133	3.100

Blank Concentration in µCi/L	3.35E-02
Replicate Concentration in µCi/L	3.32E-02
Average Concentration in µCi/L	3.3363E-02

Batch Number: 96002567
Rerun: 0
Sample Prep: N/A
Sample #: S96T000855
Instrument Code: WB27806
Prepared By: CJO
Chemist: SLF
Analyst: AKL
Date Complete: 03/28/96
Analysis Date: 03/27/96
Analysis Time: 02:00 PM
Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Average)	=	3.34E-05	3.85E-06 µCi/mL
RELATIVE COUNTING ERROR		21.0%	

Analyst:	AKL		Date: 28-Mar-96
Signature of Chemist:		SLF	Date: 4/1/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	58	63
6864	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.833	2.000

Batch Number	
96002567	Blank Concentration in µCi/L 1.96E-02
Rerun	Replicate Concentration in µCi/L 2.14E-02
0	Average Concentration in µCi/L 2.0517E-02

Sample Prep: N/A

Sample #: S96T000855

Instrument Code: WB27806

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 03/28/96

Analysis Date: 03/27/96

Analysis Time: 02:00 PM

Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Average)	=	2.05E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR		27.8%	3.85E-06 µCi/mL

Analyst:	AKL		Date: 28-Mar-96
Signature of Chemist:		SLF	Date: 4/1/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	55706	58755
6864	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.200	0.200
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96002567	SPIKE VALUE in µCi/mL	(SVal)	3.5899E-02	3.5899E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/mL	(S+S)	1.99E-02	2.10E-02
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE		3.3363E-05	
N/A				
Sample #				
S96T000855				
Instrument Code				
WB27806				
Prepared By				
CJO				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
03/28/96				
Analysis Date				
03/27/96				
Analysis Time				
02:00 PM				
Sample Point				
C-106				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	4.08E-02
AVG. PERCENT SPIKE RECOVERY	=	113.6%

Analyst:		CJO	Date: 28-Mar-96
Signature of Chemist:		SLF	Date: 4/1/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7865

Analyst: AKL **Instrument:** AB00 16 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T000546	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T000546	0	F	@ALPHA01	SOLID		
6	SPK	S96T000546	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T000555	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T000555	0	F	@ALPHA01	SOLID		
9	SPK	S96T000555	0	F	@ALPHA01	SOLID		
10	SAMPLE	S96T000561	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
11	DUP	S96T000561	0	F	@ALPHA01	SOLID		
12	SPK	S96T000561	0	F	@ALPHA01	SOLID		
13	SAMPLE	S96T000571	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
14	DUP	S96T000571	0	F	@ALPHA01	SOLID		
15	SPK	S96T000571	0	F	@ALPHA01	SOLID		

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 7865

S Type	Sample#	R	A	Test	Matrix	Group#	Project

Final page for worklist # 7865

Alita Lewis 4/22/96
Analyst Signature Date

Sharon L Walker 4-24-96
Analyst Signature Date

Sue E. Hogan 4/25/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 7865

Analyst: akl **Instrument:** AB16 (a-706) **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.51E-4	117.969	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.32E+00	4.320	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<5.57E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	2.55E+02	255.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	2.14E+00	2.140	uCi/g
4	SAMPLE	S96T000546	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.88E+00	724.0e-004	uCi/g
4	SAMPLE	S96T000546	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.03E+01	0.0e+000	% Ct. Error
5	DUP	S96T000546	0	F	@ALPHA01	ALPHA01	SOLID	2.88E+0	2.57E+0	11.376	RPD
5	DUP	S96T000546	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.05E+01	10.500	% Ct. Error
6	SPK	S96T000546	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.82E-02	106.407	% Recovery
7	SAMPLE	S96T000555	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.33E+00	773.0e-004	uCi/g
7	SAMPLE	S96T000555	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.94E+00	0.0e+000	% Ct. Error
8	DUP	S96T000555	0	F	@ALPHA01	ALPHA01	SOLID	3.33E+0	3.06E+0	8.451	RPD
8	DUP	S96T000555	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	9.85E+00	9.850	% Ct. Error
9	SPK	S96T000555	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.94E-02	109.749	% Recovery
10	SAMPLE	S96T000561	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.56E+00	132.0e-003	uCi/g
10	SAMPLE	S96T000561	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.00E+01	0.0e+000	% Ct. Error
11	DUP	S96T000561	0	F	@ALPHA01	ALPHA01	SOLID	1.56E+0	1.15E+0	30.258	RPD
11	DUP	S96T000561	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.09E+01	20.900	% Ct. Error
12	SPK	S96T000561	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.87E-02	107.799	% Recovery
13	SAMPLE	S96T000571	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.32E+00	451.0e-004	uCi/g
13	SAMPLE	S96T000571	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.22E+01	0.0e+000	% Ct. Error
14	DUP	S96T000571	0	F	@ALPHA01	ALPHA01	SOLID	1.32E+0	3.57E+0	92.025	RPD
14	DUP	S96T000571	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	8.19E+00	8.190	% Ct. Error
15	SPK	S96T000571	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.85E-02	107.242	% Recovery

Final page for worklist# 7865

Analyst Signature **Date** **Analyst Signature** **Date**

4/29/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed RadChem Report for Worklist#: 7865

Analyst: akl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.51E-4	117.970	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.32E+00	4.320	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<5.26E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	2.55E+02	255.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	2.14E+00	2.140	uCi/g
4	SAMPLE	S96T000546	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.88E+00	724.0e-004	uCi/g
4	SAMPLE	S96T000546	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.03E+01	0.0e+000	% Ct. Error
5	DUP	S96T000546	0	F	@ALPHA01	ALPHA01	SOLID	2.88E+0	2.57E+0	11.380	RPD
5	DUP	S96T000546	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.05E+01	10.500	% Ct. Error
6	SPK	S96T000546	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.82E-02	106.410	% Recovery
7	SAMPLE	S96T000555	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.33E+00	773.0e-004	uCi/g
7	SAMPLE	S96T000555	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.94E+00	0.0e+000	% Ct. Error
8	DUP	S96T000555	0	F	@ALPHA01	ALPHA01	SOLID	3.33E+0	3.06E+0	8.450	RPD
8	DUP	S96T000555	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	9.85E+00	9.850	% Ct. Error
9	SPK	S96T000555	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.94E-02	109.750	% Recovery
10	SAMPLE	S96T000561	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.56E+00	132.0e-003	uCi/g
10	SAMPLE	S96T000561	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.00E+01	0.0e+000	% Ct. Error
11	DUP	S96T000561	0	F	@ALPHA01	ALPHA01	SOLID	1.56E+0	1.15E+0	30.260	RPD
11	DUP	S96T000561	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.09E+01	20.900	% Ct. Error
12	SPK	S96T000561	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.87E-02	107.800	% Recovery
13	SAMPLE	S96T000571	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.32E+00	451.0e-004	uCi/g
13	SAMPLE	S96T000571	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.22E+01	0.0e+000	% Ct. Error
14	DUP	S96T000571	0	F	@ALPHA01	ALPHA01	SOLID	1.32E+0	3.57E+0	92.020	RPD
14	DUP	S96T000571	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	8.19E+00	8.190	% Ct. Error
15	SPK	S96T000571	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.85E-02	107.240	% Recovery

Final page for worklist# 7865

Analyst Signature **Date** **Analyst Signature** **Date**

4/25/96

Reviewer Signature **Date**

Corrected Blnk Found value.

4/25/96

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) **LA-508-113 (A-2) STANDARD**

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2176	2063
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		72.463	68.697
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003703	Concentration in µCi/L	=	1.55E-01	
Rerun	Replicate Concentration in µCi/L	=	1.47E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.5111E-01	
Sample Prep				
N/A				
Sample #				
WL7865				
Instrument Code				
WB27806				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/24/96				
Analysis Date				
04/22/96				
Analysis Time				
03:30 PM				
Sample Point				
C-106				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.51E-04	
RELATIVE COUNTING ERROR	=	4.3%	6.77E-07 µCi/mL

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	5	4
7865	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9436	0.9436
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.243	0.199

96003703	Blank Concentration in µCi/g	<	5.57E-02
	Replicate Concentration in µCi/g	<	4.56E-02
0	Maximum Concentration in µCi/g	<	5.5735E-02

N/A

WL7865

WB27806

SLH

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF

AKL

04/24/96

04/22/96

03:30 PM

C-106

				DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum)	=	< 5.57E-02		7.24E-02 µCi/g
LESS THAN Value was Determined from Rmax.				
RELATIVE COUNTING ERROR		254.8%		

Analyst:	AKL		Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/29/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	392	366
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9436	0.9436
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.997	12.130

Batch Number	
96003703	Blank Concentration in µCi/g 2.98E+00
Rerun	Replicate Concentration in µCi/g 2.78E+00
0	Average Concentration in µCi/g 2.8790E+00
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000546	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 2.88E+00
Analyst	
AKL	
Date Complete	
04/24/96	RELATIVE COUNTING ERROR 10.3%
Analysis Date	
04/22/96	
Analysis Time	
03:30 PM	
Sample Point	
C-106	

DETECTION LEVEL
7.24E-02 µCi/g

Analyst:		AKL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	355	400
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.054	1.054
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.763	13.263

Blank Concentration in µCi/g	2.41E+00
Replicate Concentration in µCi/g	2.72E+00
Average Concentration in µCi/g	2.5672E+00

Batch Number: 96003703
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T000546
Instrument Code: WB27806
Prepared By: SLH
Chemist: SLF
Analyst: AKL
Date Complete: 04/24/96
Analysis Date: 04/22/96
Analysis Time: 03:30 PM
Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average)	=	2.57E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.5%	6.48E-02 µCi/g

Analyst:		AKL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	53420	54484
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.07	0.07
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	1.000	1.000
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	101	101
DIGEST GRAMS of SOLIDS / L		(Dg/L)	0.9436	0.9436
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	123B43	123B43
SPIKE VALUE in µCi/mL		(SVal)	3.5895E-02	3.5895E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
SAMPLE + SPIKE µCi/g		(S+S)	4.08E+02	4.16E+02
AVERAGE or MAXIMUM µCi/g in SAMPLE			2.8790E+00	

Type	SPK
Work List	7865
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96003703
Rerun	0
Sample Prep	FUSION01
Sample #	S96T000546
Instrument Code	WB27806
Prepared By	SLH
Chemist	SLF
Analyst	AKL
Date Complete	04/24/96
Analysis Date	04/22/96
Analysis Time	03:30 PM
Sample Point	C-106

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.82E-02
AVG. PERCENT SPIKE RECOVERY	=	106.5%

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	395	426
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8844	0.8844
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13.097	14.130

Batch Number	
96003703	Blank Concentration in µCi/g 3.20E+00
Rerun	Replicate Concentration in µCi/g 3.45E+00
0	Average Concentration in µCi/g 3.3284E+00
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000555	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.33E+00
Analyst	
AKL	
Date Complete	
04/24/96	RELATIVE COUNTING ERROR 9.9%
Analysis Date	
04/22/96	
Analysis Time	
03:30 PM	
Sample Point	
C-106	

DETECTION LEVEL
7.73E-02 µCi/g

Analyst:		AKL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	402	427
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.97	0.97
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13.330	14.163

Batch Number		
96003703	Blank Concentration in µCi/g	2.97E+00
Rerun	Replicate Concentration in µCi/g	3.16E+00
0	Average Concentration in µCi/g	3.0644E+00

Sample Prep: FUSION01

Sample #: S96T000555

Instrument Code: WB27806

Prepared By: SLH

Chemist: SLF

Analyst: AKL

Date Complete: 04/24/96

Analysis Date: 04/22/96

Analysis Time: 03:30 PM

Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

		DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average) =	3.06E+00	
RELATIVE COUNTING ERROR	9.9%	7.05E-02 µCi/g

Analyst:		AKL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK9

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	55537	55573
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8844	0.8844
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96003703	SPIKE VALUE in µCi/mL	(SVal)	3.5895E-02	3.5895E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	4.53E+02	4.53E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.3284E+00	
FUSION01				
Sample #				
S96T000555	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/24/96				
Analysis Date				
04/22/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.94E-02	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	109.6%	
Sample Point				
C-106				

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	125	102
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.516	0.516
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.097	3.330

Batch Number	
96003703	Blank Concentration in µCi/g 1.72E+00
Rerun	Replicate Concentration in µCi/g 1.40E+00
0	Average Concentration in µCi/g 1.5561E+00
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000561	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.56E+00
Analyst	
AKL	
Date Complete	
04/24/96	RELATIVE COUNTING ERROR 20.0%
Analysis Date	
04/22/96	
Analysis Time	
03:30 PM	
Sample Point	
C-106	

DETECTION LEVEL
1.32E-01 µCi/g

Analyst:		AKL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	105	94
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.612	0.612
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.430	3.063

Blank Concentration in µCi/g	1.21E+00
Replicate Concentration in µCi/g	1.08E+00
Average Concentration in µCi/g	1.1471E+00

Batch Number: 96003703
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T000561
Instrument Code: WB27806
Prepared By: SLH
Chemist: SLF
Analyst: AKL
Date Complete: 04/24/96
Analysis Date: 04/22/96
Analysis Time: 03:30 PM
Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average) =	1.15E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR	20.9%	1.12E-01 µCi/g

Analyst:		AKL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK12

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	53377	55437
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.516	0.516
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96003703	SPIKE VALUE in µCi/mL	(SVal)	3.5895E-02	3.5895E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	7.46E+02	7.74E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.5561E+00	
FUSION01				
Sample #				
S96T000561	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/24/96				
Analysis Date				
04/22/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.87E-02	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	107.9%	
Sample Point				
C-106				

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	266	295
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.5148	1.5148
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.797	9.763

Batch Number	
96003703	Blank Concentration in µCi/g 1.26E+00
Rerun	Replicate Concentration in µCi/g 1.39E+00
0	Average Concentration in µCi/g 1.3247E+00
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000571	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.32E+00
Analyst	
AKL	
Date Complete	
04/24/96	RELATIVE COUNTING ERROR 12.2%
Analysis Date	
04/22/96	
Analysis Time	
03:30 PM	
Sample Point	
C-106	

DETECTION LEVEL
4.51E-02 µCi/g

Analyst:		AKL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	617	579
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.2024	1.2024
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		20.497	19.230

Blank Concentration in µCi/g	3.69E+00
Replicate Concentration in µCi/g	3.46E+00
Average Concentration in µCi/g	3.5721E+00

Batch Number: 96003703
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T000571
Instrument Code: WB27806
Prepared By: SLH
Chemist: SLF
Analyst: AKL
Date Complete: 04/24/96
Analysis Date: 04/22/96
Analysis Time: 03:30 PM
Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	3.57E+00	
RELATIVE COUNTING ERROR		8.2%	5.68E-02 µCi/g

Analyst:	AKL		Date: 24-Apr-96
Signature of Chemist:		SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101MN

WORKBOOK PAGE: SPK15

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	55154	53329
7865	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.5148	1.5148
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96003703	SPIKE VALUE in µCi/mL	(SVal)	3.5895E-02	3.5895E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	2.62E+02	2.54E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.3247E+00	
FUSION01				
Sample #				
S96T000571				
Instrument Code				
WB27806				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/24/96				
Analysis Date				
04/22/96				
Analysis Time				
03:30 PM				
Sample Point				
C-106				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.85E-02
AVG. PERCENT SPIKE RECOVERY	=	107.3%

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SPIKE.WB1 Rev. 1.0 508101NL

LABCORE Data Entry Template for Worklist# 8867

Analyst: JLF **Instrument:** AB00 #18 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: RUSH.Determine sample size using ludlum.Spike use: 0.1ml.new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001036	0	F	@ALPHA01	SOLID	96000174	C-106 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001036	0	F	@ALPHA01	SOLID		
6	SPK	S96T001036	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001563	0	F	@ALPHA01	SOLID	96000174	C-106 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T001563	0	F	@ALPHA01	SOLID		
9	SPK	S96T001563	0	F	@ALPHA01	SOLID		

Final page for worklist # 8867

Jessie L Fristy 5-18-96
Analyst Signature **Date**

Sue E Hogan 5-20-96
Analyst Signature **Date**

C.J. Opinion 5/21/96
BLN 5-21-96

Data Entry Comments:

Replicate data for 1036 indicate that the elevated RPD is the result of sample inhomogeneity.

5/21/96

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8867

Analyst: jlf **Instrument:** AB18 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: RUSH.Determine sample size using ludlum.Spike use: 0.1ml.new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.47E-4	114.844	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.40E+00	4.400	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<6.30E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	1.08E+00	1.080	BLNK/BKG
4	SAMPLE	S96T001036	0	F	@ALPHA01	ALPHA01	SOLID	N/A	6.33E+00	109.0e-003	uCi/g
4	SAMPLE	S96T001036	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	6.97E+00	0.0e+000	% Ct. Error
5	DUP	S96T001036	0	F	@ALPHA01	ALPHA01	SOLID	6.33E+0	2.42E+0	89.371	RPD
5	DUP	S96T001036	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.14E+01	11.400	% Ct. Erro
6	SPK	S96T001036	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.47E-02	96.657	% Recovery
7	SAMPLE	S96T001563	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.61E+00	110.0e-003	uCi/g
7	SAMPLE	S96T001563	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.56E+00	0.0e+000	% Ct. Error
8	DUP	S96T001563	0	F	@ALPHA01	ALPHA01	SOLID	3.61E+0	3.67E+0	1.648	RPD
8	DUP	S96T001563	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	9.24E+00	9.240	% Ct. Erro
9	SPK	S96T001563	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.89E-02	108.357	% Recovery

Final page for worklist# 8867

Analyst Signature **Date** **Analyst Signature** **Date**

5/21/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

WHC-SD-WM-DP-183, REV. 0

AT : LA-508-101 (D-2) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
	DETECTOR NUMBER		18	18
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2121	2006
8867	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		70.500	66.667
	Standard Value in µCi/mL		1.28E-04	
96004877	Concentration in µCi/L	=	1.52E-01	
	Replicate Concentration in µCi/L	=	1.43E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4746E-01	

N/A

WL8867

WB27809

SEH

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF

JLF

05/20/96

05/18/96

01:35 AM

C-106 GRAB

				DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.47E-04		
RELATIVE COUNTING ERROR	=	4.4%		1.01E-06 µCi/mL

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

STANDARD.WB1 Rev. 1.0 508101ML

1240

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		18	18
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Total	GROSS COUNTS	(GC)	5	8
8867	COUNT TIME in MINUTES	(CT)	30	30
Bkgd	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Dilution	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8792	1.8792
Eff	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.191	0.272

Sample Number			
96004877	Blank Concentration in µCi/g	<	4.40E-02
Rerun	Replicate Concentration in µCi/g	<	6.30E-02
0	Maximum Concentration in µCi/g	<	6.2971E-02

Sample Prep
N/A

Sample ID
WL8867

Instrument Code
WB27809

Prepared By
SEH

Chemist
SLF

Analyst
JLF

Date Complete
05/20/96

Analysis Date
05/18/96

Analysis Time
01:35 AM

Sample Point
C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Maximum)	=	< 6.30E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.			1.09E-01 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
[illegible]	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	845	809
8867	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
[illegible]	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8792	1.8792
[illegible]	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		27.967	26.767

[illegible]		
96004877	Blank Concentration in µCi/g	6.46E+00
[illegible]	Replicate Concentration in µCi/g	6.19E+00
0	Average Concentration in µCi/g	6.3250E+00

[illegible]	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
[illegible]	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001036	
[illegible]	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
[illegible]	
SEH	
[illegible]	
SLF	ALPHA TOTAL in µCi/g (Average) = 6.33E+00
[illegible]	
JLF	
[illegible]	
05/20/96	RELATIVE COUNTING ERROR 7.0%
[illegible]	
05/18/96	
[illegible]	
01:35 AM	
[illegible]	
C-106 GRAB	

DETECTION LEVEL
1.09E-01 µCi/g

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:	[signature]	SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
	DETECTOR NUMBER		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	332	315
8867	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8996	1.8996
	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.867	10.300

Blank Concentration in µCi/g	2.48E+00
Replicate Concentration in µCi/g	2.35E+00
Average Concentration in µCi/g	2.4198E+00

Batch Number: 96004877
Replicate: 0
Sample Prep: FUSION01
Sample #: S96T001036
Instrument Code: WB27809
Prepared By: SEH
Chemist: SLF
Analyst: JLF
Date Complete: 05/20/96
Analysis Date: 05/18/96
Analysis Time: 01:35 AM
Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average)	=	2.42E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		11.4%	1.08E-01 µCi/g

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		18	18
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Total Time	TOTAL COUNTS	(TC)	50545	48015
8867	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Dilution	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8792	1.8792
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Spike Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004877	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
Efficiency	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
0	SAMPLE + SPIKE µCi/g	(S+S)	3.89E+02	3.70E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		6.3250E+00	
FUSION01				
Sample Number				
S96T001036	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Model	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27809	QC ACTUAL = SVal			
Prepared by	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
JLF				
Date Complete				
05/20/96				
Analysis Date				
05/18/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.47E-02	
01:35 AM	AVG. PERCENT SPIKE RECOVERY	=	96.8%	
Sample Point				
C-106 GRAB				

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
[illegible]	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	438	505
8867	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
[illegible]	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8684	1.8684
[illegible]	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14.400	16.633
[illegible]				
96004877	Blank Concentration in µCi/g		3.35E+00	
[illegible]	Replicate Concentration in µCi/g		3.87E+00	
0	Average Concentration in µCi/g		3.6070E+00	

[illegible]	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
[illegible]	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001563	
[illegible]	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
[illegible]	
SEH	
[illegible]	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.61E+00
[illegible]	
JLF	
[illegible]	
05/20/96	RELATIVE COUNTING ERROR 9.6%
[illegible]	
05/18/96	
[illegible]	
01:35 AM	
[illegible]	
C-106 GRAB	

DETECTION LEVEL
1.10E-01 µCi/g

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:	[signature]	SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

WHC-SD-WM-DP-183, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
[illegible]	DETECTOR NUMBER		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	481	468
8867	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
[illegible]	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8492	1.8492
[illegible]	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		15.833	15.400
Batch Number				
96004877	Blank Concentration in µCi/g		3.72E+00	
[illegible]	Replicate Concentration in µCi/g		3.62E+00	
0	Average Concentration in µCi/g		3.6679E+00	

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001563	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.67E+00
Analyst	
JLF	
Date Complete	
05/20/96	RELATIVE COUNTING ERROR 9.2%
Analysis Date	
05/18/96	
Analysis Time	
01:35 AM	
Sample Point	
C-106 GRAB	

DETECTION LEVEL
1.11E-01 µCi/g

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:	[signature]	SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK9

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		18	18
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Total Counts	TOTAL COUNTS	(TC)	53170	56370
8867	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Dilution Factor	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8684	1.8684
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Spike Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004877	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
Reagent	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
0	SAMPLE + SPIKE µCi/g	(S+S)	4.12E+02	4.37E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.6070E+00	
FUSION01				
Sample				
S96T001563	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27809	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
JLF				
Date Complete				
05/20/96				
Analysis Date				
05/18/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.89E-02	
01:35 AM	AVG. PERCENT SPIKE RECOVERY	=	108.4%	
Sample Point				
C-106 GRAB				

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8951

Analyst: S.C.L **Instrument:** AB00 18 **Book#** 47856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Use .1-10-1 mL sample size. Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002718	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T002718	0	F	@ALPHA01	SOLID		
6	SPK	S96T002718	0	F	@ALPHA01	SOLID		

Final page for worklist # 8951

Sue C Lai 5-20-96
Analyst Signature **Date**

Sharon L Udell 5-21-96
Analyst Signature **Date**

Sue E. Hogan 5-21-96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8951

Analyst: scl **Instrument:** AB18 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .1-10-1 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.46E-4	114.062	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.43E+00	4.430	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<5.69E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	1.50E+00	1.500	BLNK/BKG
4	SAMPLE	S96T002718	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.50E+00	921.0e-004	uCi/g
4	SAMPLE	S96T002718	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.86E+00	0.0e+000	% Ct. Error
5	DUP	S96T002718	0	F	@ALPHA01	ALPHA01	SOLID	3.50E+0	3.64E+0	3.922	RPD
5	DUP	S96T002718	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	9.99E+00	9.990	% Ct. Erro
6	SPK	S96T002718	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.20E-02	89.136	% Recovery

Final page for worklist# 8951

Analyst Signature **Date**

Analyst Signature **Date**

5/21/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WHC-SD-WM-DP-183, REV. 0

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) **LA-508-113 (A-2) STANDARD**

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		18	18
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1970	2124
8951	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		65.567	70.700
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004994	Concentration in µCi/L	=	1.41E-01	
Rerun	Replicate Concentration in µCi/L	=	1.52E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4649E-01	
Sample Prep				
N/A				
Sample #				
WL8951				
Instrument Code				
WB27809				
Prepared By				
SLH2				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/21/96				
Analysis Date				
05/20/96				
Analysis Time				
03:30 PM				
Sample Point				
C-106				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.46E-04	DETECTION LEVEL	
RELATIVE COUNTING ERROR	=	4.4%	7.74E-07 µCi/mL	

Analyst:		SLH2	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

STANDARD.WB1 Rev. 1.0 508101ML

1250

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		18	18
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	4	5
8951	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8488	0.8488
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.179	0.222

Batch Number			
96004994	Blank Concentration in µCi/g	<	4.58E-02
Rerun	Replicate Concentration in µCi/g	<	5.69E-02
0	Maximum Concentration in µCi/g	<	5.6857E-02

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Sample # WL8951

Instrument Code: WB27809

Prepared By: SLH2

Chemist: SLF

Analyst: SCL

Date Complete: 05/21/96

Analysis Date: 05/20/96

Analysis Time: 03:30 PM

Sample Point: C-106

				DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum)	=	< 5.69E-02		
LESS THAN Value was Determined from Rmax.				9.21E-02 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		SCL	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	422	404
8951	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8488	0.8488
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13.967	13.367

Batch Number		
96004994	Blank Concentration in µCi/g	3.57E+00
Rerun	Replicate Concentration in µCi/g	3.42E+00
1	Average Concentration in µCi/g	3.4966E+00

Sample Prep: FUSION01

Sample #: S96T002718

Instrument Code: WB27809

Prepared By: SLH2

Chemist: SLF

Analyst: SCL

Date Complete: 05/21/96

Analysis Date: 05/20/96

Analysis Time: 03:30 PM

Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

				DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	3.50E+00		9.21E-02 µCi/g
RELATIVE COUNTING ERROR		9.9%		

Analyst:		SCL	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	436	394
8951	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8184	0.8184
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14.433	13.033

Blank Concentration in µCi/g	3.83E+00
Replicate Concentration in µCi/g	3.46E+00
Average Concentration in µCi/g	3.6441E+00

Batch Number: 96004994
Rerun: 1
Sample Prep: FUSION01
Sample #: S96T002718
Instrument Code: WB27809
Prepared By: SLH2
Chemist: SLF
Analyst: SCL
Date Complete: 05/21/96
Analysis Date: 05/20/96
Analysis Time: 03:30 PM
Sample Point: C-106

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	3.64E+00	
RELATIVE COUNTING ERROR		10.0%	9.56E-02 µCi/g

Analyst:	SCL		Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-183, REV. 0

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		18	18
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	45312	44831
8951	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8488	0.8488
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004994	SPIKE VALUE in µCi/mL	(SVal)	3.5890E-02	3.5890E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
1	SAMPLE + SPIKE µCi/g	(S+S)	3.86E+02	3.82E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.4966E+00	
FUSION01				
Sample #				
S96T002718	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27809	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH2	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/21/96				
Analysis Date				
05/20/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.20E-02	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	89.2%	
Sample Point				
C-106				

Analyst:		SLH2	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8987

Analyst: SLH **Instrument:** AB00 15 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Use .1-10-.5 mL sample size. Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001531	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001531	0	F	@ALPHA01	SOLID		
6	SPK	S96T001531	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001541	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001541	0	F	@ALPHA01	SOLID		
9	SPK	S96T001541	0	F	@ALPHA01	SOLID		

Final page for worklist # 8987

Sandra Hood Boatright
Analyst Signature **Date** 5-20-96

Sue E. Hogan 5-21-96
Analyst Signature **Date**
C.J. Quinn 5/21/96

Data Entry Comments: A spike 123B43

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrad Version 0.0 04/18/96
05/21/96 10:11

LABCORE Completed RadChem Report for Worklist#: 8987

Analyst: slh **Instrument:** AB15 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .1-10-.5 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.31E-4	102.344	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.38E+00	4.380	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<4.91E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	1.84E+02	184.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	6.67E+00	6.670	BLNK/BKG
4	SAMPLE	S96T001531	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.63E+00	433.0e-004	uCi/g
4	SAMPLE	S96T001531	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.54E+00	0.0e+000	% Ct. Error
5	DUP	S96T001531	0	F	@ALPHA01	ALPHA01	SOLID	2.63E+0	2.57E+0	2.308	RPD
5	DUP	S96T001531	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	9.57E+00	9.570	% Ct. Erro
6	SPK	S96T001531	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.36E-02	93.593	% Recovery
7	SAMPLE	S96T001541	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.12E+00	476.0e-004	uCi/g
7	SAMPLE	S96T001541	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.29E+00	0.0e+000	% Ct. Error
8	DUP	S96T001541	0	F	@ALPHA01	ALPHA01	SOLID	3.12E+0	3.31E+0	5.910	RPD
8	DUP	S96T001541	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	8.88E+00	8.880	% Ct. Erro
9	SPK	S96T001541	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.39E-02	94.429	% Recovery

Final page for worklist# 8987

Analyst Signature **Date** **Analyst Signature** **Date**

5/21/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) **LA-508-113 (A-2) STANDARD**

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2009	2159
8987	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		66.937	71.937
Batch Number	Standard Value in µCi/mL		1.28E-04	
96005012	Concentration in µCi/L	=	1.27E-01	
Rerun	Replicate Concentration in µCi/L	=	1.36E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3142E-01	

Sample Prep
N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #
WL8987

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Instrument Code
WB26872

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
SEH

Chemist
SLF

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.31E-04	4.51E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.4%	

Analyst
SLH

Date Complete
05/21/96

Analysis Date
05/20/96

Analysis Time
05:30 PM

Sample Point
C-106 GRAB

Analyst:		SEH	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

STANDARD.WB1 Rev. 1.0 508101ML

1257

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	9	3
8987	COUNT TIME in MINUTES	(CT)	30	30
AT [illegible]	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1028	2.1028
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.270	0.179

Batch Number			
96005012	Blank Concentration in µCi/g		4.91E-02
Rerun	Replicate Concentration in µCi/g	<	3.25E-02
0	Maximum Concentration in µCi/g	<	4.9089E-02

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
WL8987	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Maximum) = < 4.91E-02
Analyst	
SLH	LESS THAN Value was Determined from Rs.
Date Complete	
05/21/96	RELATIVE COUNTING ERROR 184.3%
Analysis Date	
05/20/96	
Analysis Time	
05:30 PM	
Sample Point	
C-106 GRAB	

DETECTION LEVEL
4.33E-02 µCi/g

Analyst:		SLH	Date: 21-May-96
Signature of Chemist:	[signature]	SLF	Date: 5/21/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
WorkList	GROSS COUNTS	(GC)	444	425
8987	COUNT TIME in MINUTES	(CT)	30	30
AT or TB?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
TestCode	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1028	2.1028
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14.770	14.137

Batch Number		
96005012	Blank Concentration in µCi/g	2.69E+00
Rerun	Replicate Concentration in µCi/g	2.57E+00
1	Average Concentration in µCi/g	2.6278E+00

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001531	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 2.63E+00
Analyst	
SLH	
Date Complete	
05/21/96	RELATIVE COUNTING ERROR 9.5%
Analysis Date	
05/20/96	
Analysis Time	
05:30 PM	
Sample Point	
C-106 GRAB	

DETECTION LEVEL
4.33E-02 µCi/g

Analyst:		SLH	Date: 21-May-96
Signature of Chemist:	[signature]	SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	464	422
8987	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Method	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1916	2.1916
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		15.437	14.037

Batch Number	
96005012	Blank Concentration in µCi/g 2.69E+00
Rerun	Replicate Concentration in µCi/g 2.45E+00
1	Average Concentration in µCi/g 2.5707E+00

Sample Prep: FUSION01

Sample # S96T001531

Instrument Code WB26872

Prepared By SEH

Chemist SLF

Analyst SLH

Date Complete 05/21/96

Analysis Date 05/20/96

Analysis Time 05:30 PM

Sample Point C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average) = 2.57E+00		DETECTION LEVEL
RELATIVE COUNTING ERROR	9.6%	4.16E-02 µCi/g

Analyst:		SLH	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	54289	53231
8987	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1028	2.1028
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005012	SPIKE VALUE in µCi/mL	(SVal)	3.5890E-02	3.5890E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
1	SAMPLE + SPIKE µCi/g	(S+S)	3.29E+02	3.23E+02
	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.6278E+00	

Sample Prep: FUSION01

Sample #: S96T001531

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: SLH

Date Complete: 05/21/96

Analysis Date: 05/20/96

Analysis Time: 05:30 PM

Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.36E-02
AVG. PERCENT SPIKE RECOVERY	=	93.7%

Analyst:		SEH	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	491	448
8987	COUNT TIME in MINUTES	(CT)	30	30
AT Worksheet	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9148	1.9148
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		16.337	14.903

Batch Number	
96005012	Blank Concentration in µCi/g 3.26E+00
Rerun	Replicate Concentration in µCi/g 2.98E+00
1	Average Concentration in µCi/g 3.1187E+00

Sample Prep: FUSION01

Sample #: S96T001541

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: SLH

Date Complete: 05/21/96

Analysis Date: 05/20/96

Analysis Time: 05:30 PM

Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average)	=	3.12E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		9.3%	4.76E-02 µCi/g

Analyst:		SLH	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	490	534
8987	COUNT TIME in MINUTES	(CT)	30	30
AT or TEST	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9684	1.9684
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		16.303	17.770

Batch Number		
96005012	Blank Concentration in µCi/g	3.17E+00
Rerun	Replicate Concentration in µCi/g	3.45E+00
1	Average Concentration in µCi/g	3.3090E+00

Sample Prep: FUSION01

Sample #: S96T001541

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: SLH

Date Complete: 05/21/96

Analysis Date: 05/20/96

Analysis Time: 05:30 PM

Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average)	=	3.31E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		8.9%	4.63E-02 µCi/g

Analyst:		SLH	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK9

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Workbook	TOTAL COUNTS	(TC)	56926	51335
8987	COUNT TIME in MINUTES	(CT)	30	30
ATCHTR2	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9148	1.9148
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005012	SPIKE VALUE in µCi/mL	(SVal)	3.5890E-02	3.5890E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
1	SAMPLE + SPIKE µCi/g	(S+S)	3.79E+02	3.42E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.1187E+00	
FUSION01				
Sample #				
S96T001541	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB26872	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SLH				
Date Complete				
05/21/96				
Analysis Date				
05/20/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.39E-02	
05:30 PM	AVG. PERCENT SPIKE RECOVERY	=	94.3%	
Sample Point				
C-106 GRAB				

Analyst:		SEH	Date: 21-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9038

Analyst: S.C.L **Instrument:** AB00 #13 **Book#** 47856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Use .1-10-1 mL sample size. Rerun #1. SLF

SUPER SUPER RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001678	0	F	@ALPHA01	SOLID	96000174	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001678	0	F	@ALPHA01	SOLID		
6	SPK	S96T001678	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001689	0	F	@ALPHA01	SOLID	96000174	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001689	0	F	@ALPHA01	SOLID		
9	SPK	S96T001689	0	F	@ALPHA01	SOLID		

Final page for worklist # 9038

[signature] 5-21-96
Analyst Signature **Date**

[signature] 5 22 96
Analyst Signature **Date**

[signature] 5/22/96

[signature] 5/22/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrad Version 0.0 04/18/96
05/22/96 07:51

LABCORE Completed RadChem Report for Worklist#: 9038

Analyst: scl **Instrument:** AB13 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .1-10-1 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.31E-4	102.344	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.29E+00	4.290	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<4.10E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	2.57E+02	257.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	1.58E+00	1.580	BLNK/BKG
4	SAMPLE	S96T001678	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.50E+00	608.0e-004	uCi/g
4	SAMPLE	S96T001678	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.65E+00	0.0e+000	% Ct. Error
5	DUP	S96T001678	0	F	@ALPHA01	ALPHA01	SOLID	1.50E+0	1.62E+0	7.692	RPD
5	DUP	S96T001678	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	8.80E+00	8.800	% Ct. Erro
6	SPK	S96T001678	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.27E-02	91.086	% Recovery
7	SAMPLE	S96T001689	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.68E+00	113.0e-003	uCi/g
7	SAMPLE	S96T001689	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.23E+01	0.0e+000	% Ct. Error
8	DUP	S96T001689	0	F	@ALPHA01	ALPHA01	SOLID	1.68E+0	1.84E+0	9.091	RPD
8	DUP	S96T001689	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.18E+01	11.800	% Ct. Erro
9	SPK	S96T001689	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.35E-02	93.315	% Recovery

Final page for worklist# 9038

Analyst Signature **Date** **Analyst Signature** **Date**

5/22/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) **LA-508-113 (A-2) STANDARD**

			STANDARD	REPLICATE
	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2229	2116
9038	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		73.930	70.163
	Standard Value in µCi/mL		1.28E-04	
96005079	Concentration in µCi/L	=	1.34E-01	
	Replicate Concentration in µCi/L	=	1.28E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3102E-01	

N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

WL9038

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

WB27810

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLH2

SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.31E-04	DETECTION LEVEL
SCL				1.11E-06 µCi/mL
05/22/96	RELATIVE COUNTING ERROR	=	4.3%	

05/21/96

03:00 PM

C-106 GRAB

Analyst:		SLH2	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/22/96

STANDARD.WB1 Rev. 1.0 508101ML

1267

WORKBOOK PAGE: BLANK2

WHC-SD-WM-DP-183, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	20	15
9038	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8392	1.8392
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.297	0.411

96005079	Blank Concentration in µCi/g		2.96E-02
	Replicate Concentration in µCi/g	<	4.10E-02
0	Maximum Concentration in µCi/g	<	4.1043E-02

N/A

WL9038

WB27810

SLH2

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/g (Maximum)	=	< 4.10E-02	DETECTION LEVEL
SCL	LESS THAN Value was Determined from Rs.			6.08E-02 µCi/g
05/22/96	RELATIVE COUNTING ERROR		256.8%	

05/21/96

03:00 PM

C-106 GRAB

Analyst:	SCL		Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/22/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	445	479
9038	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8392	1.8392
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14.463	15.597

96005079	Blank Concentration in µCi/g	1.44E+00
	Replicate Concentration in µCi/g	1.56E+00
1	Average Concentration in µCi/g	1.5010E+00

FUSION01

S96T001678

WB27810

SLH2

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/g (Average)	=	1.50E+00	DETECTION LEVEL
SCL				
05/22/96	RELATIVE COUNTING ERROR		9.6%	6.08E-02 µCi/g

05/21/96

03:00 PM

C-106 GRAB

Analyst:		SCL	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/22/96

SAMPLE.WB1 Rev. 1. 508101ML

1269

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	528	534
9038	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9588	1.9588
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17.230	17.430

96005079	Blank Concentration in µCi/g	1.62E+00
	Replicate Concentration in µCi/g	1.63E+00
1	Average Concentration in µCi/g	1.6250E+00

FUSION01

S96T001678

WB27810

SLH2

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/g (Average)	=	1.62E+00	DETECTION LEVEL
SCL				
05/22/96	RELATIVE COUNTING ERROR		8.8%	5.71E-02 µCi/g

05/21/96

03:00 PM

C-106 GRAB

Analyst:		SCL	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/22/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Total Counts	TOTAL COUNTS	(TC)	54855	53982
9038	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Dilution Factor	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8392	1.8392
Volume	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Spike Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005079	SPIKE VALUE in µCi/mL	(SVal)	3.5890E-02	3.5890E-02
Efficiency	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
1	SAMPLE + SPIKE µCi/g	(S+S)	1.83E+02	1.80E+02
Sample Type	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.5010E+00	
FUSION01				
Sample				
S96T001678	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Type	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27810	QC ACTUAL = SVal			
Instrument ID	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH2	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Extracted				
05/22/96				
Analysis Date				
05/21/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.27E-02	
03:00 PM	AVG. PERCENT SPIKE RECOVERY	=	91.1%	
Sample Point				
C-106 GRAB				

Analyst:		SLH2	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/22/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	284	284
9038	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9924	0.9924
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.097	9.097

96005079	Blank Concentration in µCi/g	1.68E+00
	Replicate Concentration in µCi/g	1.68E+00
1	Average Concentration in µCi/g	1.6836E+00

FUSION01

S96T001689

WB27810

SLH2

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/g (Average)	=	1.68E+00	DETECTION LEVEL
SCL				
05/22/96	RELATIVE COUNTING ERROR		12.3%	1.13E-01 µCi/g

05/21/96

03:00 PM

C-106 GRAB

Analyst:		SCL	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/22/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	315	308
9038	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9972	0.9972
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.130	9.897

96005079	Blank Concentration in µCi/g 1.87E+00
	Replicate Concentration in µCi/g 1.82E+00
1	Average Concentration in µCi/g 1.8443E+00

FUSION01

S96T001689

WB27810

SLH2

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/g (Average)	=	1.84E+00	DETECTION LEVEL
SCL				1.12E-01 µCi/g
05/22/96	RELATIVE COUNTING ERROR		11.8%	

05/21/96

03:00 PM

C-106 GRAB

Analyst:		SCL	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/22/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK9

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	55396	55560
9038	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9924	0.9924
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005079	SPIKE VALUE in µCi/mL	(SVal)	3.5890E-02	3.5890E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
1	SAMPLE + SPIKE µCi/g	(S+S)	3.42E+02	3.43E+02
	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.6836E+00	

FUSION01

S96T001689

WB27810

SLH2

SLF

SCL

05/22/96

05/21/96

03:00 PM

C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.35E-02
AVG. PERCENT SPIKE RECOVERY	=	93.2%

Analyst:	SLH2	Date: 22-May-96
Signature of Chemist:	SLF	Date: 5/22/96

SPIKE.WB1 Rev. 1.0 508101ML

THE FOLLOWING ANALYSES WERE RERUN AND INCLUDED IN THE DATA PACKAGE, BUT THE RESULTS HAVE NOT BEEN REPORTED IN THE FINAL SUMMARY REPORTS.

LABCORE Data Entry Template for Worklist# 8868

Analyst: JLF **Instrument:** AB00 #20 **Book#** 47356

Method: LA-508-101 Rev/Mod D2

Worklist Comment: RUSH.Determine sample size using ludlum.Spike use: 0.1ml.new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001531	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001531	0	F	@ALPHA01	SOLID		
6	SPK	S96T001531	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001541	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001541	0	F	@ALPHA01	SOLID		
9	SPK	S96T001541	0	F	@ALPHA01	SOLID		

Final page for worklist # 8868

Jessie L Frisby 5-17-96
Analyst Signature **Date**

Sue E. Hogan 5/20/96
Analyst Signature **Date**

[signature] 5/20/96

DATA NOT USED IN PACKAGE

Data Entry Comments: STD recovery out of control limits.
Batch will be reran. [signature] 5/20/96

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code

LABCORE Completed RadChem Report for Worklist#: 8868

Analyst: jlf **Instrument:** AB20 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: RUSH.Determine sample size using ludlum.Spike use: 0.1ml.new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.28E-04	2.65E-4	207.031	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	2.87E+00	2.870	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<2.13E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	3.33E+00	3.330	BLNK/BKG
4	SAMPLE	S96T001531	0	F	@ALPHA01 ALPHA01	SOLID	N/A	2.93E+00	389.0e-004	uCi/g
4	SAMPLE	S96T001531	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	8.46E+00	0.0e+000	% Ct. Error
5	DUP	S96T001531	0	F	@ALPHA01 ALPHA01	SOLID	2.93E+0	2.68E+0	8.913	RPD
5	DUP	S96T001531	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	8.74E+00	8.740	% Ct. Erro
6	SPK	S96T001531	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.66E-02	101.950	% Recovery
7	SAMPLE	S96T001541	0	F	@ALPHA01 ALPHA01	SOLID	N/A	3.42E+00	427.0e-004	uCi/g
7	SAMPLE	S96T001541	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	8.34E+00	0.0e+000	% Ct. Error
8	DUP	S96T001541	0	F	@ALPHA01 ALPHA01	SOLID	3.42E+0	3.77E+0	9.736	RPD
8	DUP	S96T001541	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	7.71E+00	7.710	% Ct. Erro
9	SPK	S96T001541	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.89E-02	108.357	% Recovery

Final page for worklist# 8868

Analyst Signature **Date** **Analyst Signature** **Date**

5/20/96

Reviewer Signature **Date**

DATA
NOT USED
IN PACKAGE

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2)	LA-508-113 (A-2) STANDARD		STANDARD	REPLICATE
[illegible]	DETECTOR NUMBER		20	20
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	4659	4707
8868	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
[illegible]	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
[illegible]	EFFICIENCY FACTOR	(EFF)	0.2651	0.2651
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		155.270	156.870
[illegible]	Standard Value in µCi/mL		1.28E-04	
96004878	Concentration in µCi/L	=	2.64E-01	
[illegible]	Replicate Concentration in µCi/L	=	2.67E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.6519E-01	
[illegible]				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
[illegible]	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)			
WL8868	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WC16101	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
SEH				
Chemist				
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	2.65E-04	DETECTION LEVEL
Analyst				
JLF				
Date Complete				4.05E-07 µCi/mL
05/20/96	RELATIVE COUNTING ERROR	=	2.9%	
Analysis Date				
05/17/96				
Analysis Time				
11:30 AM				
Sample Point				
C-106 GRAB				

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/20/96

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		20	20
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2	4
8868	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1028	2.1028
	EFFICIENCY FACTOR	(EFF)	0.2651	0.2651
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.130	0.103

Batch Number			
96004878	Blank Concentration in µCi/g	<	2.13E-02
Rerun	Replicate Concentration in µCi/g		1.69E-02
0	Maximum Concentration in µCi/g	<	2.1273E-02

Sample Prep: N/A

Sample: WL8868

Instrument Code: WC16101

Prepared By: SEH

Chemist: SLF

Analyst: JLF

Date Completed: 05/20/96

Analysis Date: 05/17/96

Analysis Time: 11:30 AM

Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

				DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum)	=	< 2.13E-02		
LESS THAN Value was Determined from Rmax.				3.89E-02 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:	JLF		Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/20/96

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
	DETECTOR NUMBER		20	20
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	539	539
8868	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1028	2.1028
	EFFICIENCY FACTOR	(EFF)	0.2651	0.2651
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17.937	17.937

Batch Number		
96004878	Blank Concentration in µCi/g	2.93E+00
Rerun	Replicate Concentration in µCi/g	2.93E+00
0	Average Concentration in µCi/g	2.9277E+00

Sample Prep
FUSION01

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample
S96T001531

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Instrument Code
WC16101

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
SEH

Chemist
SLF

ALPHA TOTAL in µCi/g (Average)	=	2.93E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		8.5%	3.89E-02 µCi/g

Analyst
JLF

Date Completed
05/20/96

Analysis Date
05/17/96

Analysis Time
11:30 AM

Sample Point
C-106 GRAB

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
[illegible]	DETECTOR NUMBER		20	20
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	523	506
8868	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
[illegible]	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1916	2.1916
[illegible]	EFFICIENCY FACTOR	(EFF)	0.2651	0.2651
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17.403	16.837

Batch Number		
96004878	Blank Concentration in µCi/g	2.73E+00
Rerun	Replicate Concentration in µCi/g	2.64E+00
0	Average Concentration in µCi/g	2.6812E+00

Sample Prep
FUSION01

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample
S96T001531

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Instrument Code
WC16101

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
SEH

Chemist
SLF

ALPHA TOTAL in µCi/g (Average)	=	2.68E+00	DETECTION LEVEL
			3.73E-02 µCi/g
RELATIVE COUNTING ERROR		8.7%	

Analyst
JLF

Date Complete
05/20/96

Analysis Date
05/17/96

Analysis Time
11:30 AM

Sample Point
C-106 GRAB

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:	[signature]	SLF	Date: 5/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

1281

I:\508101\OUT\AT8868.WB1 05/20/96 10:45:01

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
	DETECTOR NUMBER		20	20
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	66127	64203
8868	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1028	2.1028
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004878	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
Round	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2651	0.2651
0	SAMPLE + SPIKE µCi/g	(S+S)	3.60E+02	3.49E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.9277E+00	
FUSION01				
Sample #				
S96T001531	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WC16101	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
JLF				
Date Completed				
05/20/96				
Analysis Date				
05/17/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.66E-02	
11:30 AM	AVG. PERCENT SPIKE RECOVERY	=	102.0%	
Sample Point				
C-106 GRAB				

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/20/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
	DETECTOR NUMBER		20	20
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	591	555
8868	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9148	1.9148
	EFFICIENCY FACTOR	(EFF)	0.2651	0.2651
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		19.670	18.470

Blank Number	
96004878	Blank Concentration in µCi/g 3.53E+00
Replicate	Replicate Concentration in µCi/g 3.31E+00
0	Average Concentration in µCi/g 3.4183E+00

Sample Group
FUSION01

Sample
S96T001541

Instrument Code
WC16101

Prepared By
SEH

Chemist
SLF

Analyst
JLF

Date Completed
05/20/96

Analysis Date
05/17/96

Analysis Time
11:30 AM

Sample Point
C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	3.42E+00	
RELATIVE COUNTING ERROR		8.3%	4.27E-02 µCi/g

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

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DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
	DETECTOR NUMBER		20	20
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	649	651
8868	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9684	1.9684
	EFFICIENCY FACTOR	(EFF)	0.2651	0.2651
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		21.603	21.670

Blank Number		
96004878	Blank Concentration in µCi/g	3.77E+00
Replicate	Replicate Concentration in µCi/g	3.78E+00
0	Average Concentration in µCi/g	3.7728E+00

Sample Prep
FUSION01

Sample #
S96T001541

Instrument Code
WC16101

Prepared By
SEH

Chemist
SLF

Analyst
JLF

Date Complete
05/20/96

Analysis Date
05/17/96

Analysis Time
11:30 AM

Sample Point
C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	3.77E+00	
RELATIVE COUNTING ERROR		7.7%	4.15E-02 µCi/g

Analyst:	JLF		Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

1284

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPK9

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
	DETECTOR NUMBER		20	20
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	68142	70347
8868	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9148	1.9148
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004878	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2651	0.2651
0	SAMPLE + SPIKE µCi/g	(S+S)	4.07E+02	4.20E+02
	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.4183E+00	

Sample Prep
FUSION01

Sample #
S96T001541

Instrument Code
WC16101

Prepared By
SEH

Chemist
SLF

Analyst
JLF

Date Completed
05/20/96

Analysis Date
05/17/96

Analysis Time
11:30 AM

Sample Point
C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG
SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)
QC ACTUAL = SVal
QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))
PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.89E-02
AVG. PERCENT SPIKE RECOVERY	=	108.4%

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/20/96

SPIKE.WB1 Rev. 1.0 508101ML

1285

DATA NOT USED IN PACKAGE

RUSH

LABCORE Data Entry Template for Worklist# 8869

Analyst: JLF **Instrument:** AB00 #13 **Book#** 47856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: RUSH!Determine sample size using ludlum.Spike use: 0.1ml.new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001678	0	F	@ALPHA01	SOLID	96000174	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001678	0	F	@ALPHA01	SOLID		
6	SPK	S96T001678	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001689	0	F	@ALPHA01	SOLID	96000174	C-106 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001689	0	F	@ALPHA01	SOLID		
9	SPK	S96T001689	0	F	@ALPHA01	SOLID		

Final page for worklist # 8869

Jessi L Jinsby 5-18-96
Analyst Signature **Date**

Sue E Hogan 5-20-96
Analyst Signature **Date**

C.J. Opinion 5/21/96

DATA NOT USED IN PACKAGE

Data Entry Comments:

STD recovery is out of control limits.
Batch will be rerun. [illegible]
5/21/96

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8869

Analyst: jlf **Instrument:** AB13 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: RUSH!Determine sample size using ludlum.Spike use: 0.1ml.new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	2.80E-4	218.750	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	2.92E+00	2.920	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<3.76E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	1.30E+00	1.300	BLNK/BKG
4	SAMPLE	S96T001678	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.64E+00	533.0e-004	uCi/g
4	SAMPLE	S96T001678	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.42E+00	0.0e+000	% Ct. Error
5	DUP	S96T001678	0	F	@ALPHA01	ALPHA01	SOLID	1.64E+0	1.51E+0	8.254	RPD
5	DUP	S96T001678	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	9.15E+00	9.150	% Ct. Erro
6	SPK	S96T001678	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.83E-02	106.685	% Recovery
7	SAMPLE	S96T001689	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.96E+00	987.0e-004	uCi/g
7	SAMPLE	S96T001689	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.19E+01	0.0e+000	% Ct. Error
8	DUP	S96T001689	0	F	@ALPHA01	ALPHA01	SOLID	1.96E+0	1.99E+0	1.519	RPD
8	DUP	S96T001689	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.16E+01	11.600	% Ct. Erro
9	SPK	S96T001689	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.57E-02	99.443	% Recovery

Final page for worklist# 8869

Analyst Signature **Date** **Analyst Signature** **Date**

5/21/96

Reviewer Signature **Date**

DATA
NOT USED
IN PACKAGE

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
[illegible]	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	4708	4532
8869	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
[illegible]	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
[illegible]	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		156.663	150.797
[illegible]	Standard Value in µCi/mL		1.28E-04	
96004879	Concentration in µCi/L	=	2.85E-01	
Rerun	Replicate Concentration in µCi/L	=	2.74E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.7956E-01	

Sample Prep
N/A

Sample #
WL8869

Instrument Code
WB27810

Prepared By
SEH

Chemist
SLF

Analyst
JLF

Date Complete
05/20/96

Analysis Date
05/18/96

Analysis Time
01:30 AM

Sample Point
C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	2.80E-04	
RELATIVE COUNTING ERROR	=	2.9%	9.70E-07 µCi/mL

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:	[signature]	SLF	Date: 5/21/96

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

WHC-SD-WM-DP-183, REV. 0

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	0	12
8869	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8392	1.8392
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.257	0.377

Batch Number			
96004879	Blank Concentration in µCi/g	<	2.57E-02
Rerun	Replicate Concentration in µCi/g	<	3.76E-02
0	Maximum Concentration in µCi/g	<	3.7607E-02

Sample Prep
N/A

Sample
Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Instrument Code
WB27810

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
SEH

Chemist
SLF

Analyst
JLF

Date Complete
05/20/96

Analysis Date
05/18/96

Analysis Time
01:30 AM

Sample Point
C-106 GRAB

ALPHA TOTAL in µCi/g (Maximum)	=	< 3.76E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			5.33E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:	JLF		Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

I:\508101\OUT\AT8869.WB1 05/20/96 12:56:31

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	546	457
8869	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8392	1.8392
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17.930	14.963

Batch Number		
96004879	Blank Concentration in µCi/g	1.79E+00
Replicate	Replicate Concentration in µCi/g	1.49E+00
0	Average Concentration in µCi/g	1.6424E+00

Sample Prep
FUSION01

Sample
S96T001678

Instrument Code
WB27810

Prepared By
SEH

Chemist
SLF

Time Analyst
JLF

Date Complete
05/20/96

Analysis Date
05/18/96

Analysis Time
01:30 AM

Sample Point
C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	1.64E+00	
RELATIVE COUNTING ERROR		9.4%	5.33E-02 µCi/g

Analyst:	JLF		Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	483	500
8869	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9588	1.9588
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		15.830	16.397

Batch Number		
96004879	Blank Concentration in µCi/g	1.48E+00
Reams	Replicate Concentration in µCi/g	1.54E+00
0	Average Concentration in µCi/g	1.5109E+00
Sample Prep		
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG	
Sample	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)	
S96T001678		
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100	
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
Prepared By		
SEH		
Chemist		
SLF	ALPHA TOTAL in µCi/g (Average) =	1.51E+00
Analyst		
JLF		
Date Complete		
05/20/96	RELATIVE COUNTING ERROR	9.1%
Analysis Date		
05/18/96		
Analysis Time		
01:30 AM		
Sample Point		
C-106 GRAB		

DETECTION LEVEL
5.00E-02 µCi/g

Analyst:		JLF	Date: 20-May-96
Signature of Chemist:	[signature]	SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	61155	65220
8869	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.1	0.1
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004879	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	3.74E+03	3.99E+03
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.6424E+00	
FUSION01				
Sample #				
S96T001678				
Instrument Code				
WB27810				
Prep/Insp By				
SEH				
Chemist				
SLF				
Analyst				
JLF				
Date Complete				
05/20/96				
Analysis Date				
05/18/96				
Analysis Time				
01:30 AM				
Sample Point				
C-106 GRAB				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.83E-02
AVG. PERCENT SPIKE RECOVERY	=	106.7%

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	293	357
8869	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9924	0.9924
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.497	11.630

96004879	Blank Concentration in µCi/g	1.76E+00
	Replicate Concentration in µCi/g	2.15E+00
0	Average Concentration in µCi/g	1.9550E+00

FUSION01

S96T001689

WB27810

SEH

SLF

JLF

05/20/96

05/18/96

01:30 AM

C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	1.96E+00	
RELATIVE COUNTING ERROR		11.9%	9.87E-02 µCi/g

Analyst:	JLF		Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101M

DATA NOT USED IN PACKAGE

1293

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	358	307
8869	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9972	0.9972
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.663	9.963

Blank Number		
96004879	Blank Concentration in µCi/g	2.15E+00
Replicate	Replicate Concentration in µCi/g	1.84E+00
0	Average Concentration in µCi/g	1.9917E+00

Sample Prep
FUSION01

Sample
S96T001689

Instrument Code
WB27810

Prepared By
SEH

Chemist
SLF

Analyst
JLF

Date Completed
05/20/96

Analysis Date
05/18/96

Analysis Time
01:30 AM

Sample Form
C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	1.99E+00	
			9.82E-02 µCi/g
RELATIVE COUNTING ERROR		11.6%	

Analyst:	JLF		Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPK9

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	61086	57296
8869	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.9924	0.9924
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004879	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	3.77E+02	3.53E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.9550E+00	
FUSION01				
Sample #				
S96T001689	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27810	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
JLF				
Date Complete				
05/20/96				
Analysis Date				
05/18/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.57E-02	
01:30 AM	AVG. PERCENT SPIKE RECOVERY	=	99.4%	
Sample Point				
C-106 GRAB				

Analyst:		SEH	Date: 20-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8870

Analyst: JLF **Instrument:** AB00 13 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: RUSH!Determine sample size using ludlum.Spike use: 0.1ml.new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002718	0	F	@ALPHA01	SOLID	96000082	C-106 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T002718	0	F	@ALPHA01	SOLID		
6	SPK	S96T002718	0	F	@ALPHA01	SOLID		

Final page for worklist # 8870

Jessie Grisby 5-17-96
Analyst Signature **Date**

U Raymond 5.18.96
Analyst Signature **Date**

[signature] 5/20/96

DATA NOT USED IN PACKAGE

Data Entry Comments: STD recovery is out of control limits. Batch will be reran. [signature] 5/20/96

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8870

Analyst: jlf **Instrument:** AB13 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: RUSH!Determine sample size using ludlum.Spike use: 0.1ml.new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.28E-04	2.77E-4	216.406	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	2.97E+00	2.970	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<4.79E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	8.02E-01	0.802	BLNK/BKG
4	SAMPLE	S96T002718	0	F	@ALPHA01 ALPHA01	SOLID	N/A	3.82E+00	115.0e-003	uCi/g
4	SAMPLE	S96T002718	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	9.28E+00	0.0e+000	% Ct. Error
5	DUP	S96T002718	0	F	@ALPHA01 ALPHA01	SOLID	3.82E+0	3.71E+0	2.922	RPD
5	DUP	S96T002718	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	8.96E+00	8.960	% Ct. Erro
6	SPK	S96T002718	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.70E-02	103.064	% Recovery

Final page for worklist# 8870

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 5/20/96 Date

DATA NOT USED IN PACKAGE

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) **LA-508-113 (A-2) STANDARD**

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	4374	4770
8870	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		145.530	158.730
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004880	Concentration in µCi/L	=	2.65E-01	
Rerun	Replicate Concentration in µCi/L	=	2.89E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.7665E-01	

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Sample #: WL8870

Instrument Code: WB27810

Prepared By: VAR

Chemist: SLF

Analyst: JLF

Date Complete: 05/18/96

Analysis Date: 05/17/96

Analysis Time: 11:30 AM

Sample Point: C-106 GRAB

				DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	2.77E-04		
RELATIVE COUNTING ERROR	=	3.0%		9.70E-07 µCi/mL

Analyst:		VAR	Date: 18-May-96
Signature of Chemist:		SLF	Date: 5/20/96

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	6	7
8870	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8488	0.8488
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.221	0.221

Batch Number			
96004880	Blank Concentration in µCi/g	<	4.79E-02
Rerun	Replicate Concentration in µCi/g	<	4.79E-02
0	Maximum Concentration in µCi/g	<	4.7902E-02

Sample Prep: N/A

Sample #: WL8870

Instrument Code: WB27810

Prepared By: VAR

Chemist: SLF

Analyst: JLF

Date Complete: 05/18/96

Analysis Date: 05/17/96

Analysis Time: 11:30 AM

Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g	(Maximum)	=	< 4.79E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.				1.15E-01 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		JLF	Date: 18-May-96
Signature of Chemist:		SLF	Date: 5/20/96

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	470	606
8870	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8488	0.8488
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		15.397	19.930

Batch Number	
96004880	Blank Concentration in µCi/g 3.33E+00
Rerun	Replicate Concentration in µCi/g 4.31E+00
0	Average Concentration in µCi/g 3.8222E+00
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T002718	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
VAR	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.82E+00
Analyst	
JLF	
Date Complete	
05/18/96	RELATIVE COUNTING ERROR 9.3%
Analysis Date	
05/17/96	
Analysis Time	
11:30 AM	
Sample Point	
C-106 GRAB	

DETECTION LEVEL
1.15E-01 µCi/g

Analyst:		JLF	Date: 18-May-96
Signature of Chemist:		SLF	Date: 5/20/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	505	502
8870	COUNT TIME in MINUTES	(CT)	30	30
AT or TS ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8184	0.8184
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		16.563	16.463

Batch Number	
96004880	Blank Concentration in µCi/g 3.72E+00
Rerun	Replicate Concentration in µCi/g 3.69E+00
0	Average Concentration in µCi/g 3.7061E+00

Sample Prep: FUSION01

Sample #: S96T002718

Instrument Code: WB27810

Prepared By: VAR

Chemist: SLF

Analyst: JLF

Date Complete: 05/18/96

Analysis Date: 05/17/96

Analysis Time: 11:30 AM

Sample Point: C-106 GRAB

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average)	=	3.71E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		9.0%	1.20E-01 µCi/g

Analyst:	JLF	Date: 18-May-96	
Signature of Chemist:	SLF	Date: 5/20/96	

SAMPLE.WB1 Rev. 1.0 508101MD

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	64147	58881
8870	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	0.8488	0.8488
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004880	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	4.63E+02	4.25E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.8222E+00	
FUSION01				
Sample #				
S96T002718	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27810	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
VAR	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
JLF				
Date Complete				
05/18/96				
Analysis Date				
05/17/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.70E-02	
11:30 AM	AVG. PERCENT SPIKE RECOVERY	=	103.0%	
Sample Point				
C-106 GRAB				

Analyst:		VAR	Date: 18-May-96
Signature of Chemist:		SLF	Date: 5/20/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

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LABCORE Data Entry Template for Worklist# 6235

Analyst: ADP **Instrument:** GEA00 3 **Book#** ~~1240~~ 12B56
3-9-96

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: C-106, Sample Sizes on Traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK-PREP				@GEA-01	LIQUID		
3	SAMPLE	S96T000539	0		@GEA-01	LIQUID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T000539	0		@GEA-01	LIQUID		
5	SAMPLE	S96T001024	0		@GEA-01	LIQUID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T001024	0		@GEA-01	LIQUID		

Final page for worklist # 6235

3-9-96
Analyst Signature **Date**

3/13/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6235

Analyst: adp **Instrument:** GEA03 **Book#** 12856

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: C-106, Sample Sizes on Traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	0.026		2.58e-02	99.230	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1		1.20	1.200	% Ct. Error
1	STD		0	@GEA-01	CS13702	LIQUID	0.0272		2.76e-02	101.470	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1		1.43	1.430	% Ct. Error
2	BLNK-PREP		0	@GEA-01	CO60-02	LIQUID	1		<1.99e-5		uCi/mL
2	BLNK-PREP		0	@GEA-01	CS13702	LIQUID	1		<5.81e-5		uCi/mL
3	SAMPLE	S96T000539	0	@GEA-01	CO60-02	LIQUID	N/A	<	5.709e-03	5.709e-003	uCi/mL
3	SAMPLE	S96T000539	0	@GEA-01	CO60-02E	LIQUID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S96T000539	0	@GEA-01	CS13702	LIQUID	N/A		1.080e+02	0.000	uCi/mL
3	SAMPLE	S96T000539	0	@GEA-01	CS13702E	LIQUID	N/A		0.210	0.000	% Ct. Error
4	DUP	S96T000539	0	@GEA-01	CO60-02	LIQUID	<5.71e-3		<6.13e-3		RPD
4	DUP	S96T000539	0	@GEA-01	CO60-02E	LIQUID	1		n/a		% Ct. Error
4	DUP	S96T000539	0	@GEA-01	CS13702	LIQUID	1.08e+02		1.07e+02	0.930	RPD
4	DUP	S96T000539	0	@GEA-01	CS13702E	LIQUID	1		0.210	0.210	% Ct. Error
5	SAMPLE	S96T001024	0	@GEA-01	CO60-02	LIQUID	N/A	<	6.189e-03	6.189e-003	uCi/mL
5	SAMPLE	S96T001024	0	@GEA-01	CO60-02E	LIQUID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S96T001024	0	@GEA-01	CS13702	LIQUID	N/A		1.080e+02	0.000	uCi/mL
5	SAMPLE	S96T001024	0	@GEA-01	CS13702E	LIQUID	N/A		0.210	0.000	% Ct. Error
6	DUP	S96T001024	0	@GEA-01	CO60-02	LIQUID	<6.19e-3		<5.55e-3		RPD
6	DUP	S96T001024	0	@GEA-01	CO60-02E	LIQUID	1		n/a		% Ct. Error
6	DUP	S96T001024	0	@GEA-01	CS13702	LIQUID	1.08e+02		1.10e+02	1.830	RPD
6	DUP	S96T001024	0	@GEA-01	CS13702E	LIQUID	1		0.210	0.210	% Ct. Error

Comments Section:

Comments for sample# S96T000539 **and test** @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T001024 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 6235

Analyst Signature **Date** **Analyst Signature** **Date**

RJ Machelor 3/18/96

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Worklist Report for Worklist# 6235

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
					Reviewer Signature		Date			

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*************************************************************************
* 222-S Laboratory Counting Room   10-MAR-1996 00:39:08.69              *
*************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              6235
Sample ID:               WL6235-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: Em Barela

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3746.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.75 sec
Dead Time:               0.3%
```

Verified by: RA Jones

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-MAR-1996 23:48:22.14
Decayed to:              9-MAR-1996 23:48:22.14
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.60*	24451	1.58	1323.39	1315	17	1.4		CS-137	27.6
0	1173.12	16368	1.91	2346.51	2337	18	1.7		CO-60	25.8
0	1332.36	14742	2.01	2665.09	2655	19	1.7		CO-60	25.8

Sample ID : WL6235-STD
Acquisition date : 9-MAR-1996 23:48:22

Total number of lines in spectrum 3
Number of unidentified lines 0
Number of lines tentatively identified by NID 3 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.581E+01	2.581E+01	0.031E+01	1.20	
CS-137	30.00Y	1.000	2.764E+01	2.764E+01	0.039E+01	1.43	
		Total Activity :	5.344E+01	5.344E+01			
		Grand Total Activity :	5.344E+01	5.344E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL6235-STD Acquisition date : 9-MAR-1996 23:48:22

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1294.	477.59	1.1852E+00
NA-22	92.	1274.53	7.5340E-02
NA-24	21.	1368.55	3.8476E-02
K-40	150.	1460.75	1.0017E+00
CR-51	1171.	320.08	8.4835E-01
MN-54	702.	834.83	1.4483E-01
CO-56	778.	846.76	1.5447E-01
CO-57	1354.	122.06	6.3690E-02
CO-58	682.	810.78	1.3998E-01
FE-59	780.	1099.25	3.4236E-01
SE-75	1505.	264.66	1.4410E-01
SR-85	912.	514.01	1.1378E-01
Y-88	19.	1836.06	4.5706E-02
NB-94	807.	871.09	1.6120E-01
ZRNB-95	604.	724.18	2.7214E-01
RU-103	969.	497.08	1.2044E-01
RURH-106	709.	621.93	2.2821E+00
AG-108m	615.	722.94	1.3201E-01
CD-109	1183.	88.03	1.9708E+00
AG-110M	1073.	657.76	1.5431E-01
SN-113	1185.	391.69	1.5648E-01
TE-123m	1382.	159.00	6.6197E-02
SB-124	680.	602.73	1.1035E-01
SB-125	1294.	427.89	3.8174E-01
TE-125m	1216.	109.27	1.9646E+01
I-131	1173.	364.48	1.1643E-01
CS-134	685.	604.70	1.1131E-01
BA-140	700.	537.31	4.0729E-01
LA-140	20.	1596.21	4.4125E-02
CEPR-144	1366.	133.51	9.6749E-01
EU-152	34.	1408.01	2.3860E-01
EU-154	92.	1274.51	2.1917E-01
EU-155	1213.	105.31	2.6205E-01
HG-203	1425.	279.20	1.0454E-01
TL-208	1441.	277.36	1.3506E+00
BI-212	566.	727.18	1.7379E+00
PB-212	1611.	238.63	1.8539E-01
BI-214	745.	609.31	2.5455E-01
PB-214	1209.	351.92	4.6542E-01
RA-224	1620.	240.99	2.0644E+00
RA-226	1563.	186.10	1.8511E+00
AC-228	981.	911.21	6.9378E-01
TH-228	1231.	84.37	6.1915E+00
TH-229	1199.	88.47	2.8755E-01
PA-233	1205.	312.17	2.2044E-01
UTH-233	1549.	245.34	7.5675E+01
PA-234M	824.	1001.03	3.1085E-01
TH-234	1121.	63.29	3.9797E+00
U-235	1563.	185.71	1.1252E-01
NP-237	1215.	86.48	5.9995E-01
NP-239	1234.	106.12	2.5118E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL6235-STD Acquisition date : 9-MAR-1996 23:48:22

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1311.	129.30	8.2477E+02
AM-241	1083.	59.54	6.9042E-01
AM-243	1165.	74.67	1.6829E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAR-1996 01:35:45.12                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6235
Sample ID:               WL6235-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3747.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.45 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAR-1996 00:45:05.09
Decayed to:              10-MAR-1996 00:45:05.09
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:  15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Em Bailey

Verified by: R A Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	351.94*	44	1.61	704.19	699	11	65.3			

Sample ID : WL6235-BLK Acquisition date : 10-MAR-1996 00:45:05

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL6235-BLK Acquisition date : 10-MAR-1996 00:45:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	35.	477.59	1.9522E-01
NA-22	4.	1274.53	1.5698E-02
NA-24	3.	1368.55	1.4234E-02
K-40	124.	1460.75	9.1126E-01
CR-51	50.	320.08	1.7595E-01
MN-54	14.	834.83	2.0486E-02
CO-56	12.	846.76	1.9493E-02
CO-57	80.	122.06	1.5474E-02
CO-58	15.	810.78	2.0733E-02
FE-59	13.	1099.25	4.3609E-02
CO-60	6.	1332.50	1.9935E-02
SE-75	73.	264.66	3.1738E-02
SR-85	32.	514.01	2.1277E-02
Y-88	3.	1836.06	1.8173E-02
NB-94	10.	871.09	1.8232E-02
ZRNB-95	18.	724.18	4.7629E-02
RU-103	38.	497.08	2.3888E-02
RURH-106	13.	621.93	3.0620E-01
AG-108m	13.	722.94	1.8987E-02
CD-109	64.	88.03	4.5915E-01
AG-110M	22.	657.76	2.2030E-02
SN-113	50.	391.69	3.2003E-02
TE-123m	65.	159.00	1.4393E-02
SB-124	27.	602.73	2.1981E-02
SB-125	44.	427.89	7.0504E-02
TE-125m	69.	109.27	4.6811E+00
I-131	41.	364.48	2.1727E-02
CS-134	25.	604.70	2.1418E-02
CS-137	122.	661.66	5.8078E-02
BA-140	26.	537.31	7.8203E-02
LA-140	6.	1596.21	2.3278E-02
CEPR-144	77.	133.51	2.2961E-01
EU-152	8.	1408.01	1.1504E-01
EU-154	4.	1274.51	4.5608E-02
EU-155	83.	105.31	6.8430E-02
HG-203	62.	279.20	2.1806E-02
TL-208	67.	277.36	2.9020E-01
BI-212	19.	727.18	3.2212E-01
PB-212	102.	238.63	4.6669E-02
BI-214	59.	609.31	7.1810E-02
PB-214	91.	351.92	1.2783E-01
RA-224	96.	240.99	5.0169E-01
RA-226	84.	186.10	4.2863E-01
AC-228	30.	911.21	1.2180E-01
TH-228	87.	84.37	1.6480E+00
TH-229	63.	88.47	6.5753E-02
PA-233	67.	312.17	5.1920E-02
UTH-233	70.	245.34	1.6103E+01
PA-234M	17.	1001.03	4.4102E-02
TH-234	58.	63.29	9.0451E-01
U-235	83.	185.71	2.5905E-02

Minimum Detectable Activity Report (continued)
Sample ID : WL6235-BLK Acquisition date : 10-MAR-1996 00:45:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	67.	86.48	1.4135E-01
NP-239	82.	106.12	6.4813E-02
PU-239	82.	129.30	2.0600E+02
AM-241	59.	59.54	1.6131E-01
AM-243	80.	74.67	4.4124E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAR-1996 04:10:20.59                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6235
Sample ID:               S96T539-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3750.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:58.53 sec
Dead Time:               3.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAR-1996 03:17:41.66
Decayed to:              10-MAR-1996 03:17:41.66
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: EMBuela

Verified by: RAJones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	105.23	639	1.44	210.95	208	6	69.6			
0	123.00	683	1.02	246.48	244	6	68.1		CO-57	25.7
0	661.58*	941922	1.58	1323.34	1315	17	0.2		CS-137	1.075E+05
0	722.95	199	1.39	1446.06	1442	10	55.7			
0	1274.16	192	2.16	2548.66	2541	15	25.6			
0	1322.49	187	3.00	2645.34	2640	18	32.4			
0	1332.65	21	1.15	2665.67	2661	11	103.0			

Total number of lines in spectrum 7
Number of unidentified lines
Number of lines tentatively identified by NID 6 85.71%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.565E+01~~	~~2.566E+01~~	~~1.746E+01~~	~~68.06~~	>50%
CS-137	30.00Y	1.000	1.075E+05	1.075E+05	0.002E+05	0.21	LAD 7-19-96
		Total Activity :	1.076E+05	1.076E+05			
		Grand Total Activity :	1.076E+05	1.076E+05			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	28617.	477.59	5.6288E+02
NA-22	249.	1274.53	1.2509E+01
NA-24	14.	1368.55	3.1614E+00
K-40	128.	1460.75	9.3676E+01
CR-51	22461.	320.08	3.7528E+02
MN-54	518.	834.83	1.2573E+01
CO-56	476.	846.76	1.2203E+01
CO-58	602.	810.78	1.3281E+01
FE-59	179.	1099.25	1.6582E+01
CO-60	48.	1332.50	5.7088E+00
SE-75	24801.	264.66	5.9077E+01
SR-85	14477.	514.01	4.5773E+01
Y-88	1.	1836.06	1.0597E+00
NB-94	460.	871.09	1.2286E+01
ZRNB-95	993.	724.18	3.5255E+01
RU-103	17870.	497.08	5.2230E+01
RURH-106	5069.	621.93	6.1620E+02
AG-108m	994.	722.94	1.6944E+01
CD-109	20127.	88.03	8.2114E+02
AG-110M	20644.	657.76	6.8360E+01
SN-113	24643.	391.69	7.2082E+01
TE-123m	23787.	159.00	2.7734E+01
SB-124	5466.	602.73	3.1606E+01
SB-125	28731.	427.89	1.8170E+02
TE-125m	21414.	109.27	8.3279E+03
I-131	23477.	364.48	5.2608E+01
CS-134	5476.	604.70	3.1779E+01
BA-140	10247.	537.31	1.5738E+02
LA-140	11.	1596.21	3.2754E+00
CEPR-144	23870.	133.51	4.0846E+02
EU-152	11.	1408.01	1.3518E+01
EU-154	249.	1274.51	3.6369E+01
EU-155	21312.	105.31	1.1096E+02
HG-203	23546.	279.20	4.2926E+01
TL-208	23779.	277.36	5.5415E+02
BI-212	815.	727.18	2.1053E+02
PB-212	27577.	238.63	7.7477E+01
BI-214	5219.	609.31	6.8032E+01
PB-214	22760.	351.92	2.0779E+02
RA-224	27143.	240.99	8.5351E+02
RA-226	31901.	186.10	8.4465E+02
AC-228	354.	911.21	4.2118E+01
TH-228	19946.	84.37	2.5175E+03
TH-229	20010.	88.47	1.1867E+02
PA-233	22464.	312.17	9.6143E+01
UTH-233	26863.	245.34	3.1825E+04
PA-234M	284.	1001.03	1.8421E+01
TH-234	18591.	63.29	1.6371E+03
U-235	31697.	185.71	5.1172E+01
NP-237	20239.	86.48	2.4730E+02
NP-239	21277.	106.12	1.0535E+02

Sample ID : S96T539-SAM Acquisition date : 10-MAR-1996 03:17:41

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	23509.	129.30	3.5276E+05
AM-241	18357.	59.54	2.8706E+02
AM-243	19181.	74.67	6.8968E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAR-1996 05:05:34.71                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              6235
Sample ID:               S96T539-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02
```

Removed by:

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3751.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:57.39 sec
Dead Time:               3.8%
```

Verified by:

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAR-1996 04:12:56.25
Decayed to:              10-MAR-1996 04:12:56.25
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.95	752	1.22	246.38	244	6	61.5		CO-57	28.3
0	185.58	823	1.17	371.59	369	7	70.7		RA-226	837.
0	661.58*	934314	1.57	1323.33	1315	17	0.2		CS-137	1.067E+05
0	1004.61	126	1.75	2009.41	2005	8	40.1			
0	1274.36	171	1.77	2549.05	2541	18	32.3			
0	1321.95	229	3.49	2644.27	2636	17	26.5			
0	1332.55	44	2.15	2665.48	2658	18	58.9			

Sample ID : S96T539-DUP Acquisition date : 10-MAR-1996 04:12:56

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	7	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	6	85.71%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.826E+01~~	~~2.826E+01~~	~~1.738E+01~~	~~61.50~~	>50%
CS-137	30.00Y	1.000	1.067E+05	1.067E+05	0.002E+05	0.21	
~~RA-226~~	~~1600.00Y~~	~~1.000~~	~~8.369E+02~~	~~8.369E+02~~	~~5.916E+02~~	~~70.70~~	>50%
			---	---			
Total Activity :			1.075E+05	1.075E+05			

7/23/96

Grand Total Activity : 1.075E+05 1.075E+05

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T539-DUP Acquisition date : 10-MAR-1996 04:12:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/
BE-7	28373.	477.59	5.6048E+02
NA-22	232.	1274.53	1.2073E+01
NA-24	12.	1368.55	2.9649E+00
K-40	141.	1460.75	9.8143E+01
CR-51	22205.	320.08	3.7313E+02
MN-54	527.	834.83	1.2672E+01
CO-56	480.	846.76	1.2259E+01
CO-58	590.	810.78	1.3150E+01
FE-59	198.	1099.25	1.7422E+01
CO-60	56.	1332.50	6.1283E+00
SE-75	24579.	264.66	5.8812E+01
SR-85	14211.	514.01	4.5352E+01
Y-88	3.	1836.06	1.8354E+00
NB-94	497.	871.09	1.2778E+01
ZRNB-95	921.	724.18	3.3942E+01
RU-103	17364.	497.08	5.1484E+01
RURH-106	5219.	621.93	6.2525E+02
AG-108m	926.	722.94	1.6351E+01
CD-109	19870.	88.03	8.1588E+02
AG-110M	20803.	657.76	6.8622E+01
SN-113	24389.	391.69	7.1709E+01
TE-123m	23893.	159.00	2.7796E+01
SB-124	5387.	602.73	3.1375E+01
SB-125	28377.	427.89	1.8057E+02
TE-125m	21176.	109.27	8.2814E+03
I-131	22897.	364.48	5.1953E+01
CS-134	5246.	604.70	3.1105E+01
BA-140	10161.	537.31	1.5672E+02
LA-140	17.	1596.21	4.1104E+00
CEPR-144	23382.	133.51	4.0425E+02
EU-152	12.	1408.01	1.4032E+01
EU-154	232.	1274.51	3.5071E+01
EU-155	20892.	105.31	1.0986E+02
HG-203	23544.	279.20	4.2924E+01
TL-208	23659.	277.36	5.5275E+02
BI-212	788.	727.18	2.0710E+02
PB-212	27369.	238.63	7.7184E+01
BI-214	5354.	609.31	6.8902E+01
PB-214	22663.	351.92	2.0731E+02
RA-224	26960.	240.99	8.5062E+02
AC-228	365.	911.21	4.2768E+01
TH-228	19641.	84.37	2.4982E+03
TH-229	19832.	88.47	1.1814E+02
PA-233	22527.	312.17	9.6278E+01
UTH-233	26521.	245.34	3.1621E+04
PA-234M	263.	1001.03	1.7728E+01
TH-234	18276.	63.29	1.6231E+03
U-235	31401.	185.71	5.0932E+01
NP-237	20176.	86.48	2.4692E+02
NP-239	20960.	106.12	1.0456E+02
PU-239	23416.	129.30	3.5206E+05

Sample ID : S96T539-DUP Acquisition date : 10-MAR-1996 04:12:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	18108.	59.54	2.8511E+02
AM-243	19086.	74.67	6.8797E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAR-1996 06:50:58.94                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              6235
Sample ID:               S96T1024-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3752.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:58.45 sec
Dead Time:               3.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAR-1996 05:58:19.78
Decayed to:              10-MAR-1996 05:58:19.78
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SLH
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

Removed by: Sharon L Hall

Verified by: R A Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.09	965	1.43	246.66	244	7	54.7		~~CO-57~~	36.3
									EU-154	76.9
0	661.59*	942525	1.58	1323.35	1315	17	0.2		CS-137	1.076E+05
0	723.13	137	1.89	1446.42	1442	9	75.1		EU-154	71.9
0	1005.18	133	1.99	2010.56	2005	15	59.3		EU-154	104.
0	1274.21	154	1.77	2548.75	2543	15	30.4		EU-154	76.4
0	1322.66	203	2.00	2645.68	2641	12	23.3			
0	1332.52	47	1.73	2665.41	2656	17	49.7			

Sample ID : S96T1024-SAM Acquisition date : 10-MAR-1996 05:58:19

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	7	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	6	85.71%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.626E+01~~	~~3.629E+01~~	~~1.985E+01~~	~~54.72~~	Eu-154
CS-137	30.00Y	1.000	1.076E+05	1.076E+05	0.002E+05	0.21	
EU-154	8.59Y	1.000	7.872E+01	7.872E+01	2.014E+01	25.58	7/23/96
			---	---			
Total Activity :			1.077E+05	1.077E+05			
Grand Total Activity :			1.077E+05	1.077E+05			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	28970.	477.59	5.6635E+02
NA-22	222.	1274.53	1.1804E+01
NA-24	7.	1368.55	2.2048E+00
K-40	128.	1460.75	9.3635E+01
CR-51	22409.	320.08	3.7484E+02
MN-54	500.	834.83	1.2344E+01
CO-56	514.	846.76	1.2675E+01
CO-58	559.	810.78	1.2805E+01
FE-59	166.	1099.25	1.5958E+01
CO-60	57.	1332.50	6.1889E+00
SE-75	24644.	264.66	5.8890E+01
SR-85	14096.	514.01	4.5167E+01
Y-88	3.	1836.06	1.8354E+00
NB-94	507.	871.09	1.2905E+01
ZRNB-95	1003.	724.18	3.5426E+01
RU-103	17574.	497.08	5.1794E+01
RURH-106	5132.	621.93	6.1997E+02
AG-108m	973.	722.94	1.6767E+01
CD-109	20024.	88.03	8.1903E+02
AG-110M	20626.	657.76	6.8329E+01
SN-113	24706.	391.69	7.2174E+01
TE-123m	24001.	159.00	2.7859E+01
SB-124	5367.	602.73	3.1318E+01
SB-125	28798.	427.89	1.8191E+02
TE-125m	21366.	109.27	8.3185E+03
I-131	23131.	364.48	5.2219E+01
CS-134	5321.	604.70	3.1329E+01
BA-140	10145.	537.31	1.5660E+02
LA-140	17.	1596.21	4.1381E+00
CEPR-144	23757.	133.51	4.0748E+02
EU-152	15.	1408.01	1.5687E+01
EU-155	21137.	105.31	1.1050E+02
HG-203	23302.	279.20	4.2703E+01
TL-208	23609.	277.36	5.5216E+02
BI-212	842.	727.18	2.1408E+02
PB-212	27703.	238.63	7.7653E+01
BI-214	5401.	609.31	6.9203E+01
PB-214	22667.	351.92	2.0737E+02
RA-224	27154.	240.99	8.5368E+02
RA-226	32067.	186.10	8.4685E+02
AC-228	346.	911.21	4.1627E+01
TH-228	19763.	84.37	2.5059E+03
TH-229	19870.	88.47	1.1825E+02
PA-233	22560.	312.17	9.6348E+01
UTH-233	27071.	245.34	3.1947E+04
PA-234M	255.	1001.03	1.7454E+01
TH-234	18628.	63.29	1.6387E+03
U-235	31739.	185.71	5.1206E+01
NP-237	20253.	86.48	2.4740E+02
NP-239	21228.	106.12	1.0523E+02
PU-239	23579.	129.30	3.5329E+05

Sample ID : S96T1024-SAM Acquisition date : 10-MAR-1996 05:58:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	18286.	59.54	2.8650E+02
AM-243	19083.	74.67	6.8792E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAR-1996 07:46:35.29                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6235
Sample ID:               S96T1024-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3753.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:00.77 sec
Dead Time:               3.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAR-1996 06:53:57.41
Decayed to:              10-MAR-1996 06:53:57.41
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SLH
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:  15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by:

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.87	814	1.16	246.22	244	6	57.8		CO-57	30.6
0	661.59*	959836	1.58	1323.35	1315	17	0.2		CS-137	1.096E+05
0	1004.48	118	1.52	2009.15	2004	11	56.4			
0	1273.99	166	1.98	2548.31	2539	15	32.7			
0	1322.75	147	1.86	2645.87	2642	10	31.2			

Sample ID : S96T1024-DUP
Acquisition date : 10-MAR-1996 06:53:57

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	5	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	4	80.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.060E+01~~	~~3.060E+01~~	~~1.769E+01~~	~~57.81~~	>50% 7/23/96
CS-137	30.00Y	1.000	1.096E+05	1.096E+05	0.002E+05	0.21	
			---	---			
Total Activity :			1.096E+05	1.096E+05			
Grand Total Activity :			1.096E+05	1.096E+05			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : S96T1024-DUP
Acquisition date : 10-MAR-1996 06:53:57

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	29349.	477.59	5.7003E+02
NA-22	253.	1274.53	1.2602E+01
NA-24	7.	1368.55	2.2348E+00
K-40	124.	1460.75	9.2206E+01
CR-51	22763.	320.08	3.7779E+02
MN-54	540.	834.83	1.2836E+01
CO-56	529.	846.76	1.2858E+01
CO-58	579.	810.78	1.3028E+01
FE-59	178.	1099.25	1.6527E+01
CO-60	46.	1332.50	5.5537E+00
SE-75	25132.	264.66	5.9470E+01
SR-85	14487.	514.01	4.5789E+01
Y-88	7.	1836.06	2.7946E+00
NB-94	490.	871.09	1.2691E+01
ZRNB-95	996.	724.18	3.5301E+01
RU-103	17937.	497.08	5.2327E+01
RURH-106	5273.	621.93	6.2847E+02
AG-108m	1007.	722.94	1.7059E+01
CD-109	20326.	88.03	8.2519E+02
AG-110M	20812.	657.76	6.8637E+01
SN-113	25216.	391.69	7.2915E+01
TE-123m	24279.	159.00	2.8020E+01
SB-124	5494.	602.73	3.1686E+01
SB-125	29355.	427.89	1.8366E+02
TE-125m	21637.	109.27	8.3712E+03
I-131	23543.	364.48	5.2681E+01
CS-134	5462.	604.70	3.1741E+01
BA-140	10453.	537.31	1.5896E+02
LA-140	14.	1596.21	3.6717E+00
CEPR-144	23831.	133.51	4.0812E+02
EU-152	18.	1408.01	1.7267E+01
EU-154	253.	1274.51	3.6619E+01
EU-155	21489.	105.31	1.1142E+02
HG-203	24079.	279.20	4.3409E+01
TL-208	24283.	277.36	5.5999E+02
BI-212	872.	727.18	2.1778E+02
PB-212	28279.	238.63	7.8457E+01
BI-214	5546.	609.31	7.0126E+01
PB-214	23117.	351.92	2.0950E+02
RA-224	27589.	240.99	8.6050E+02
RA-226	32952.	186.10	8.5845E+02
AC-228	418.	911.21	4.5725E+01
TH-228	20292.	84.37	2.5392E+03
TH-229	20326.	88.47	1.1960E+02
PA-233	22995.	312.17	9.7273E+01
UTH-233	27112.	245.34	3.1972E+04
PA-234M	284.	1001.03	1.8443E+01
TH-234	18971.	63.29	1.6537E+03
U-235	32585.	185.71	5.1883E+01
NP-237	20629.	86.48	2.4968E+02
NP-239	21717.	106.12	1.0643E+02

Sample ID : S96T1024-DUP Acquisition date : 10-MAR-1996 06:53:57

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	24106.	129.30	3.5721E+05
AM-241	18779.	59.54	2.9034E+02
AM-243	19598.	74.67	6.9714E+01

LABCORE Data Entry Template for Worklist# 6940

Analyst: CRJ **Instrument:** GEA00 #2 **Book#** 12852

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: C-106 Field Blank. Sample size = 1.0ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T000855	0		@GEA-01	LIQUID	96000082	C-106 GRAB
	Analytes Requested:	CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S96T000855	0		@GEA-01	LIQUID		

Final page for worklist # 6940

C Johnson 3/27/96
Analyst Signature **Date**

Sue Hogan 3/28/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6940

Analyst: crj **Instrument:** GEA02 **Book#** 12856

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: C-106 Field Blank. Sample size = 1.0ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	0.0259	2.60e-02	100.390	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1	1.35	1.350	% Ct. Error
1	STD		0	@GEA-01	CS13702	LIQUID	0.0271	2.71e-02	100.000	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1	1.57	1.570	% Ct. Error
2	BLNK		0	@GEA-01	CO60-02	LIQUID	1	<2.62e-5		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1	<7.02e-5		uCi/mL
3	SAMPLE	S96T000855	0	@GEA-01	CO60-02	LIQUID	N/A	< 3.207e-05	3.207e-005	uCi/mL
3	SAMPLE	S96T000855	0	@GEA-01	CO60-02E	LIQUID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T000855	0	@GEA-01	CS13702	LIQUID	N/A	4.410e-02	0.000	uCi/mL
3	SAMPLE	S96T000855	0	@GEA-01	CS13702E	LIQUID	N/A	1.15	0.000	% Ct. Error
4	DUP	S96T000855	0	@GEA-01	CO60-02	LIQUID	<3.21e-5	<1.75e-5		RPD
4	DUP	S96T000855	0	@GEA-01	CO60-02E	LIQUID	1	n/a		% Ct. Error
4	DUP	S96T000855	0	@GEA-01	CS13702	LIQUID	4.41e-02	4.37e-02	0.910	RPD
4	DUP	S96T000855	0	@GEA-01	CS13702E	LIQUID	1	1.16	1.160	% Ct. Error

Comments Section:

Comments for sample# S96T000855 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 6940

Analyst Signature **Date** **Analyst Signature** **Date**

B Machelor 4/1/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 16:36:30.88                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6940
Sample ID:               WL6940-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2102.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.76 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-MAR-1996 15:45:42.57
Decayed to:              27-MAR-1996 15:45:42.57
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Em Barela

Verified by: B Machelor 3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.56*	19547	1.54	1323.13	1317	14	1.6		CS-137	27.1
0	1173.05	13294	1.87	2346.16	2337	18	1.9		CO-60	26.1
0	1332.30	11884	1.86	2664.76	2655	19	1.9		CO-60	25.9

Total number of lines in spectrum 3
Number of unidentified lines 0
Number of lines tentatively identified by NID 3 100.00%

WHC-SD-WM-DP-183, REV. 0

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.599E+01	2.599E+01	0.035E+01	1.35	
CS-137	30.00Y	1.000	2.713E+01	2.713E+01	0.043E+01	1.57	
			---	---			
Total Activity :			5.311E+01	5.311E+01			
Grand Total Activity :			5.311E+01	5.311E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL6940-STD
Acquisition date : 27-MAR-1996 15:45:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1065.	477.59	1.3240E+00
NA-22	94.	1274.53	9.4508E-02
NA-24	25.	1368.55	5.3180E-02
K-40	136.	1460.75	1.1892E+00
CR-51	1076.	320.08	9.9272E-01
MN-54	663.	834.83	1.7246E-01
CO-56	688.	846.76	1.7793E-01
CO-57	1223.	122.06	7.8204E-02
CO-58	594.	810.78	1.6013E-01
FE-59	618.	1099.25	3.7811E-01
SE-75	1326.	264.66	1.6638E-01
SR-85	816.	514.01	1.3305E-01
Y-88	14.	1836.06	4.9196E-02
NB-94	681.	871.09	1.8120E-01
ZRNB-95	538.	724.18	3.1513E-01
RU-103	877.	497.08	1.4145E-01
RURH-106	624.	621.93	2.6318E+00
AG-108m	531.	722.94	1.5038E-01
CD-109	1049.	88.03	2.4866E+00
AG-110M	1009.	657.76	1.8374E-01
SN-113	1125.	391.69	1.8459E-01
TE-123m	1299.	159.00	8.0628E-02
SB-124	615.	602.73	1.2921E-01
SB-125	1136.	427.89	4.3537E-01
TE-125m	1220.	109.27	2.5884E+01
I-131	1100.	364.48	1.3669E-01
CS-134	588.	604.70	1.2689E-01
BA-140	722.	537.31	5.1171E-01
LA-140	17.	1596.21	5.1498E-02
CEPR-144	1279.	133.51	1.1950E+00
EU-152	23.	1408.01	2.4116E-01
EU-154	94.	1274.51	2.7469E-01
EU-155	1117.	105.31	3.3271E-01
HG-203	1285.	279.20	1.2183E-01
TL-208	1243.	277.36	1.5397E+00
BI-212	533.	727.18	2.0684E+00
PB-212	1411.	238.63	2.1436E-01
BI-214	628.	609.31	2.8739E-01
PB-214	1125.	351.92	5.4553E-01
RA-224	1420.	240.99	2.3865E+00
RA-226	1467.	186.10	2.2343E+00
AC-228	822.	911.21	7.7799E-01
TH-228	1173.	84.37	8.0740E+00
TH-229	1067.	88.47	3.6349E-01
PA-233	1156.	312.17	2.6384E-01
UTH-233	1488.	245.34	9.1519E+01
PA-234M	701.	1001.03	3.5364E-01
TH-234	1058.	63.29	4.4672E+00
U-235	1468.	185.71	1.3588E-01
NP-237	1096.	86.48	7.6285E-01
NP-239	1117.	106.12	3.1575E-01

Sample ID : WL6940-STD Acquisition date : 27-MAR-1996 15:45:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1281.	129.30	1.0450E+03
AM-241	1039.	59.54	7.0482E-01
AM-243	1036.	74.67	2.0625E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 17:37:24.99                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6940
Sample ID:               WL6940-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2103.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.47 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-MAR-1996 16:46:42.87
Decayed to:              27-MAR-1996 16:46:42.87
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: URaymond

Verified by: BBrachelor 3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.70*	51	1.52	1323.43	1315	13	69.3		CS-137	7.018E-02
0	911.12*	15	1.76	1822.22	1818	11	96.2			

Summary of Nuclide Activity
Sample ID : WL6940-BLK

Acquisition date : 27-MAR-1996 16:46:42

Total number of lines in spectrum 2
Number of unidentified lines 0
Number of lines tentatively identified by NID 2 100.00%

WHC-SD-WM-DP-183, REV. 0

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~7.018E-02~~	~~7.018E-02~~	~~4.867E-02~~	~~69.35~~	BKG
		Total Activity :	7.018E-02	7.018E-02			
		Grand Total Activity :	7.018E-02	7.018E-02			

LAD 7/30/96

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL6940-BLK
Acquisition date : 27-MAR-1996 16:46:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	33.	477.59	2.3211E-01
NA-22	7.	1274.53	2.6302E-02
NA-24	4.	1368.55	2.0985E-02
K-40	117.	1460.75	1.1036E+00
CR-51	56.	320.08	2.2630E-01
MN-54	15.	834.83	2.6254E-02
CO-56	20.	846.76	3.0369E-02
CO-57	74.	122.06	1.9181E-02
CO-58	20.	810.78	2.9283E-02
FE-59	17.	1099.25	6.2190E-02
CO-60	7.	1332.50	2.6242E-02
SE-75	60.	264.66	3.5310E-02
SR-85	41.	514.01	2.9790E-02
Y-88	7.	1836.06	3.5681E-02
NB-94	15.	871.09	2.6680E-02
ZRNB-95	17.	724.18	5.5741E-02
RU-103	26.	497.08	2.4504E-02
RURH-106	20.	621.93	4.7613E-01
AG-108m	17.	722.94	2.7182E-02
CD-109	66.	88.03	6.2185E-01
AG-110M	25.	657.76	2.9199E-02
SN-113	46.	391.69	3.7499E-02
TE-123m	64.	159.00	1.7922E-02
SB-124	24.	602.73	2.5285E-02
SB-125	45.	427.89	8.6536E-02
TE-125m	70.	109.27	6.1844E+00
I-131	53.	364.48	3.0016E-02
CS-134	24.	604.70	2.5530E-02
BA-140	34.	537.31	1.1045E-01
LA-140	5.	1596.21	2.7897E-02
CEPR-144	71.	133.51	2.8212E-01
EU-152	8.	1408.01	1.4327E-01
EU-154	7.	1274.51	7.6414E-02
EU-155	74.	105.31	8.5493E-02
HG-203	70.	279.20	2.8535E-02
TL-208	57.	277.36	3.3057E-01
BI-212	15.	727.18	3.4228E-01
PB-212	82.	238.63	5.1666E-02
BI-214	53.	609.31	8.3304E-02
PB-214	62.	351.92	1.2771E-01
RA-224	74.	240.99	5.4656E-01
RA-226	89.	186.10	5.5053E-01
AC-228	35.	911.21	1.6051E-01
TH-228	72.	84.37	1.9976E+00
TH-229	61.	88.47	8.7014E-02
PA-233	53.	312.17	5.6597E-02
UTH-233	70.	245.34	1.9872E+01
PA-234M	14.	1001.03	4.9716E-02
TH-234	55.	63.29	1.0169E+00
U-235	89.	185.71	3.3525E-02
NP-237	71.	86.48	1.9351E-01

Sample ID : WL6940-BLK Acquisition date : 27-MAR-1996 16:46:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	70.	106.12	7.9021E-02
PU-239	87.	129.30	2.7237E+02
AM-241	48.	59.54	1.5087E-01
AM-243	76.	74.67	5.5941E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 19:27:40.22                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6940
Sample ID:               S96T855-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2104.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:04.67 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-MAR-1996 18:36:45.34
Decayed to:              27-MAR-1996 18:36:45.34
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Raymond

Verified by: Bachelor 3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.54*	31810	1.51	1323.11	1315	17	1.1		CS-137	44.1

Sample ID : S96T855-SAM
Acquisition date : 27-MAR-1996 18:36:45

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	4.414E+01	4.414E+01	0.051E+01	1.15	
		Total Activity :	4.414E+01	4.414E+01			
		Grand Total Activity :	4.414E+01	4.414E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T855-SAM
Acquisition date : 27-MAR-1996 18:36:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1013.	477.59	1.2909E+00
NA-22	20.	1274.53	4.3413E-02
NA-24	8.	1368.55	2.9798E-02
K-40	108.	1460.75	1.0590E+00
CR-51	879.	320.08	8.9733E-01
MN-54	19.	834.83	2.9289E-02
CO-56	20.	846.76	3.0341E-02
CO-57	1058.	122.06	7.2723E-02
CO-58	9.	810.78	1.9710E-02
FE-59	8.	1099.25	4.3527E-02
CO-60	10.	1332.50	3.2072E-02
SE-75	1019.	264.66	1.4583E-01
SR-85	529.	514.01	1.0718E-01
Y-88	3.	1836.06	2.2614E-02
NB-94	15.	871.09	2.6756E-02
ZRNB-95	23.	724.18	6.5619E-02
RU-103	604.	497.08	1.1746E-01
RURH-106	226.	621.93	1.5822E+00
AG-108m	26.	722.94	3.3552E-02
CD-109	881.	88.03	2.2793E+00
AG-110M	965.	657.76	1.7967E-01
SN-113	959.	391.69	1.7045E-01
TE-123m	1043.	159.00	7.2274E-02
SB-124	259.	602.73	8.3864E-02
SB-125	1113.	427.89	4.3092E-01
TE-125m	928.	109.27	2.2576E+01
I-131	880.	364.48	1.2226E-01
CS-134	250.	604.70	8.2653E-02
BA-140	424.	537.31	3.9207E-01
LA-140	5.	1596.21	2.7765E-02
CEPR-144	1027.	133.51	1.0710E+00
EU-152	4.	1408.01	1.0130E-01
EU-154	20.	1274.51	1.2613E-01
EU-155	887.	105.31	2.9645E-01
HG-203	851.	279.20	9.9139E-02
TL-208	950.	277.36	1.3460E+00
BI-212	21.	727.18	4.0598E-01
PB-212	1180.	238.63	1.9601E-01
BI-214	283.	609.31	1.9298E-01
PB-214	842.	351.92	4.7167E-01
RA-224	1103.	240.99	2.1033E+00
RA-226	1305.	186.10	2.1073E+00
AC-228	31.	911.21	1.5016E-01
TH-228	895.	84.37	7.0548E+00
TH-229	878.	88.47	3.2976E-01
PA-233	895.	312.17	2.3219E-01
UTH-233	1096.	245.34	7.8531E+01
PA-234M	16.	1001.03	5.3663E-02
TH-234	862.	63.29	4.0312E+00
U-235	1281.	185.71	1.2692E-01
NP-237	897.	86.48	6.9007E-01

Sample ID : S96T855-SAM Acquisition date : 27-MAR-1996 18:36:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	914.	106.12	2.8555E-01
PU-239	1063.	129.30	9.5170E+02
AM-241	813.	59.54	6.2348E-01
AM-243	898.	74.67	1.9195E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 20:32:20.53                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6940
Sample ID:               S96T855-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2105.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:04.65 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-MAR-1996 19:41:35.83
Decayed to:              27-MAR-1996 19:41:35.83
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: [signature]

Verified by: [signature] 3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.55*	31488	1.52	1323.12	1315	16	1.2		CS-137	43.7

Sample ID : S96T855-DUP Acquisition date : 27-MAR-1996 19:41:35

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	4.370E+01	4.370E+01	0.051E+01	1.16	
		Total Activity :	4.370E+01	4.370E+01			
		Grand Total Activity :	4.370E+01	4.370E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T855-DUP Acquisition date : 27-MAR-1996 19:41:35

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	969.	477.59	1.2625E+00
NA-22	8.	1274.53	2.7533E-02
NA-24	10.	1368.55	3.3208E-02
K-40	110.	1460.75	1.0711E+00
CR-51	806.	320.08	8.5929E-01
MN-54	19.	834.83	2.9077E-02
CO-56	21.	846.76	3.1083E-02
CO-57	1043.	122.06	7.2216E-02
CO-58	20.	810.78	2.9352E-02
FE-59	5.	1099.25	3.4009E-02
CO-60	3.	1332.50	1.7525E-02
SE-75	987.	264.66	1.4351E-01
SR-85	568.	514.01	1.1100E-01
Y-88	2.	1836.06	1.7014E-02
NB-94	15.	871.09	2.7345E-02
ZRNB-95	29.	724.18	7.3694E-02
RU-103	651.	497.08	1.2190E-01
RURH-106	208.	621.93	1.5182E+00
AG-108m	26.	722.94	3.3237E-02
CD-109	909.	88.03	2.3144E+00
AG-110M	939.	657.76	1.7721E-01
SN-113	952.	391.69	1.6977E-01
TE-123m	1035.	159.00	7.1987E-02
SB-124	234.	602.73	7.9721E-02
SB-125	1067.	427.89	4.2180E-01
TE-125m	906.	109.27	2.2305E+01
I-131	869.	364.48	1.2153E-01
CS-134	231.	604.70	7.9609E-02
BA-140	383.	537.31	3.7269E-01
LA-140	2.	1596.21	1.8955E-02
CEPR-144	1070.	133.51	1.0933E+00
EU-152	6.	1408.01	1.2407E-01
EU-154	8.	1274.51	8.0191E-02
EU-155	943.	105.31	3.0576E-01
HG-203	947.	279.20	1.0458E-01
TL-208	948.	277.36	1.3446E+00
BI-212	30.	727.18	4.8802E-01
PB-212	1091.	238.63	1.8846E-01
BI-214	281.	609.31	1.9240E-01
PB-214	822.	351.92	4.6604E-01
RA-224	1105.	240.99	2.1054E+00
RA-226	1247.	186.10	2.0599E+00
AC-228	36.	911.21	1.6279E-01
TH-228	881.	84.37	6.9989E+00
TH-229	894.	88.47	3.3271E-01
PA-233	894.	312.17	2.3201E-01
UTH-233	1065.	245.34	7.7433E+01
PA-234M	16.	1001.03	5.3515E-02
TH-234	843.	63.29	3.9864E+00
U-235	1232.	185.71	1.2446E-01
NP-237	924.	86.48	7.0045E-01

Sample ID : S96T855-DUP Acquisition date : 27-MAR-1996 19:41:35

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	946.	106.12	2.9058E-01
PU-239	1034.	129.30	9.3895E+02
AM-241	830.	59.54	6.2976E-01
AM-243	867.	74.67	1.8871E-01

LABCORE Data Entry Template for Worklist# 7402

Analyst: CRG EAL cg 4/10/96 **Instrument:** GEA00 1 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-D

Worklist Comment: SS=0.100ml.Limited Sample-Record amount left over on WL. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T000545	0		@GEA-01	LIQUID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T000545	0		@GEA-01	LIQUID		
5	SAMPLE	S96T000563	0		@GEA-01	LIQUID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T000563	0		@GEA-01	LIQUID		

Final page for worklist # 7402

C. Johnson 4/ /96 cg 4/10/96
Analyst Signature **Date**

A Lambel 04.10.96
Analyst Signature **Date**

Sharon L Holden 4-12-96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 7402

Analyst: eal **Instrument:** GEA01 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: SS=0.100ml.Limited Sample-Record amount left over on WL. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	0.0257		2.47e-02	96.109	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1		1.32	1.320	% Ct. Error
1	STD		0	@GEA-01	CS13702	LIQUID	0.0271		2.60e-02	95.941	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1		1.56	1.560	% Ct. Error
2	BLNK		0	@GEA-01	CO60-02	LIQUID	1		<6.53e-4		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1		<4.94e-4		uCi/mL
3	SAMPLE	S96T000545	0	@GEA-01	CO60-02	LIQUID	N/A	<	7.503e-03	0.008	uCi/mL
3	SAMPLE	S96T000545	0	@GEA-01	CO60-02E	LIQUID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S96T000545	0	@GEA-01	CS13702	LIQUID	N/A		7.650e+01	0.000	uCi/mL
3	SAMPLE	S96T000545	0	@GEA-01	CS13702E	LIQUID	N/A		0.290	0.000	% Ct. Error
4	DUP	S96T000545	0	@GEA-01	CO60-02	LIQUID	<7.50e-3		1.08e-02		RPD
4	DUP	S96T000545	0	@GEA-01	CO60-02E	LIQUID	1		40.7	40.700	% Ct. Error
4	DUP	S96T000545	0	@GEA-01	CS13702	LIQUID	7.65e+01		1.00e+02	26.629	RPD
4	DUP	S96T000545	0	@GEA-01	CS13702E	LIQUID	1		0.250	0.250	% Ct. Error
5	SAMPLE	S96T000563	0	@GEA-01	CO60-02	LIQUID	N/A	<	8.447e-03	0.008	uCi/mL
5	SAMPLE	S96T000563	0	@GEA-01	CO60-02E	LIQUID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S96T000563	0	@GEA-01	CS13702	LIQUID	N/A		1.540e+02	0.000	uCi/mL
5	SAMPLE	S96T000563	0	@GEA-01	CS13702E	LIQUID	N/A		0.200	0.000	% Ct. Error
6	DUP	S96T000563	0	@GEA-01	CO60-02	LIQUID	<8.45e-3		1.24e-02		RPD
6	DUP	S96T000563	0	@GEA-01	CO60-02E	LIQUID	1		28.0	28.000	% Ct. Error
6	DUP	S96T000563	0	@GEA-01	CS13702	LIQUID	1.54e+02		1.53e+02	0.651	RPD
6	DUP	S96T000563	0	@GEA-01	CS13702E	LIQUID	1		0.200	0.200	% Ct. Error

Comments Section:

Comments for sample# S96T000545 and test @GEA-01 .
DL=0 => n/a. High RPD Cs-137; no sample left for rerun.

Comments for sample# S96T000563 and test @GEA-01 .
DL=0 => n/a.

Final page for worklist# 7402

Analyst Signature **Date** **Analyst Signature** **Date**

RJ Bachelor 4/23/96
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 01:52:34.12                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7402
Sample ID:               WL7402-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1722.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:27.49 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 01:01:26.82
Decayed to:              11-APR-1996 01:01:26.82
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by:

D. H. Malicia

Verified by:

R. Bachelor 4/11/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.61	3834	0.92	63.86	59	11	6.5			
0	36.17	946	1.13	72.98	70	8	16.7			
0	661.49*	21508	1.46	1323.60	1316	15	1.6		CS-137	26.0
0	1173.03	14264	1.74	2346.96	2338	16	1.9		CO-60	24.6
0	1332.29	13015	1.88	2665.60	2656	18	1.9		CO-60	24.8
0	1539.11	56	10.07	3079.46	3060	36	64.7			
0	1580.17	11	1.06	3161.62	3160	5	89.0			

Sample ID : WL7402-STD
Acquisition date : 11-APR-1996 01:01:26

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	7	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	3	42.86%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.469E+01	2.469E+01	0.033E+01	1.32	
CS-137	30.00Y	1.000	2.604E+01	2.604E+01	0.041E+01	1.56	
		Total Activity :	5.073E+01	5.073E+01			
		Grand Total Activity :	5.073E+01	5.073E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL7402-STD
Acquisition date : 11-APR-1996 01:01:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1274.	477.59	1.2223E+00
NA-22	109.	1274.53	8.9407E-02
NA-24	46.	1368.55	6.2839E-02
K-40	597.	1460.75	2.1813E+00
CR-51	1323.	320.08	8.9405E-01
MN-54	749.	834.83	1.6258E-01
CO-56	760.	846.76	1.6601E-01
CO-57	1444.	122.06	5.7305E-02
CO-58	732.	810.78	1.5740E-01
FE-59	726.	1099.25	3.6107E-01
SE-75	1384.	264.66	1.3448E-01
SR-85	943.	514.01	1.2132E-01
Y-88	27.	1836.06	5.9063E-02
NB-94	814.	871.09	1.7634E-01
ZRNB-95	663.	724.18	3.0741E-01
RU-103	999.	497.08	1.2776E-01
RURH-106	695.	621.93	2.4064E+00
AG-108m	634.	722.94	1.4443E-01
CD-109	1238.	88.03	1.1401E+00
AG-110M	1397.	657.76	1.8851E-01
SN-113	1170.	391.69	1.5808E-01
TE-123m	1382.	159.00	6.5515E-02
SB-124	745.	602.73	1.2279E-01
SB-125	1287.	427.89	3.9086E-01
TE-125m	1342.	109.27	1.6120E+01
I-131	1192.	364.48	1.1809E-01
CS-134	722.	604.70	1.2148E-01
BA-140	809.	537.31	4.6145E-01
LA-140	40.	1596.21	6.7665E-02
CEPR-144	1534.	133.51	9.5191E-01
EU-152	43.	1408.01	2.8924E-01
EU-154	109.	1274.51	2.5979E-01
EU-155	1367.	105.31	2.0785E-01
HG-203	1331.	279.20	9.8918E-02
TL-208	1363.	277.36	1.2854E+00
BI-212	652.	727.18	2.0096E+00
PB-212	1544.	238.63	1.7572E-01
BI-214	896.	609.31	2.9693E-01
PB-214	1413.	351.92	5.0546E-01
RA-224	1454.	240.99	1.8934E+00
RA-226	1647.	186.10	1.8928E+00
AC-228	1008.	911.21	7.6699E-01
TH-228	1388.	84.37	3.4176E+00
TH-229	1247.	88.47	1.6740E-01
PA-233	1313.	312.17	2.2764E-01
UTH-233	1434.	245.34	7.0510E+01
PA-234M	801.	1001.03	3.3500E-01
TH-234	1211.	63.29	8.8838E-01
U-235	1648.	185.71	1.1511E-01
NP-237	1291.	86.48	3.3783E-01
NP-239	1382.	106.12	2.0048E-01

Sample ID : WL7402-STD Acquisition date : 11-APR-1996 01:01:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1550.	129.30	8.1595E+02
AM-241	1144.	59.54	1.0901E-01
AM-243	1392.	74.67	7.1254E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 02:44:35.16                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7402
Sample ID:               WL7402-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1723.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:10.86 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 01:53:43.51
Decayed to:              11-APR-1996 01:53:43.51
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by:

D. H. Milicia

Verified by:

B J Machelor 4/11/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
3	72.53*	75	1.11	145.69	143	10	76.5	1.45E+00		
0	338.04*	71	1.20	676.67	673	8	70.7			
0	510.81*	92	2.46	1022.23	1014	17	70.9			
0	661.46*	41	1.25	1323.56	1317	12	96.1		CS-137	0.494

Total number of lines in spectrum	4	WHC-SD-WM-DP-183, REV. 0
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~4.941E-01~~	~~4.941E-01~~	~~4.751E-01~~	~~96.148~~	KG 7/23/96
			---	---			
Total Activity :			4.941E-01	4.941E-01			
Grand Total Activity :			4.941E-01	4.941E-01			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : WL7402-BLK Acquisition date : 11-APR-1996 01:53:43

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	118.	477.59	3.7151E+00
NA-22	31.	1274.53	4.7773E-01
NA-24	18.	1368.55	3.9455E-01
K-40	568.	1460.75	2.1269E+01
CR-51	218.	320.08	3.6285E+00
MN-54	70.	834.83	4.9793E-01
CO-56	62.	846.76	4.7547E-01
CO-57	503.	122.06	3.3821E-01
CO-58	52.	810.78	4.1962E-01
FE-59	39.	1099.25	8.3994E-01
CO-60	54.	1332.50	6.5279E-01
SE-75	300.	264.66	6.2658E-01
SR-85	117.	514.01	4.2687E-01
Y-88	8.	1836.06	3.2827E-01
NB-94	53.	871.09	4.4916E-01
ZRNB-95	72.	724.18	1.0132E+00
RU-103	97.	497.08	3.9881E-01
RURH-106	75.	621.93	7.9094E+00
AG-108m	75.	722.94	4.9536E-01
CD-109	433.	88.03	6.7463E+00
AG-110M	68.	657.76	4.1600E-01
SN-113	166.	391.69	5.9479E-01
TE-123m	470.	159.00	3.8197E-01
SB-124	84.	602.73	4.1216E-01
SB-125	151.	427.89	1.3376E+00
TE-125m	465.	109.27	9.4841E+01
I-131	187.	364.48	4.6748E-01
CS-134	82.	604.70	4.0956E-01
BA-140	94.	537.31	1.5695E+00
LA-140	17.	1596.21	4.3889E-01
CEPR-144	510.	133.51	5.4912E+00
EU-152	27.	1408.01	2.2912E+00
EU-154	31.	1274.51	1.3855E+00
EU-155	433.	105.31	1.1698E+00
HG-203	279.	279.20	4.5325E-01
TL-208	266.	277.36	5.6812E+00
BI-212	97.	727.18	7.7634E+00
PB-212	473.	238.63	9.7231E-01
BI-214	205.	609.31	1.4205E+00
PB-214	313.	351.92	2.3716E+00
RA-224	385.	240.99	9.7492E+00
RA-226	481.	186.10	1.0234E+01
AC-228	133.	911.21	2.7811E+00
TH-228	498.	84.37	2.0471E+01
TH-229	415.	88.47	9.6563E-01
PA-233	200.	312.17	8.8744E-01
UTH-233	294.	245.34	3.1913E+02
PA-234M	61.	1001.03	9.2086E-01
TH-234	352.	63.29	4.7914E+00
U-235	479.	185.71	6.2079E-01
NP-237	457.	86.48	2.0108E+00

Sample ID : WL7402-BLK Acquisition date : 11-APR-1996 01:53:43

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	449.	106.12	1.1423E+00
PU-239	526.	129.30	4.7558E+03
AM-241	378.	59.54	6.2698E-01
AM-243	512.	74.67	4.3202E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 03:42:23.61                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7402
Sample ID:               S96T0545-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1724.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:32.88 sec
Dead Time:               4.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 02:49:13.59
Decayed to:              11-APR-1996 02:49:13.59
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:13:20.37
*****************************************************************************
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WHC-SD-WM-DP-183, REV. 0

Removed by:

D. H. Milicia

Verified by:

[signature] 4/11/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.53	2251	0.99	43.71	40	8	19.9			
10	29.50	12998	2.15	59.65	54	15	6.6	1.50E+02		
10	31.64	72073	1.00	63.93	54	15	1.0			
0	36.04	20519	1.14	72.73	69	11	3.3			
5	72.45*	3802	1.39	145.54	140	15	11.7	5.60E+00		
5	74.64*	5388	0.95	149.92	140	15	6.9		AM-243	343.
6	84.49*	3794	1.42	169.61	165	13	13.0	6.63E+00	TH-228	1.156E+04
6	86.88*	1479	1.53	174.40	165	13	26.8		NP-237	460.
									CD-109	1.581E+03
0	122.80	500	1.31	246.23	244	6	72.7		CO-57	22.7
									EU-154	48.2
0	608.77*	191	1.96	1218.15	1215	8	89.7			
0	661.46*	514797	1.44	1323.56	1316	16	0.3		CS-137	7.650E+04
0	723.13	82	1.09	1446.91	1442	10	47.7		EU-154	55.5
0	873.17	55	1.21	1747.05	1744	8	49.7		EU-154	71.3
0	1004.42	61	2.02	2009.62	2005	10	50.1		EU-154	58.9
0	1274.22	94	2.20	2549.41	2544	13	31.4		EU-154	54.9

Sample ID : S96T0545-SAM
Acquisition date : 11-APR-1996 02:49:13

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	15	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	10	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.267E+01~~	~~2.267E+01~~	~~1.648E+01~~	~~72.68~~	BKG
~~CD-109~~	~~462.90D~~	~~1.000~~	~~1.581E+03~~	~~1.581E+03~~	~~0.424E+03~~	~~26.81~~	^{237}Np
CS-137	30.00Y	1.000	7.650E+04	7.650E+04	0.022E+04	0.29	
EU-154	8.59Y	1.000	5.764E+01	5.764E+01	1.218E+01	21.13	L+D 7/30/96
TH-228	1.91Y	1.000	1.156E+04	1.156E+04	0.150E+04	12.96	
NP-237	2.14E+06Y	1.000	4.602E+02	4.602E+02	1.234E+02	26.81	
AM-243	7380.00Y	1.000	3.431E+02	3.431E+02	0.238E+02	6.92	
		Total Activity :	9.053E+04	9.053E+04			
		Grand Total Activity :	9.053E+04	9.053E+04			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : S96T0545-SAM
Acquisition date : 11-APR-1996 02:49:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	15937.	477.59	5.3555E+02
NA-22	121.	1274.53	1.0250E+01
NA-24	21.	1368.55	4.5809E+00
K-40	603.	1460.75	2.3512E+02
CR-51	12550.	320.08	3.3426E+02
MN-54	69.	834.83	5.8605E+00
CO-56	81.	846.76	6.4057E+00
CO-58	74.	810.78	5.9763E+00
FE-59	54.	1099.25	1.1017E+01
CO-60	61.	1332.50	7.5027E+00
SE-75	12287.	264.66	4.8451E+01
SR-85	8110.	514.01	4.4141E+01
Y-88	3.	1836.06	2.1715E+00
NB-94	110.	871.09	7.6189E+00
ZRNB-95	170.	724.18	1.8936E+01
RU-103	9940.	497.08	4.9964E+01
RURH-106	2602.	621.93	5.7459E+02
AG-108m	160.	722.94	8.8063E+00
AG-110M	18750.	657.76	8.4815E+01
SN-113	14841.	391.69	6.9111E+01
TE-123m	14225.	159.00	2.7129E+01
SB-124	2726.	602.73	2.9027E+01
SB-125	17350.	427.89	1.7705E+02
TE-125m	12248.	109.27	7.0587E+03
I-131	13463.	364.48	4.8519E+01
CS-134	2685.	604.70	2.8944E+01
BA-140	5788.	537.31	1.5305E+02
LA-140	17.	1596.21	4.6986E+00
CEPR-144	13186.	133.51	3.7897E+02
EU-152	33.	1408.01	2.7284E+01
EU-155	12037.	105.31	9.0440E+01
HG-203	12418.	279.20	3.6537E+01
TL-208	12462.	277.36	4.6982E+02
BI-212	105.	727.18	9.7913E+01
PB-212	13992.	238.63	6.4154E+01
BI-214	2925.	609.31	6.6246E+01
PB-214	13398.	351.92	1.9397E+02
RA-224	13689.	240.99	7.0427E+02
RA-226	21836.	186.10	8.5953E+02
AC-228	115.	911.21	3.0280E+01
TH-229	11785.	88.47	7.8905E+01
PA-233	12655.	312.17	8.5710E+01
UTH-233	13230.	245.34	2.5935E+04
PA-234M	67.	1001.03	1.1085E+01
TH-234	10463.	63.29	3.8701E+02
U-235	21503.	185.71	5.1867E+01
NP-239	12048.	106.12	8.6612E+01
PU-239	13340.	129.30	3.2844E+05
AM-241	10444.	59.54	4.7041E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 04:47:12.55                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7402
Sample ID:               S96T0545-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1725.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:53:18.52 sec
Dead Time:               6.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 03:53:16.49
Decayed to:              11-APR-1996 03:53:16.49
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:13:20.37
*****************************************************************************
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WHC-SD-WM-DP-183, REV. 0

Removed by: D. H. [illegible]

Verified by: [illegible] Bachelor 4/11/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	8.60	3490	1.27	17.86	16	6	8.5			
0	21.53	3312	1.09	43.70	39	8	15.2			
10	30.00	21022	2.16	60.65	51	28	5.0	3.98E+02		
10	31.66	98160	1.08	63.96	51	28	0.8			
10	35.98	37430	2.02	72.60	51	28	2.1			
0	42.10	504	1.29	84.85	83	6	75.4			
4	72.52*	4432	1.29	145.67	141	14	11.6	5.39E+00		
4	74.66*	6785	0.94	149.95	141	14	6.3		AM-243	432.
5	84.50*	4966	1.38	169.62	163	15	10.3	5.30E+00	TH-228	1.513E+04
5	86.81*	1527	1.04	174.24	163	15	26.4		NP-237	475.
									CD-109	1.633E+03
0	122.67	369	0.67	245.97	245	5	97.6		CO-57	16.7
									EU-154	35.6
0	661.46*	675558	1.46	1323.55	1316	16	0.3		CS-137	1.004E+05
0	722.82	74	1.17	1446.29	1441	12	71.6		EU-154	50.2
0	872.92	45	2.07	1746.55	1740	15	101.3		EU-154	57.7
0	996.45	45	1.88	1993.68	1990	8	57.2		EU-154	75.0
0	1004.20	69	2.42	2009.19	2005	10	50.3		EU-154	65.9
0	1172.54	55	0.73	2345.96	2339	13	60.4		CO-60	10.5
0	1274.07	123	1.98	2549.12	2543	13	28.9		EU-154	71.7
0	1323.22	71	1.72	2647.46	2640	14	36.0			
0	1332.85	54	2.10	2666.73	2659	19	55.1		CO-60	11.0

Sample ID : S96T0545-DUP Acquisition date : 11-APR-1996 03:53:16

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	1764.14*	10	2.28	3529.78	3523	13179.4				

Sample ID : S96T0545-DUP
Acquisition date : 11-APR-1996 03:53:16

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	21	
Number of unidentified lines	8	
Number of lines tentatively identified by NID	13	61.90%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.674E+01~~	~~1.674E+01~~	~~1.633E+01~~	~~97.59~~	BKG
CO-60	5.27Y	1.000	1.076E+01	1.076E+01	0.438E+01	40.73	
~~CD-109~~	~~462.90D~~	~~1.000~~	~~1.633E+03~~	~~1.633E+03~~	~~0.431E+03~~	~~26.41~~	^{237}Np
CS-137	30.00Y	1.000	1.004E+05	1.004E+05	0.003E+05	0.25	
EU-154	8.59Y	1.000	6.669E+01	6.669E+01	1.436E+01	21.54	7/23/96
TH-228	1.91Y	1.000	1.513E+04	1.513E+04	0.157E+04	10.34	
NP-237	2.14E+06Y	1.000	4.753E+02	4.753E+02	1.255E+02	26.41	
AM-243	7380.00Y	1.000	4.322E+02	4.322E+02	0.271E+02	6.27	
			---	---			
	Total Activity :		1.182E+05	1.182E+05			
	Grand Total Activity :		1.182E+05	1.182E+05			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	20636.	477.59	6.0942E+02
NA-22	161.	1274.53	1.1828E+01
NA-24	21.	1368.55	4.5822E+00
K-40	587.	1460.75	2.3193E+02
CR-51	16389.	320.08	3.8198E+02
MN-54	78.	834.83	6.2302E+00
CO-56	82.	846.76	6.4475E+00
CO-58	71.	810.78	5.8714E+00
FE-59	65.	1099.25	1.2077E+01
SE-75	15982.	264.66	5.5258E+01
SR-85	10788.	514.01	5.0908E+01
Y-88	8.	1836.06	3.5461E+00
NB-94	101.	871.09	7.3050E+00
ZRNB-95	195.	724.18	2.0238E+01
RU-103	13289.	497.08	5.7773E+01
RURH-106	3461.	621.93	6.6261E+02
AG-108m	192.	722.94	9.6574E+00
AG-110M	25739.	657.76	9.9374E+01
SN-113	19203.	391.69	7.8614E+01
TE-123m	18501.	159.00	3.0940E+01
SB-124	3605.	602.73	3.3381E+01
SB-125	22728.	427.89	2.0264E+02
TE-125m	15933.	109.27	8.0509E+03
I-131	17927.	364.48	5.5988E+01
CS-134	3634.	604.70	3.3670E+01
BA-140	7675.	537.31	1.7625E+02
LA-140	19.	1596.21	4.9747E+00
CEPR-144	16940.	133.51	4.2954E+02
EU-152	29.	1408.01	2.5813E+01
EU-155	15439.	105.31	1.0243E+02
HG-203	15799.	279.20	4.1212E+01
TL-208	16044.	277.36	5.3308E+02
BI-212	127.	727.18	1.0788E+02
PB-212	18236.	238.63	7.3240E+01
BI-214	3787.	609.31	7.5386E+01
PB-214	17716.	351.92	2.2476E+02
RA-224	17844.	240.99	8.0412E+02
RA-226	28407.	186.10	9.8037E+02
AC-228	131.	911.21	3.2331E+01
TH-229	15153.	88.47	8.9472E+01
PA-233	16151.	312.17	9.6826E+01
UTH-233	17339.	245.34	2.9691E+04
PA-234M	70.	1001.03	1.1311E+01
TH-234	13688.	63.29	4.4266E+02
U-235	28009.	185.71	5.9196E+01
NP-239	15523.	106.12	9.8318E+01
PU-239	17522.	129.30	3.7641E+05
AM-241	13677.	59.54	5.3832E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 05:59:07.20                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7402
Sample ID:               S96T0563-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1727.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:55:03.00 sec
Dead Time:               9.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 05:03:23.42
Decayed to:              11-APR-1996 05:03:23.42
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:13:20.37
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 4-11-96

Verified by: 4/11/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	8.70	7927	1.62	18.04	15	8	5.4			
0	12.10	580	0.59	24.85	22	7	86.8			
0	21.58	4573	1.18	43.80	41	7	12.5			
10	29.98	32574	2.16	60.61	51	29	4.0	5.80E+02		
10	31.68	150152	1.12	64.00	51	29	0.7			
10	36.03	57932	2.13	72.71	51	29	1.8			
0	42.37	908	0.92	85.39	83	7	58.4			
4	72.53*	6417	1.27	145.69	141	14	9.9	2.99E+00		
4	74.68*	10254	0.96	149.99	141	14	5.1		AM-243	653.
4	84.51*	6888	1.32	169.66	163	15	9.2	2.68E+00	TH-228	2.099E+04
4	86.94*	2763	1.17	174.51	163	15	20.3		NP-237	860.
									CD-109	2.955E+03
0	122.71	926	1.44	246.04	244	6	55.2		CO-57	42.0
									EU-154	89.4
0	661.46*	1038489	1.51	1323.55	1315	17	0.2		CS-137	1.543E+05
0	723.05	176	1.43	1446.76	1442	12	28.5		EU-154	120.
0	872.99	98	1.54	1746.69	1740	15	56.4		EU-154	126.
0	995.68	75	1.57	1992.13	1988	11	48.1		EU-154	124.
0	1004.53	98	1.53	2009.84	2006	8	34.3		EU-154	94.4
0	1172.84	75	1.70	2346.57	2340	14	48.4			
0	1274.13	164	1.44	2549.23	2542	15	24.6		EU-154	95.5
0	1322.85	165	1.96	2646.71	2640	17	23.8			

Sample ID : S96T0563-SAM Acquisition date : 11-APR-1996 05:03:23

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	1764.20*	14	2.10	3529.90	3521	18115.8				

Summary of Nuclide Activity
Sample ID : S96T0563-SAM

Acquisition date : 11-APR-1996 05:03:23

Total number of lines in spectrum	21	
Number of unidentified lines	9	
Number of lines tentatively identified by NID	12	57.14%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~4.199E+01~~	~~4.199E+01~~	~~2.319E+01~~	~~55.22~~	BKG
~~CD-109~~	~~462.90D~~	~~1.000~~	~~2.955E+03~~	~~2.955E+03~~	~~0.599E+03~~	~~20.27~~	R39 Np
CS-137	30.00Y	1.000	1.543E+05	1.543E+05	0.003E+05	0.20	
EU-154	8.59Y	1.000	1.038E+02	1.038E+02	0.156E+02	15.04	
TH-228	1.91Y	1.000	2.099E+04	2.099E+04	0.193E+04	9.20	
NP-237	2.14E+06Y	1.000	8.599E+02	8.599E+02	1.743E+02	20.27	
AM-243	7380.00Y	1.000	6.531E+02	6.531E+02	0.336E+02	5.15	
			---	---			
	Total Activity :		1.799E+05	1.799E+05			

7/23/96

Grand Total Activity : 1.799E+05 1.799E+05

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	31849.	477.59	7.5710E+02
NA-22	199.	1274.53	1.3139E+01
NA-24	26.	1368.55	5.1290E+00
K-40	568.	1460.75	2.2809E+02
CR-51	25145.	320.08	4.7314E+02
MN-54	85.	834.83	6.5110E+00
CO-56	101.	846.76	7.1639E+00
CO-58	120.	810.78	7.6126E+00
FE-59	66.	1099.25	1.2213E+01
CO-60	78.	1332.50	8.4473E+00
SE-75	24551.	264.66	6.8488E+01
SR-85	16470.	514.01	6.2904E+01
Y-88	6.	1836.06	3.0710E+00
NB-94	154.	871.09	9.0292E+00
ZRNB-95	255.	724.18	2.3161E+01
RU-103	20039.	497.08	7.0944E+01
RURH-106	5221.	621.93	8.1386E+02
AG-108m	269.	722.94	1.1431E+01
AG-110M	42127.	657.76	1.2713E+02
SN-113	29844.	391.69	9.8003E+01
TE-123m	27916.	159.00	3.8005E+01
SB-124	5486.	602.73	4.1179E+01
SB-125	34959.	427.89	2.5132E+02
TE-125m	24205.	109.27	9.9233E+03
I-131	27305.	364.48	6.9101E+01
CS-134	5383.	604.70	4.0982E+01
BA-140	11904.	537.31	2.1950E+02
LA-140	23.	1596.21	5.5201E+00
CEPR-144	26187.	133.51	5.3405E+02
EU-152	30.	1408.01	2.6078E+01
EU-155	23288.	105.31	1.2580E+02
HG-203	24258.	279.20	5.1066E+01
TL-208	24528.	277.36	6.5912E+02
BI-212	116.	727.18	1.0296E+02
PB-212	27467.	238.63	8.9885E+01
BI-214	5512.	609.31	9.0947E+01
PB-214	26739.	351.92	2.8098E+02
RA-224	26929.	240.99	9.8795E+02
RA-226	43533.	186.10	1.2136E+03
AC-228	150.	911.21	3.4586E+01
TH-229	23026.	88.47	1.1030E+02
PA-233	24873.	312.17	1.2016E+02
UTH-233	26407.	245.34	3.6641E+04
PA-234M	105.	1001.03	1.3885E+01
TH-234	20711.	63.29	5.4449E+02
U-235	42847.	185.71	7.3215E+01
NP-239	23472.	106.12	1.2092E+02
PU-239	26215.	129.30	4.6041E+05
AM-241	20680.	59.54	6.6193E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 07:12:42.42                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              7402
Sample ID:               S96T000563-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01
```

Removed by: 4-11-96

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1728.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:55:00.47 sec
Dead Time:               9.1%
```

Verified by: 4/11/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 06:17:04.74
Decayed to:              11-APR-1996 06:17:04.74
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:13:20.37
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	8.56	4867	1.24	17.78	16	6	7.5			
0	12.03	1034	0.58	24.71	21	8	53.8			
0	21.47	4439	1.23	43.58	40	8	14.1			
8	27.12	7540	1.77	54.89	51	29	10.1	8.65E+02		
8	28.56	15726	1.22	57.77	51	29	4.2			
8	31.66	153175	1.09	63.97	51	29	0.6			
8	36.03	49380	1.83	72.70	51	29	1.9			
0	42.56	389	1.23	85.76	84	6	120.0			
3	72.51*	6075	1.11	145.66	141	14	9.4	2.66E+00		
3	74.65*	10665	1.04	149.94	141	14	4.9		AM-243	679.
4	84.51*	6391	1.30	169.65	164	14	9.9	2.06E+00	TH-228	1.947E+04
4	86.87*	2000	1.06	174.37	164	14	24.9		NP-237	623.
									CD-109	2.139E+03
0	122.62	800	1.01	245.86	244	7	72.0		CO-57	36.3
									EU-154	77.2
0	661.45*	1031627	1.50	1323.54	1315	17	0.2		CS-137	1.533E+05
0	692.74	248	2.07	1386.13	1381	11	35.0		CO-57	2.016E+04
0	723.10	144	1.86	1446.85	1443	15	45.2		EU-154	98.0
0	755.99	57	0.95	1512.64	1508	9	63.1			
0	872.86	76	1.38	1746.44	1744	10	55.4		EU-154	99.0
0	996.05	80	1.07	1992.88	1989	10	41.3		EU-154	132.
0	1004.46	113	1.80	2009.70	2003	12	37.5		EU-154	109.

Sample ID : S96T000563-DUP Acquisition date : 11-APR-1996 06:17:04

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	1173.26	60	0.77	2347.41	2343	10	44.1		CO-60	11.3
0	1228.54	21	1.29	2458.02	2454	10	121.4			
0	1274.11	214	2.01	2549.20	2542	16	17.6		EU-154	125.
0	1322.81	155	1.78	2646.65	2639	14	18.3			
0	1331.53	65	1.60	2664.08	2658	12	36.1		CO-60	13.3
0	1460.46*	49	1.55	2922.07	2913	17	110.1		K-40	101.

Summary of Nuclide Activity
Sample ID : S96T000563-DUP

Acquisition date : 11-APR-1996 06:17:04

Total number of lines in spectrum	26	
Number of unidentified lines	12	
Number of lines tentatively identified by NID	14	53.85%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.011E+02~~	~~1.011E+02~~	~~1.113E+02~~	~~110.09~~	BKG
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.016E+04~~	~~2.016E+04~~	~~0.705E+04~~	~~34.98~~	^{154}Eu
CO-60	5.27Y	1.000	1.237E+01	1.237E+01	0.346E+01	28.00	
~~CD-109~~	~~462.90D~~	~~1.000~~	~~2.139E+03~~	~~2.139E+03~~	~~0.534E+03~~	~~24.94~~	^{239}Np
CS-137	30.00Y	1.000	1.533E+05	1.533E+05	0.003E+05	0.20	
EU-154	8.59Y	1.000	1.171E+02	1.171E+02	0.161E+02	13.75	
TH-228	1.91Y	1.000	1.947E+04	1.947E+04	0.194E+04	9.95	
NP-237	2.14E+06Y	1.000	6.226E+02	6.226E+02	1.553E+02	24.94	
AM-243	7380.00Y	1.000	6.793E+02	6.793E+02	0.335E+02	4.93	
			---	---			
	Total Activity :		1.966E+05	1.966E+05			

Grand Total Activity :	1.966E+05	1.966E+05

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T000563-DUP Acquisition date : 11-APR-1996 06:17:04

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	31486.	477.59	7.5277E+02
NA-22	224.	1274.53	1.3950E+01
NA-24	23.	1368.55	4.7750E+00
CR-51	25115.	320.08	4.7286E+02
MN-54	84.	834.83	6.4770E+00
CO-56	104.	846.76	7.2632E+00
CO-58	92.	810.78	6.6704E+00
FE-59	64.	1099.25	1.1966E+01
SE-75	24509.	264.66	6.8429E+01
SR-85	16236.	514.01	6.2455E+01
Y-88	7.	1836.06	3.3147E+00
NB-94	175.	871.09	9.6359E+00
ZRNB-95	263.	724.18	2.3502E+01
RU-103	19946.	497.08	7.0780E+01
RURH-106	5206.	621.93	8.1265E+02
AG-108m	261.	722.94	1.1263E+01
AG-110M	42255.	657.76	1.2732E+02
SN-113	29225.	391.69	9.6982E+01
TE-123m	27524.	159.00	3.7738E+01
SB-124	5558.	602.73	4.1448E+01
SB-125	34508.	427.89	2.4969E+02
TE-125m	24038.	109.27	9.8890E+03
I-131	26927.	364.48	6.8622E+01
CS-134	5394.	604.70	4.1022E+01
BA-140	11440.	537.31	2.1519E+02
LA-140	13.	1596.21	4.2089E+00
CEPR-144	25925.	133.51	5.3137E+02
EU-152	30.	1408.01	2.6078E+01
EU-155	23454.	105.31	1.2624E+02
HG-203	24091.	279.20	5.0891E+01
TL-208	24080.	277.36	6.5308E+02
BI-212	120.	727.18	1.0464E+02
PB-212	27794.	238.63	9.0419E+01
BI-214	5493.	609.31	9.0787E+01
PB-214	26412.	351.92	2.7914E+02
RA-224	27114.	240.99	9.9132E+02
RA-226	42539.	186.10	1.1997E+03
AC-228	153.	911.21	3.4849E+01
TH-229	23219.	88.47	1.1076E+02
PA-233	24900.	312.17	1.2023E+02
UTH-233	26198.	245.34	3.6496E+04
PA-234M	97.	1001.03	1.3307E+01
TH-234	20827.	63.29	5.4602E+02
U-235	41941.	185.71	7.2437E+01
NP-239	23553.	106.12	1.2113E+02
PU-239	26005.	129.30	4.5856E+05
AM-241	20699.	59.54	6.6224E+01

LABCORE Data Entry Template for Worklist# 7550

Analyst: KNT **Instrument:** GEA00 #2 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106 Grab. Sample size = 0.100ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T001681	0		@GEA-01	LIQUID	96000174	C-106 GRAB
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S96T001681	0		@GEA-01	LIQUID		

Final page for worklist # 7550

Kim Thomas 4-11-96
Analyst Signature **Date**

Sharon L Valle 4-16-96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 7550

Analyst: knt **Instrument:** GEA02 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106 Grab. Sample size = 0.100ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	0.0257	2.50e-02	97.276	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1	1.40	1.400	% Ct. Error
1	STD		0	@GEA-01	CS13702	LIQUID	0.0271	2.63e-02	97.048	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1	1.66	1.660	% Ct. Error
2	BLNK		0	@GEA-01	CO60-02	LIQUID	1	<3.26e-4		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1	1.42e-03	0.001	uCi/mL
3	SAMPLE	S96T001681	0	@GEA-01	CO60-02	LIQUID	N/A <	5.050e-03	0.005	uCi/mL
3	SAMPLE	S96T001681	0	@GEA-01	CO60-02E	LIQUID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T001681	0	@GEA-01	CS13702	LIQUID	N/A	1.210e+02	0.000	uCi/mL
3	SAMPLE	S96T001681	0	@GEA-01	CS13702E	LIQUID	N/A	0.140	0.000	% Ct. Error
4	DUP	S96T001681	0	@GEA-01	CO60-02	LIQUID	<5.05e-3	<4.80e-3		RPD
4	DUP	S96T001681	0	@GEA-01	CO60-02E	LIQUID	1	n/a		% Ct. Error
4	DUP	S96T001681	0	@GEA-01	CS13702	LIQUID	1.21e+02	1.21e+02	0.000	RPD
4	DUP	S96T001681	0	@GEA-01	CS13702E	LIQUID	1	0.140	0.140	% Ct. Error

Comments Section:

Comments for sample# S96T001681 **and test** @GEA-01 .
DL=0 => n/a. Sample 10000x higher than cont. blnk. => OK.

Final page for worklist# 7550

Analyst Signature **Date** **Analyst Signature** **Date**

B Machelor 4/23/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 12:04:28.05                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7550
Sample ID:               WL7550-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2446.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.56 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 11:13:39.59
Decayed to:              11-APR-1996 11:13:39.59
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: ALJ 4-11-96

Verified by: RAJones 4/16/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.88*	18925	1.54	1323.79	1316	16	1.7		CS-137	26.3
0	1173.63	12638	1.87	2347.32	2338	18	2.0		CO-60	24.8
0	1332.96	11543	1.95	2666.08	2656	20	1.9		CO-60	25.1

Sample ID : WL7550-STD Acquisition date : 11-APR-1996 11:13:39

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.497E+01	2.497E+01	0.035E+01	1.40	
CS-137	30.00Y	1.000	2.626E+01	2.626E+01	0.043E+01	1.66	
			---	---			
Total Activity :			5.124E+01	5.124E+01			
Grand Total Activity :			5.124E+01	5.124E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL7550-STD Acquisition date : 11-APR-1996 11:13:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1063.	477.59	1.3225E+00
NA-22	83.	1274.53	8.9030E-02
NA-24	23.	1368.55	5.0058E-02
K-40	118.	1460.75	1.1095E+00
CR-51	1101.	320.08	1.0041E+00
MN-54	695.	834.83	1.7659E-01
CO-56	631.	846.76	1.7039E-01
CO-57	1250.	122.06	7.9069E-02
CO-58	595.	810.78	1.6024E-01
FE-59	662.	1099.25	3.9131E-01
SE-75	1249.	264.66	1.6143E-01
SR-85	774.	514.01	1.2960E-01
Y-88	15.	1836.06	5.0361E-02
NB-94	781.	871.09	1.9416E-01
ZRNB-95	529.	724.18	3.1260E-01
RU-103	824.	497.08	1.3710E-01
RURH-106	614.	621.93	2.6101E+00
AG-108m	524.	722.94	1.4948E-01
CD-109	1087.	88.03	2.5309E+00
AG-110M	850.	657.76	1.6863E-01
SN-113	994.	391.69	1.7352E-01
TE-123m	1315.	159.00	8.1118E-02
SB-124	591.	602.73	1.2668E-01
SB-125	1078.	427.89	4.2412E-01
TE-125m	1135.	109.27	2.4975E+01
I-131	1025.	364.48	1.3199E-01
CS-134	610.	604.70	1.2921E-01
BA-140	662.	537.31	4.8997E-01
LA-140	19.	1596.21	5.3890E-02
CEPR-144	1333.	133.51	1.2201E+00
EU-152	23.	1408.01	2.4368E-01
EU-154	83.	1274.51	2.5822E-01
EU-155	1178.	105.31	3.4170E-01
HG-203	1229.	279.20	1.1914E-01
TL-208	1227.	277.36	1.5301E+00
BI-212	511.	727.18	2.0250E+00
PB-212	1415.	238.63	2.1465E-01
BI-214	643.	609.31	2.9081E-01
PB-214	1114.	351.92	5.4274E-01
RA-224	1432.	240.99	2.3963E+00
RA-226	1364.	186.10	2.1543E+00
AC-228	766.	911.21	7.5097E-01
TH-228	1101.	84.37	7.8228E+00
TH-229	1065.	88.47	3.6314E-01
PA-233	1097.	312.17	2.5705E-01
UTH-233	1379.	245.34	8.8091E+01
PA-234M	716.	1001.03	3.5730E-01
TH-234	1014.	63.29	4.3729E+00
U-235	1360.	185.71	1.3077E-01
NP-237	1143.	86.48	7.7886E-01
NP-239	1189.	106.12	3.2570E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL7550-STD Acquisition date : 11-APR-1996 11:13:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1261.	129.30	1.0367E+03
AM-241	1014.	59.54	6.9625E-01
AM-243	1021.	74.67	2.0475E-01

```
*************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 12:58:24.34             *
*************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7550
Sample ID:               WL7550-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2447.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.50 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 12:07:39.00
Decayed to:              11-APR-1996 12:07:39.00
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: ALJ 4-11-96

Verified by: RA Jones 4/16/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	609.82*	19	1.15	1219.67	1215	9	93.3			
0	661.85*	102	1.61	1323.72	1317	15	36.7		CS-137	1.42
0	1120.63*	12	1.52	2241.29	2236	12	118.3			

Summary of Nuclide Activity
Sample ID : WL7550-BLK

Acquisition date : 11-APR-1996 12:07:39

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.422E+00	1.422E+00	0.522E+00	36.70	
		Total Activity :	1.422E+00	1.422E+00			
		Grand Total Activity :	1.422E+00	1.422E+00			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : WL7550-BLK Acquisition date : 11-APR-1996 12:07:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	45.	477.59	2.7254E+00
NA-22	9.	1274.53	2.9631E-01
NA-24	8.	1368.55	2.9738E-01
K-40	108.	1460.75	1.0609E+01
CR-51	64.	320.08	2.4284E+00
MN-54	10.	834.83	2.1016E-01
CO-56	18.	846.76	2.8782E-01
CO-57	76.	122.06	1.9430E-01
CO-58	16.	810.78	2.5998E-01
FE-59	10.	1099.25	4.8286E-01
CO-60	10.	1332.50	3.2647E-01
SE-75	70.	264.66	3.8303E-01
SR-85	53.	514.01	3.3759E-01
Y-88	1.	1836.06	1.2819E-01
NB-94	19.	871.09	3.0111E-01
ZRNB-95	16.	724.18	5.4647E-01
RU-103	26.	497.08	2.4560E-01
RURH-106	24.	621.93	5.1836E+00
AG-108m	20.	722.94	2.9375E-01
CD-109	66.	88.03	6.2160E+00
AG-110M	21.	657.76	2.6371E-01
SN-113	41.	391.69	3.5249E-01
TE-123m	84.	159.00	2.0559E-01
SB-124	26.	602.73	2.6628E-01
SB-125	43.	427.89	8.4675E-01
TE-125m	74.	109.27	6.3724E+01
I-131	40.	364.48	2.6012E-01
CS-134	24.	604.70	2.5744E-01
BA-140	25.	537.31	9.4770E-01
LA-140	6.	1596.21	3.1231E-01
CEPR-144	86.	133.51	3.0902E+00
EU-152	7.	1408.01	1.3401E+00
EU-154	9.	1274.51	8.6272E-01
EU-155	85.	105.31	9.1940E-01
HG-203	56.	279.20	2.5488E-01
TL-208	66.	277.36	3.5506E+00
BI-212	22.	727.18	4.1553E+00
PB-212	92.	238.63	5.4825E-01
BI-214	50.	609.31	8.0973E-01
PB-214	79.	351.92	1.4406E+00
RA-224	69.	240.99	5.2511E+00
RA-226	97.	186.10	5.7564E+00
AC-228	43.	911.21	1.7835E+00
TH-228	62.	84.37	1.8499E+01
TH-229	71.	88.47	9.3582E-01
PA-233	54.	312.17	5.6928E-01
UTH-233	60.	245.34	1.8434E+02
PA-234M	17.	1001.03	5.5062E-01
TH-234	59.	63.29	1.0578E+01
U-235	100.	185.71	3.5477E-01
NP-237	64.	86.48	1.8482E+00

Minimum Detectable Activity Report (continued)
Sample ID : WL7550-BLK Acquisition date : 11-APR-1996 12:07:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	87.	106.12	8.8168E-01
PU-239	78.	129.30	2.5827E+03
AM-241	71.	59.54	1.8373E+00
AM-243	94.	74.67	6.2150E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 14:44:12.44                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7550
Sample ID:               S96T001681-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2449.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:56:18.01 sec
Dead Time:                11%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 13:47:14.36
Decayed to:              11-APR-1996 13:47:14.36
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: A L Johnson 4-11-96

Verified by: R A Jones 4/16/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	28.46	10220	1.99	57.46	56	6	7.6			
0	123.03	1056	0.94	246.49	244	7	90.7		CO-57	23.5
0	661.87*	2340310	1.54	1323.76	1315	18	0.1		CS-137	1.213E+05
0	1275.22	402	2.19	2550.55	2545	14	29.8			
0	1322.42	1694	2.86	2644.99	2636	19	10.3			
0	1333.22	72	1.81	2666.59	2662	9	51.9			

Summary of Nuclide Activity
Sample ID : S96T001681-SAM

Acquisition date : 11-APR-1996 13:47:14

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	6	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	4	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.346E+01~~	~~2.346E+01~~	~~2.128E+01~~	~~90.69~~	>50% 7/23/96
CS-137	30.00Y	1.000	1.213E+05	1.213E+05	0.002E+05	0.14	
		Total Activity :	1.213E+05	1.213E+05			
		Grand Total Activity :	1.213E+05	1.213E+05			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : S96T001681-SAM Acquisition date : 11-APR-1996 13:47:14

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	80339.	477.59	4.4683E+02
NA-22	962.	1274.53	1.1106E+01
NA-24	80.	1368.55	3.4596E+00
K-40	146.	1460.75	4.5101E+01
CR-51	71510.	320.08	3.0984E+02
MN-54	4117.	834.83	1.5669E+01
CO-56	4118.	846.76	1.5840E+01
CO-58	4672.	810.78	1.6423E+01
FE-59	1421.	1099.25	2.0878E+01
CO-60	184.	1332.50	5.0502E+00
SE-75	79865.	264.66	5.0511E+01
SR-85	43334.	514.01	3.7984E+01
Y-88	6.	1836.06	1.1400E+00
NB-94	3567.	871.09	1.5048E+01
ZRNB-95	7151.	724.18	4.2506E+01
RU-103	52141.	497.08	4.2652E+01
RURH-106	20140.	621.93	5.6372E+02
AG-108m	7203.	722.94	2.0501E+01
CD-109	65757.	88.03	8.4705E+02
AG-110M	43574.	657.76	4.5124E+01
SN-113	73844.	391.69	5.6214E+01
TE-123m	80105.	159.00	2.6338E+01
SB-124	20753.	602.73	2.8481E+01
SB-125	83533.	427.89	1.4161E+02
TE-125m	70780.	109.27	8.9923E+03
I-131	70991.	364.48	4.1505E+01
CS-134	20788.	604.70	2.8612E+01
BA-140	32627.	537.31	1.3421E+02
LA-140	36.	1596.21	2.6912E+00
CEPR-144	80341.	133.51	4.2954E+02
EU-152	52.	1408.01	1.3429E+01
EU-154	962.	1274.51	3.2263E+01
EU-155	69810.	105.31	1.1881E+02
HG-203	77616.	279.20	3.6739E+01
TL-208	78097.	277.36	4.7399E+02
BI-212	6762.	727.18	2.7243E+02
PB-212	85170.	238.63	6.5981E+01
BI-214	20500.	609.31	6.2178E+01
PB-214	70586.	351.92	1.7439E+02
RA-224	84741.	240.99	7.3024E+02
RA-226	101479.	186.10	7.3362E+02
AC-228	2845.	911.21	5.2344E+01
TH-228	64348.	84.37	2.5536E+03
TH-229	65632.	88.47	1.2280E+02
PA-233	72735.	312.17	8.0278E+01
UTH-233	83585.	245.34	2.7112E+04
PA-234M	1962.	1001.03	2.1482E+01
TH-234	59512.	63.29	1.4571E+03
U-235	100279.	185.71	4.4339E+01
NP-237	65710.	86.48	2.5321E+02
NP-239	70102.	106.12	1.1330E+02

Sample ID : S96T001681-SAM Acquisition date : 11-APR-1996 13:47:14

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	79784.	129.30	3.7760E+05
AM-241	58453.	59.54	2.3712E+02
AM-243	61939.	74.67	6.7519E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 04:07:02.89                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7550
Sample ID:               S96T1681-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2450.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:56:17.11 sec
Dead Time:                11%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 03:10:07.49
Decayed to:              11-APR-1996 03:10:07.49
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: D. H. Milbrin

Verified by: RA Jones 4/16/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.99	1711	1.14	246.40	244	7	55.9		CO-57	38.0
0	661.86*	2334311	1.54	1323.74	1315	18	0.1		CS-137	1.210E+05
0	1005.10	233	1.10	2010.19	2005	10	70.7			
0	1275.13	396	2.07	2550.37	2544	16	33.4			
0	1322.85	1318	2.65	2645.84	2639	19	13.9			
0	1333.79	61	1.16	2667.73	2664	9	56.4			

Sample ID : S96T1681-DUP
Acquisition date : 11-APR-1996 03:10:07

Total number of lines in spectrum 6
Number of unidentified lines 1
Number of lines tentatively identified by NID 5 83.33%

WHC-SD-WM-DP-183, REV. 0

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.800E+01~~	~~3.801E+01~~	~~2.124E+01~~	~~55.88~~	> 50% 7/23/96
CS-137	30.00Y	1.000	1.210E+05	1.210E+05	0.002E+05	0.14	
		Total Activity :	1.210E+05	1.210E+05			
		Grand Total Activity :	1.210E+05	1.210E+05			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T1681-DUP Acquisition date : 11-APR-1996 03:10:07

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	80320.	477.59	4.4678E+02
NA-22	922.	1274.53	1.0870E+01
NA-24	80.	1368.55	3.4712E+00
K-40	137.	1460.75	4.3714E+01
CR-51	71544.	320.08	3.0992E+02
MN-54	4076.	834.83	1.5591E+01
CO-56	3995.	846.76	1.5602E+01
CO-58	4649.	810.78	1.6383E+01
FE-59	1464.	1099.25	2.1192E+01
CO-60	167.	1332.50	4.7999E+00
SE-75	79759.	264.66	5.0478E+01
SR-85	43609.	514.01	3.8104E+01
Y-88	5.	1836.06	1.0650E+00
NB-94	3488.	871.09	1.4881E+01
ZRNB-95	7099.	724.18	4.2351E+01
RU-103	51933.	497.08	4.2567E+01
RURH-106	20306.	621.93	5.6604E+02
AG-108m	7072.	722.94	2.0314E+01
CD-109	65607.	88.03	8.4608E+02
AG-110M	44508.	657.76	4.5605E+01
SN-113	73684.	391.69	5.6153E+01
TE-123m	80471.	159.00	2.6398E+01
SB-124	20642.	602.73	2.8404E+01
SB-125	83112.	427.89	1.4126E+02
TE-125m	70685.	109.27	8.9863E+03
I-131	70826.	364.48	4.1457E+01
CS-134	20495.	604.70	2.8409E+01
BA-140	32961.	537.31	1.3490E+02
LA-140	41.	1596.21	2.8948E+00
CEPR-144	80040.	133.51	4.2873E+02
EU-152	66.	1408.01	1.5143E+01
EU-154	921.	1274.51	3.1565E+01
EU-155	69723.	105.31	1.1874E+02
HG-203	77155.	279.20	3.6630E+01
TL-208	77208.	277.36	4.7128E+02
BI-212	6833.	727.18	2.7385E+02
PB-212	84846.	238.63	6.5855E+01
BI-214	20851.	609.31	6.2708E+01
PB-214	70369.	351.92	1.7410E+02
RA-224	84266.	240.99	7.2819E+02
RA-226	101572.	186.10	7.3396E+02
AC-228	2839.	911.21	5.2289E+01
TH-228	64800.	84.37	2.5625E+03
TH-229	65379.	88.47	1.2256E+02
PA-233	72698.	312.17	8.0257E+01
UTH-233	83624.	245.34	2.7119E+04
PA-234M	1966.	1001.03	2.1508E+01
TH-234	59108.	63.29	1.4522E+03
U-235	100303.	185.71	4.4344E+01
NP-237	66068.	86.48	2.5390E+02
NP-239	69893.	106.12	1.1313E+02

Sample ID : S96T1681-DUP Acquisition date : 11-APR-1996 03:10:07

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	79043.	129.30	3.7584E+05
AM-241	58817.	59.54	2.3786E+02
AM-243	62878.	74.67	6.8028E+01

LABCORE Data Entry Template for Worklist# 7606

Analyst: WGB **Instrument:** GEA00 2 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: Rerun#1; use 0.100-10 dilution, mount 1.0 ml of dilution.PPB

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T001566	0		@GEA-01	LIQUID	96000174	C-106 GRAB
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S96T001566	0		@GEA-01	LIQUID		

Final page for worklist # 7606

Wayne J. Burkhardt 4-11-96 23:00
Analyst Signature **Date**

Sue E. Hogan 4/16/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 7606

Analyst: wgb **Instrument:** GEA02 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: Rerun#1; use 0.100-10 dilution, mount 1.0 ml of dilution.PPB

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	0.0257		2.53e-02	98.444	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1		1.39	1.390	% Ct. Error
1	STD		0	@GEA-01	CS13702	LIQUID	0.0271		2.61e-02	96.310	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1		1.61	1.610	% Ct. Error
2	BLNK		0	@GEA-01	CO60-02	LIQUID	1		<2.89e-3		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1		<8.70e-3		uCi/mL
3	SAMPLE	S96T001566	0	@GEA-01	CO60-02	LIQUID	N/A	<	6.193e-03	0.006	uCi/mL
3	SAMPLE	S96T001566	0	@GEA-01	CO60-02E	LIQUID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S96T001566	0	@GEA-01	CS13702	LIQUID	N/A		1.350e+02	0.000	uCi/mL
3	SAMPLE	S96T001566	0	@GEA-01	CS13702E	LIQUID	N/A		0.210	0.000	% Ct. Error
4	DUP	S96T001566	0	@GEA-01	CO60-02	LIQUID	<6.19e-3		<7.13e-3		RPD
4	DUP	S96T001566	0	@GEA-01	CO60-02E	LIQUID	1		n/a		% Ct. Error
4	DUP	S96T001566	0	@GEA-01	CS13702	LIQUID	1.35e+02		1.70e+02	22.951	RPD
4	DUP	S96T001566	0	@GEA-01	CS13702E	LIQUID	1		0.190	0.190	% Ct. Error

Comments Section:

Comments for sample# S96T001566 **and test** @GEA-01 .
R(0) DL=0 => n/a. STD recovery high; re-run requested.
R(1) DL=0 => n/a. High Cs RPD poss. due to sample crystals; no RR

Final page for worklist# 7606

Analyst Signature **Date** **Analyst Signature** **Date**

B Bachelor 4/23/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 10:42:55.56                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7606
Sample ID:               WL7606-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2453.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.70 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 09:52:11.89
Decayed to:              11-APR-1996 09:52:11.89
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by:

D H Milicia

Verified by:

RA Jones 4/16/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.86*	18778	1.50	1323.73	1317	14	1.6		CS-137	26.1
0	1173.58	12861	1.88	2347.22	2337	19	2.0		CO-60	25.3
0	1332.93	11666	1.95	2666.02	2656	20	1.9		CO-60	25.4

Summary of Nuclide Activity
Sample ID : WL7606-STD

Acquisition date : 11-APR-1996 09:52:11

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.533E+01	2.533E+01	0.035E+01	1.39	
CS-137	30.00Y	1.000	2.606E+01	2.606E+01	0.042E+01	1.61	
		Total Activity :	5.139E+01	5.139E+01			
		Grand Total Activity :	5.139E+01	5.139E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL7606-STD Acquisition date : 11-APR-1996 09:52:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1005.	477.59	1.2861E+00
NA-22	90.	1274.53	9.2493E-02
NA-24	22.	1368.55	4.9460E-02
K-40	126.	1460.75	1.1458E+00
CR-51	1098.	320.08	1.0029E+00
MN-54	635.	834.83	1.6878E-01
CO-56	699.	846.76	1.7934E-01
CO-57	1237.	122.06	7.8632E-02
CO-58	615.	810.78	1.6294E-01
FE-59	645.	1099.25	3.8629E-01
SE-75	1399.	264.66	1.7086E-01
SR-85	756.	514.01	1.2811E-01
Y-88	15.	1836.06	5.0361E-02
NB-94	725.	871.09	1.8705E-01
ZRNB-95	513.	724.18	3.0777E-01
RU-103	817.	497.08	1.3655E-01
RURH-106	590.	621.93	2.5589E+00
AG-108m	529.	722.94	1.5021E-01
CD-109	1095.	88.03	2.5401E+00
AG-110M	795.	657.76	1.6305E-01
SN-113	1063.	391.69	1.7940E-01
TE-123m	1355.	159.00	8.2363E-02
SB-124	621.	602.73	1.2976E-01
SB-125	1139.	427.89	4.3586E-01
TE-125m	1202.	109.27	2.5698E+01
I-131	1066.	364.48	1.3457E-01
CS-134	632.	604.70	1.3150E-01
BA-140	665.	537.31	4.9122E-01
LA-140	13.	1596.21	4.4198E-02
CEPR-144	1291.	133.51	1.2010E+00
EU-152	20.	1408.01	2.2688E-01
EU-154	90.	1274.51	2.6878E-01
EU-155	1152.	105.31	3.3790E-01
HG-203	1295.	279.20	1.2232E-01
TL-208	1299.	277.36	1.5740E+00
BI-212	467.	727.18	1.9355E+00
PB-212	1439.	238.63	2.1645E-01
BI-214	663.	609.31	2.9538E-01
PB-214	1062.	351.92	5.2999E-01
RA-224	1433.	240.99	2.3969E+00
RA-226	1495.	186.10	2.2556E+00
AC-228	809.	911.21	7.7158E-01
TH-228	1066.	84.37	7.6955E+00
TH-229	1102.	88.47	3.6953E-01
PA-233	1176.	312.17	2.6616E-01
UTH-233	1436.	245.34	8.9894E+01
PA-234M	691.	1001.03	3.5106E-01
TH-234	1030.	63.29	4.4068E+00
U-235	1479.	185.71	1.3635E-01
NP-237	1127.	86.48	7.7360E-01
NP-239	1163.	106.12	3.2213E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL7606-STD Acquisition date : 11-APR-1996 09:52:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1272.	129.30	1.0412E+03
AM-241	1044.	59.54	7.0644E-01
AM-243	1117.	74.67	2.1416E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 11:34:51.41                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7606
Sample ID:               WL7606-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2454.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.51 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 10:44:15.24
Decayed to:              11-APR-1996 10:44:15.24
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: D. H. Milicia

Verified by: R A Jones 4/16/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	33.32	110	1.53	67.18	62	11	53.0			
0	609.42*	27	1.34	1218.88	1213	12	73.7			
0	661.92*	62	1.56	1323.85	1318	11	50.7-		CS-137	8.70

Summary of Nuclide Activity
Sample ID : WL7606-BLK Acquisition date : 11-APR-1996 10:44:15

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~8.704E+00~~	~~8.704E+00~~	~~4.417E+00~~	~~50.75~~	>50%
			---	---			
Total Activity :			8.704E+00	8.704E+00			
Grand Total Activity :			8.704E+00	8.704E+00			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL7606-BLK Acquisition date : 11-APR-1996 10:44:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	31.	477.59	2.2785E+01
NA-22	13.	1274.53	3.5903E+00
NA-24	9.	1368.55	3.1087E+00
K-40	115.	1460.75	1.1031E+02
CR-51	60.	320.08	2.3611E+01
MN-54	9.	834.83	1.9942E+00
CO-56	17.	846.76	2.8243E+00
CO-57	77.	122.06	1.9863E+00
CO-58	24.	810.78	3.2305E+00
FE-59	15.	1099.25	5.9871E+00
CO-60	8.	1332.50	2.8905E+00
SE-75	64.	264.66	3.6794E+00
SR-85	46.	514.01	3.1889E+00
Y-88	2.	1836.06	1.8816E+00
NB-94	11.	871.09	2.2957E+00
ZRNB-95	17.	724.18	5.6189E+00
RU-103	35.	497.08	2.8438E+00
RURH-106	24.	621.93	5.1970E+01
AG-108m	16.	722.94	2.6374E+00
CD-109	70.	88.03	6.4652E+01
AG-110M	18.	657.76	2.4624E+00
SN-113	38.	391.69	3.4243E+00
TE-123m	87.	159.00	2.1097E+00
SB-124	27.	602.73	2.7333E+00
SB-125	36.	427.89	7.8713E+00
TE-125m	76.	109.27	6.5335E+02
I-131	42.	364.48	2.7083E+00
CS-134	19.	604.70	2.3049E+00
BA-140	26.	537.31	9.7839E+00
LA-140	4.	1596.21	2.4401E+00
CEPR-144	78.	133.51	2.9749E+01
EU-152	8.	1408.01	1.4048E+01
EU-154	13.	1274.51	1.0431E+01
EU-155	81.	105.31	9.0427E+00
HG-203	65.	279.20	2.7571E+00
TL-208	59.	277.36	3.3967E+01
BI-212	28.	727.18	4.7531E+01
PB-212	82.	238.63	5.2082E+00
BI-214	59.	609.31	8.8667E+00
PB-214	66.	351.92	1.3306E+01
RA-224	76.	240.99	5.5586E+01
RA-226	97.	186.10	5.8082E+01
AC-228	23.	911.21	1.3036E+01
TH-228	71.	84.37	1.9996E+02
TH-229	69.	88.47	9.3531E+00
PA-233	46.	312.17	5.3237E+00
UTH-233	62.	245.34	1.8878E+03
PA-234M	17.	1001.03	5.6403E+00
TH-234	59.	63.29	1.0683E+02
U-235	94.	185.71	3.4789E+00
NP-237	68.	86.48	1.9154E+01

Minimum Detectable Activity Report (continued)
Sample ID : WL7606-BLK Acquisition date : 11-APR-1996 10:44:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	77.	106.12	8.3545E+00
PU-239	94.	129.30	2.8611E+04
AM-241	70.	59.54	1.8513E+01
AM-243	74.	74.67	5.5810E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 12:29:53.63                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7606
Sample ID:               S96T1566-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2455.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:13.84 sec
Dead Time:               4.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 11:37:00.39
Decayed to:              11-APR-1996 11:37:00.39
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: D. Hamilton

Verified by: RAJones 4/16/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	158.00	691	1.38	316.38	314	6	71.3		TE-123m	33.6
0	661.85*	963495	1.53	1323.71	1315	18	0.2		CS-137	1.350E+05
0	1004.62	74	1.50	2009.23	2004	12	99.4			
0	1274.14	114	1.90	2548.40	2542	18	52.0			
0	1322.64	232	1.80	2645.43	2638	17	28.9			

Summary of Nuclide Activity
Sample ID : S96T1566-SAM

Acquisition date : 11-APR-1996 11:37:00

Total number of lines in spectrum	5	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	4	80.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~TE-123m~~	~~119.70D~~	~~1.000~~	~~3.360E+01~~	~~3.360E+01~~	~~2.394E+01~~	~~71.25~~	> 50%
CS-137	30.00Y	1.000	1.350E+05	1.350E+05	0.003E+05	0.21	
		Total Activity :	1.351E+05	1.351E+05			
		Grand Total Activity :	1.351E+05	1.351E+05			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T1566-SAM Acquisition date : 11-APR-1996 11:37:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	30734.	477.59	7.1822E+02
NA-22	204.	1274.53	1.4067E+01
NA-24	10.	1368.55	3.2830E+00
K-40	98.	1460.75	1.0219E+02
CR-51	25412.	320.08	4.8724E+02
MN-54	589.	834.83	1.6416E+01
CO-56	602.	846.76	1.6809E+01
CO-57	27790.	122.06	3.7648E+01
CO-58	696.	810.78	1.7504E+01
FE-59	230.	1099.25	2.3276E+01
CO-60	37.	1332.50	6.1931E+00
SE-75	28220.	264.66	7.7507E+01
SR-85	16092.	514.01	5.9692E+01
Y-88	3.	1836.06	2.2841E+00
NB-94	575.	871.09	1.6817E+01
ZRNB-95	1069.	724.18	4.4874E+01
RU-103	19312.	497.08	6.7058E+01
RURH-106	6901.	621.93	8.8384E+02
AG-108m	1088.	722.94	2.1745E+01
CD-109	24344.	88.03	1.2099E+03
AG-110M	17384.	657.76	7.7025E+01
SN-113	27704.	391.69	9.2513E+01
SB-124	7211.	602.73	4.4672E+01
SB-125	31615.	427.89	2.3192E+02
TE-125m	25529.	109.27	1.1961E+04
I-131	25906.	364.48	6.7017E+01
CS-134	7171.	604.70	4.4751E+01
BA-140	11873.	537.31	2.0957E+02
LA-140	6.	1596.21	2.9768E+00
CEPR-144	28127.	133.51	5.6608E+02
EU-152	15.	1408.01	1.9951E+01
EU-154	204.	1274.51	4.0873E+01
EU-155	25421.	105.31	1.6031E+02
HG-203	26871.	279.20	5.6272E+01
TL-208	27024.	277.36	7.2513E+02
BI-212	987.	727.18	2.8430E+02
PB-212	31503.	238.63	1.0229E+02
BI-214	7083.	609.31	9.7494E+01
PB-214	25496.	351.92	2.6789E+02
RA-224	31116.	240.99	1.1285E+03
RA-226	35872.	186.10	1.1159E+03
AC-228	447.	911.21	5.7940E+01
TH-228	23970.	84.37	3.6865E+03
TH-229	24365.	88.47	1.7546E+02
PA-233	25738.	312.17	1.2574E+02
UTH-233	30922.	245.34	4.2132E+04
PA-234M	280.	1001.03	2.2571E+01
TH-234	23020.	63.29	2.1045E+03
U-235	35475.	185.71	6.7451E+01
NP-237	24302.	86.48	3.6275E+02
NP-239	25374.	106.12	1.5202E+02

Minimum Detectable Activity Report (continued)
Sample ID : S96T1566-SAM Acquisition date : 11-APR-1996 11:37:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	27915.	129.30	4.9268E+05
AM-241	22587.	59.54	3.3188E+02
AM-243	23167.	74.67	9.8499E+01

```
*************************************************************************
* 222-S Laboratory Counting Room   11-APR-1996 13:25:08.01             *
*************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7606
Sample ID:               S96T1566-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2456.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:51.46 sec
Dead Time:               5.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-APR-1996 12:31:38.33
Decayed to:              11-APR-1996 12:31:38.33
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: D. Hamilton

Verified by: RA Jones 4/16/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.93	831	1.08	246.29	244	6	68.3		CO-57	40.4
0	661.85*	1214853	1.53	1323.71	1315	18	0.2		CS-137	1.703E+05
0	1322.87	315	1.91	2645.89	2638	19	28.7			

Summary of Nuclide Activity
Sample ID : S96T1566-DUP

Acquisition date : 11-APR-1996 12:31:38

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~4.035E+01~~	~~4.035E+01~~	~~2.757E+01~~	~~68.32~~	~~[illegible]~~
CS-137	30.00Y	1.000	1.703E+05	1.703E+05	0.003E+05	0.19	[illegible]
		Total Activity :	1.703E+05	1.703E+05			
		Grand Total Activity :	1.703E+05	1.703E+05			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T1566-DUP

Acquisition date : 11-APR-1996 12:31:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	39661.	477.59	8.1590E+02
NA-22	284.	1274.53	1.6616E+01
NA-24	15.	1368.55	4.0611E+00
K-40	98.	1460.75	1.0201E+02
CR-51	32195.	320.08	5.4843E+02
MN-54	990.	834.83	2.1289E+01
CO-56	993.	846.76	2.1590E+01
CO-58	1078.	810.78	2.1788E+01
FE-59	338.	1099.25	2.8249E+01
CO-60	49.	1332.50	7.1274E+00
SE-75	36157.	264.66	8.7733E+01
SR-85	20458.	514.01	6.7304E+01
Y-88	4.	1836.06	2.5483E+00
NB-94	839.	871.09	2.0318E+01
ZRNB-95	1765.	724.18	5.7644E+01
RU-103	24666.	497.08	7.5785E+01
RURH-106	8906.	621.93	1.0041E+03
AG-108m	1733.	722.94	2.7443E+01
CD-109	30935.	88.03	1.3639E+03
AG-110M	22080.	657.76	8.6808E+01
SN-113	34930.	391.69	1.0388E+02
TE-123m	35387.	159.00	4.2509E+01
SB-124	9090.	602.73	5.0158E+01
SB-125	40536.	427.89	2.6262E+02
TE-125m	32342.	109.27	1.3463E+04
I-131	33290.	364.48	7.5971E+01
CS-134	9059.	604.70	5.0298E+01
BA-140	15046.	537.31	2.3592E+02
LA-140	14.	1596.21	4.7315E+00
CEPR-144	35644.	133.51	6.3724E+02
EU-152	16.	1408.01	2.0504E+01
EU-154	284.	1274.51	4.8267E+01
EU-155	32190.	105.31	1.8039E+02
HG-203	34282.	279.20	6.3560E+01
TL-208	34635.	277.36	8.2092E+02
BI-212	1621.	727.18	3.6426E+02
PB-212	40249.	238.63	1.1562E+02
BI-214	9111.	609.31	1.1057E+02
PB-214	32587.	351.92	3.0478E+02
RA-224	39987.	240.99	1.2793E+03
RA-226	45374.	186.10	1.2550E+03
AC-228	719.	911.21	7.3493E+01
TH-228	30817.	84.37	4.1799E+03
TH-229	30898.	88.47	1.9759E+02
PA-233	32121.	312.17	1.4047E+02
UTH-233	38865.	245.34	4.7233E+04
PA-234M	469.	1001.03	2.9205E+01
TH-234	28785.	63.29	2.3533E+03
U-235	44791.	185.71	7.5792E+01
NP-237	30821.	86.48	4.0852E+02
NP-239	32128.	106.12	1.7107E+02

Minimum Detectable Activity Report (continued)
Sample ID : S96T1566-DUP Acquisition date : 11-APR-1996 12:31:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	35399.	129.30	5.5482E+05
AM-241	28677.	59.54	3.7396E+02
AM-243	29404.	74.67	1.1097E+02

LABCORE Data Entry Template for Worklist# 7895

Analyst: KNT **Instrument:** GEA00 1 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106, Sample size is on the traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T000546	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T000546	0	F	@GEA-01	SOLID		
5	SAMPLE	S96T000555	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T000555	0	F	@GEA-01	SOLID		
7	SAMPLE	S96T000561	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
8	DUP	S96T000561	0	F	@GEA-01	SOLID		
9	SAMPLE	S96T000571	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
10	DUP	S96T000571	0	F	@GEA-01	SOLID		

Final page for worklist # 7895

Kim Thomas 4-24-96
Analyst Signature **Date**

[illegible] 5/8/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 7895

Analyst: kn+ **Instrument:** GEA01 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106, Sample size is on the traveler. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	C060-02	SOLID	2.560e-02		2.51e-02	98.047	% Recovery
1	STD		0		@GEA-01	C060-02E	SOLID	1		1.32	1.320	% Ct. Error
1	STD		0		@GEA-01	CS13702	SOLID	2.709e-02		2.67e-02	98.560	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		1.53	1.530	% Ct. Error
2	BLNK-PREP		0		@GEA-01	C060-02	SOLID	1		<4.73e-1		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<9.17e-1		uCi/g
3	REJECT	S96T000546	0	F	@GEA-01	C060-02	SOLID	N/A	<	5.605e-01		uCi/g
3	REJECT	S96T000546	0	F	@GEA-01	C060-02E	SOLID	N/A		n/a		% Ct. Error
3	REJECT	S96T000546	0	F	@GEA-01	CS13702	SOLID	N/A		3.942e+02		uCi/g
3	REJECT	S96T000546	0	F	@GEA-01	CS13702E	SOLID	N/A		1.18		% Ct. Error
4	DUP	S96T000546	0	F	@GEA-01	C060-02	SOLID	<5.60e-1		<1.64e0		RPD
4	DUP	S96T000546	0	F	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T000546	0	F	@GEA-01	CS13702	SOLID	3.94e+02		2.64e+03	148.055	RPD
4	DUP	S96T000546	0	F	@GEA-01	CS13702E	SOLID	1.00		0.820	0.820	% Ct. Error
5	SAMPLE	S96T000555	0	F	@GEA-01	C060-02	SOLID	N/A		0.000e+00	0.0e+000	uCi/g
5	SAMPLE	S96T000555	0	F	@GEA-01	C060-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T000555	0	F	@GEA-01	CS13702	SOLID	N/A		5.959e+02	0.0e+000	uCi/g
5	SAMPLE	S96T000555	0	F	@GEA-01	CS13702E	SOLID	N/A		17.0	0.0e+000	% Ct. Error
6	DUP	S96T000555	0	F	@GEA-01	C060-02	SOLID	0.00e+00		<5.71e-1		RPD
6	DUP	S96T000555	0	F	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
6	DUP	S96T000555	0	F	@GEA-01	CS13702	SOLID	5.96e+02		6.22e+02	4.269	RPD
6	DUP	S96T000555	0	F	@GEA-01	CS13702E	SOLID	1.00		0.930	0.930	% Ct. Error
7	SAMPLE	S96T000561	0	F	@GEA-01	C060-02	SOLID	N/A	<	2.050e-01	205.0e-003	uCi/g
7	SAMPLE	S96T000561	0	F	@GEA-01	C060-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T000561	0	F	@GEA-01	CS13702	SOLID	N/A		1.977e+02	0.0e+000	uCi/g
7	SAMPLE	S96T000561	0	F	@GEA-01	CS13702E	SOLID	N/A		1.01	0.0e+000	% Ct. Error
8	DUP	S96T000561	0	F	@GEA-01	C060-02	SOLID	<2.05e-1		<1.88e-1		RPD
8	DUP	S96T000561	0	F	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
8	DUP	S96T000561	0	F	@GEA-01	CS13702	SOLID	1.98e+02		1.70e+02	15.217	RPD
8	DUP	S96T000561	0	F	@GEA-01	CS13702E	SOLID	1.00		1.00	1.000	% Ct. Error
9	REJECT	S96T000571	0	F	@GEA-01	C060-02	SOLID	N/A	<	3.183e-01		uCi/g
9	REJECT	S96T000571	0	F	@GEA-01	C060-02E	SOLID	N/A		n/a		% Ct. Error
9	REJECT	S96T000571	0	F	@GEA-01	CS13702	SOLID	N/A		1.994e+02		uCi/g
9	REJECT	S96T000571	0	F	@GEA-01	CS13702E	SOLID	N/A		1.33		% Ct. Error
10	DUP	S96T000571	0	F	@GEA-01	C060-02	SOLID	<3.18e-1		<5.07e-1		RPD
10	DUP	S96T000571	0	F	@GEA-01	C060-02E	SOLID	1		n/a		% Ct. Error
10	DUP	S96T000571	0	F	@GEA-01	CS13702	SOLID	1.99e+02		5.56e+02	94.570	RPD
10	DUP	S96T000571	0	F	@GEA-01	CS13702E	SOLID	1.00		0.880	0.880	% Ct. Error

Comments Section:

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed RadChem Report for Worklist#: 7895

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit

Comments for sample# S96T000546 **and test** @GEA-01 .
DL=0 => n/a. High Cs-137 RPD - poss. tech error. Rerun.

Comments for sample# S96T000555 **and test** @GEA-01 .
DL=0 => n/a. Zero result valid - bkg subtracted all counts.

Comments for sample# S96T000561 **and test** @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T000571 **and test** @GEA-01 .
DL=0 => n/a. High RPD Cs-137 - poss tech error. Rerun.

Final page for worklist# 7895

Analyst Signature **Date**

Analyst Signature **Date**

Bachelor 5/8/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 05:09:16.25                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7895
Sample ID:               WL7895-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1777.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:27.03 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 04:18:12.47
Decayed to:              24-APR-1996 04:18:12.47
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: ALJ 4-24-96

Verified by: S Machelor 4/25/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.61	3839	0.97	63.87	59	10	6.0			
0	36.15	1105	1.10	72.95	69	10	16.6			
0	352.03*	140	0.82	704.65	701	8	88.3			
0	661.46*	22072	1.42	1323.55	1316	16	1.5		CS-137	26.7
0	1172.97	14720	1.75	2346.83	2337	20	1.9		CO-60	25.3
0	1332.19	13035	1.93	2665.40	2656	19	1.9		CO-60	24.9
0	1764.50*	35	1.86	3530.50	3522	18	60.4			

Summary of Nuclide Activity
Sample ID : WL7895-STD

Acquisition date : 24-APR-1996 04:18:12

Total number of lines in spectrum	7	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	5	71.43%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.509E+01	2.509E+01	0.033E+01	1.32	
CS-137	30.00Y	1.000	2.672E+01	2.672E+01	0.041E+01	1.53	
			---	---			
Total Activity :			5.181E+01	5.181E+01			
Grand Total Activity :			5.181E+01	5.181E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL7895-STD Acquisition date : 24-APR-1996 04:18:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1290.	477.59	1.2297E+00
NA-22	99.	1274.53	8.5232E-02
NA-24	38.	1368.55	5.6780E-02
K-40	582.	1460.75	2.1536E+00
CR-51	1241.	320.08	8.6574E-01
MN-54	752.	834.83	1.6295E-01
CO-56	826.	846.76	1.7312E-01
CO-57	1547.	122.06	5.9297E-02
CO-58	778.	810.78	1.6231E-01
FE-59	753.	1099.25	3.6784E-01
SE-75	1363.	264.66	1.3346E-01
SR-85	887.	514.01	1.1771E-01
Y-88	20.	1836.06	5.0345E-02
NB-94	882.	871.09	1.8347E-01
ZRNB-95	630.	724.18	2.9966E-01
RU-103	998.	497.08	1.2765E-01
RURH-106	723.	621.93	2.4556E+00
AG-108m	634.	722.94	1.4445E-01
CD-109	1353.	88.03	1.1919E+00
AG-110M	1397.	657.76	1.8849E-01
SN-113	1227.	391.69	1.6186E-01
TE-123m	1445.	159.00	6.6987E-02
SB-124	688.	602.73	1.1799E-01
SB-125	1395.	427.89	4.0690E-01
TE-125m	1457.	109.27	1.6796E+01
I-131	1217.	364.48	1.1930E-01
CS-134	682.	604.70	1.1809E-01
BA-140	801.	537.31	4.5901E-01
LA-140	26.	1596.21	5.4901E-02
CEPR-144	1467.	133.51	9.3099E-01
EU-152	46.	1408.01	3.0004E-01
EU-154	99.	1274.51	2.4768E-01
EU-155	1359.	105.31	2.0725E-01
HG-203	1328.	279.20	9.8823E-02
TL-208	1312.	277.36	1.2608E+00
BI-212	665.	727.18	2.0303E+00
PB-212	1598.	238.63	1.7876E-01
BI-214	864.	609.31	2.9146E-01
PB-214	1364.	351.92	4.9663E-01
RA-224	1520.	240.99	1.9363E+00
RA-226	1648.	186.10	1.8932E+00
AC-228	986.	911.21	7.5875E-01
TH-228	1396.	84.37	3.4265E+00
TH-229	1344.	88.47	1.7379E-01
PA-233	1289.	312.17	2.2557E-01
UTH-233	1417.	245.34	7.0089E+01
PA-234M	829.	1001.03	3.4069E-01
TH-234	1221.	63.29	8.9218E-01
U-235	1636.	185.71	1.1466E-01
NP-237	1349.	86.48	3.4531E-01
NP-239	1342.	106.12	1.9754E-01

Minimum Detectable Activity Report (continued)

Sample ID : WL7895-STD Acquisition date : 24-APR-1996 04:18:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1489.	129.30	7.9981E+02
AM-241	1147.	59.54	1.0917E-01
AM-243	1368.	74.67	7.0650E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 06:03:38.04                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7895
Sample ID:               WL7895-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1779.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:10.62 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 05:12:48.99
Decayed to:              24-APR-1996 05:12:48.99
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

Removed by: 4-24-96

Verified by: 4/25/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	294.46*	126	1.33	589.52	584	13	66.3			
0	609.25*	47	1.66	1219.12	1216	11	90.5			
0	662.38*	71	1.37	1325.38	1319	14	63.3		CS-137	0.865
0	1378.19*	21	2.62	2757.45	2750	17	95.6			

Summary of Nuclide Activity
Sample ID : WL7895-BLK

Acquisition date : 24-APR-1996 05:12:48

Total number of lines in spectrum	4	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~8.653E-01~~	~~8.653E-01~~	~~5.481E-01~~	~~63.34~~	~~BKG~~
Total Activity :			8.653E-01	8.653E-01			

7/23/96

Grand Total Activity :	8.653E-01	8.653E-01

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL7895-BLK Acquisition date : 24-APR-1996 05:12:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	130.	477.59	3.9050E+00
NA-22	32.	1274.53	4.8378E-01
NA-24	28.	1368.55	4.8461E-01
K-40	581.	1460.75	2.1513E+01
CR-51	206.	320.08	3.5292E+00
MN-54	56.	834.83	4.4602E-01
CO-56	61.	846.76	4.7048E-01
CO-57	520.	122.06	3.4391E-01
CO-58	50.	810.78	4.1328E-01
FE-59	47.	1099.25	9.1832E-01
CO-60	25.	1332.50	4.4642E-01
SE-75	266.	264.66	5.8960E-01
SR-85	135.	514.01	4.5941E-01
Y-88	6.	1836.06	2.8650E-01
NB-94	50.	871.09	4.3524E-01
ZRNB-95	72.	724.18	1.0100E+00
RU-103	127.	497.08	4.5539E-01
RURH-106	83.	621.93	8.3105E+00
AG-108m	81.	722.94	5.1616E-01
CD-109	420.	88.03	6.6418E+00
AG-110M	65.	657.76	4.0591E-01
SN-113	171.	391.69	6.0407E-01
TE-123m	492.	159.00	3.9099E-01
SB-124	85.	602.73	4.1579E-01
SB-125	137.	427.89	1.2759E+00
TE-125m	504.	109.27	9.8736E+01
I-131	158.	364.48	4.2938E-01
CS-134	79.	604.70	4.0283E-01
BA-140	108.	537.31	1.6845E+00
LA-140	22.	1596.21	4.9868E-01
CEPR-144	543.	133.51	5.6619E+00
EU-152	32.	1408.01	2.5241E+00
EU-154	32.	1274.51	1.4086E+00
EU-155	473.	105.31	1.2228E+00
HG-203	275.	279.20	4.4975E-01
TL-208	247.	277.36	5.4724E+00
BI-212	85.	727.18	7.2730E+00
PB-212	411.	238.63	9.0681E-01
BI-214	235.	609.31	1.5196E+00
PB-214	312.	351.92	2.3671E+00
RA-224	320.	240.99	8.8762E+00
RA-226	512.	186.10	1.0552E+01
AC-228	125.	911.21	2.6987E+00
TH-228	486.	84.37	2.0227E+01
TH-229	420.	88.47	9.7186E-01
PA-233	222.	312.17	9.3614E-01
UTH-233	290.	245.34	3.1724E+02
PA-234M	51.	1001.03	8.4895E-01
TH-234	390.	63.29	5.0398E+00
U-235	517.	185.71	6.4453E-01
NP-237	447.	86.48	1.9868E+00

Sample ID : WL7895-BLK Acquisition date : 24-APR-1996 05:12:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	455.	106.12	1.1504E+00
PU-239	533.	129.30	4.7849E+03
AM-241	391.	59.54	6.3714E-01
AM-243	537.	74.67	4.4261E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 06:57:14.67                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<   WHC-SD-WM-DP-183, REV. 0
Worklist #:              7895   LAD 7-19-96
Sample ID:               S96T0005546-SAM                 Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01                     Em Barelas

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA1]1g1780.cnf
Geometry:                41                              Bachelor 4/25/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:18.71 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 06:06:18.00
Decayed to:              24-APR-1996 06:06:18.00
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.50	5448	0.93	63.65	58	12	5.2			
0	36.18	1485	1.20	73.00	69	10	13.1			
0	42.14	233	1.70	84.93	81	9	67.2			
0	59.27	167	1.08	119.18	117	6	66.7		AM-241	1.16
0	122.81	208	1.00	246.24	243	8	68.7		CO-57	0.675
0	661.47*	30707	1.43	1323.58	1316	14	1.2		CS-137	372.
0	1274.60	35	0.96	2550.17	2546	13	74.9	2.01E+00		
0	1460.59*	32	2.02	2922.33	2916	14	172.1		K-40	6.13

Summary of Nuclide Activity
Sample ID : S96T000~~8~~546-SAM LAD - 7-19-96 Acquisition date : 24-APR-1996 06:06:18

Total number of lines in spectrum	8	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	5	62.50%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~6.132E+00~~	~~6.132E+00~~	~~10.55E+00~~	~~172.13~~	?
~~CO-57~~	~~271.80D~~	1.000	6.754E-01	6.754E-01	4.637E-01	~~68.66~~	? BKG
CS-137	30.00Y	1.000	3.718E+02	3.718E+02	0.044E+02	1.18	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~1.156E+00~~	~~1.156E+00~~	~~0.771E+00~~	~~66.74~~	BKG
			---	---			
	Total Activity :		3.797E+02	3.797E+02			LAD 7-19-96

Grand Total Activity : 3.797E+02 3.797E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T0006546-SAM Acquisition date : 24-APR-1996 06:06:18

LAD 7-19-96

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1046.	477.59	1.1072E+01
NA-22	59.	1274.53	6.5779E-01
NA-24	17.	1368.55	3.7862E-01
CR-51	980.	320.08	7.6933E+00
MN-54	66.	834.83	4.8395E-01
CO-56	49.	846.76	4.2196E-01
CO-58	52.	810.78	4.2106E-01
FE-59	40.	1099.25	8.5167E-01
CO-60	36.	1332.50	5.2887E-01
SE-75	1056.	264.66	1.1749E+00
SR-85	632.	514.01	9.9369E-01
Y-88	9.	1836.06	3.3890E-01
NB-94	55.	871.09	4.5811E-01
ZRNB-95	105.	724.18	1.2220E+00
RU-103	719.	497.08	1.0834E+00
RURH-106	252.	621.93	1.4500E+01
AG-108m	109.	722.94	5.9984E-01
CD-109	1148.	88.03	1.0981E+01
AG-110M	1091.	657.76	1.6659E+00
SN-113	1017.	391.69	1.4734E+00
TE-123m	1217.	159.00	6.1485E-01
SB-124	248.	602.73	7.0855E-01
SB-125	1176.	427.89	3.7365E+00
TE-125m	1185.	109.27	1.5144E+02
I-131	1003.	364.48	1.0830E+00
CS-134	257.	604.70	7.2498E-01
BA-140	433.	537.31	3.3765E+00
LA-140	22.	1596.21	5.0855E-01
CEPR-144	1253.	133.51	8.6022E+00
EU-152	18.	1408.01	1.8564E+00
EU-154	59.	1274.51	1.9121E+00
EU-155	1305.	105.31	2.0304E+00
HG-203	1000.	279.20	8.5760E-01
TL-208	1008.	277.36	1.1053E+01
BI-212	87.	727.18	7.3544E+00
PB-212	1213.	238.63	1.5578E+00
BI-214	429.	609.31	2.0542E+00
PB-214	1057.	351.92	4.3652E+00
RA-224	1125.	240.99	1.6652E+01
RA-226	1527.	186.10	1.8223E+01
AC-228	123.	911.21	2.6814E+00
TH-228	1253.	84.37	3.2462E+01
TH-229	1100.	88.47	1.5726E+00
PA-233	973.	312.17	1.9597E+00
UTH-233	1057.	245.34	6.0524E+02
PA-234M	56.	1001.03	8.8194E-01
TH-234	1148.	63.29	8.6476E+00
U-235	1510.	185.71	1.1016E+00
NP-237	1265.	86.48	3.3447E+00
NP-239	1230.	106.12	1.8907E+00
PU-239	1218.	129.30	7.2352E+03

Sample ID : S96T000~~5~~546-SAM Acquisition date : 24-APR-1996 06:06:18
LAD 7-19-96

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-243	1252.	74.67	6.7589E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 08:07:21.23                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7895
Sample ID:               S96T000546-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1781.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:27.15 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 07:16:14.21
Decayed to:              24-APR-1996 07:16:14.21
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:12:15.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Em Barcla

Verified by: D Machelor 4/25/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	20.94	446	1.32	42.52	38	9	44.1			
0	31.59	11045	0.95	63.83	59	9	3.1			
0	36.10	2784	1.09	72.84	69	9	8.7			
0	42.03	425	1.44	84.71	80	10	50.3			
0	59.08	502	0.85	118.81	114	10	42.3		AM-241	15.3
0	122.78	381	0.99	246.17	243	8	47.5		CO-57	5.01
0	608.71*	114	1.74	1218.03	1211	14	90.9			
0	661.46*	63628	1.42	1323.54	1316	16	0.8		CS-137	2.777E+03
0	724.11	49	1.38	1448.88	1442	15	105.5			
0	1273.09	52	1.91	2547.16	2541	16	63.5			

Summary of Nuclide Activity
Sample ID : S96T000546-DUP Acquisition date : 24-APR-1996 07:16:14

Total number of lines in spectrum	10	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	6	60.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~5.005E+00~~	~~5.005E+00~~	~~2.376E+00~~	~~47.46~~	~~E~~
CS-137	30.00Y	1.000	2.777E+03	2.777E+03	0.023E+03	0.82	
AM-241	432.20Y	1.000	1.532E+01	1.532E+01	0.649E+01	42.34	
			---	---			
	Total Activity :		2.798E+03	2.798E+03			

1/23/96

Grand Total Activity : 2.798E+03 2.798E+03

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T000546-DUP Acquisition date : 24-APR-1996 07:16:14

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2124.	477.59	5.8400E+01
NA-22	80.	1274.53	2.4268E+00
NA-24	29.	1368.55	1.5629E+00
K-40	577.	1460.75	6.7541E+01
CR-51	1737.	320.08	3.7576E+01
MN-54	66.	834.83	1.6667E+00
CO-56	57.	846.76	1.5615E+00
CO-58	45.	810.78	1.3557E+00
FE-59	52.	1099.25	3.1301E+00
CO-60	38.	1332.50	1.7287E+00
SE-75	1899.	264.66	5.7475E+00
SR-85	1118.	514.01	4.8784E+00
Y-88	8.	1836.06	1.0710E+00
NB-94	80.	871.09	1.8882E+00
ZRNB-95	116.	724.18	4.5719E+00
RU-103	1290.	497.08	5.3674E+00
RURH-106	354.	621.93	6.2451E+01
AG-108m	115.	722.94	2.1846E+00
CD-109	1835.	88.03	6.1515E+01
AG-110M	2286.	657.76	8.7008E+00
SN-113	1852.	391.69	7.3492E+00
TE-123m	1958.	159.00	2.9643E+00
SB-124	380.	602.73	3.1975E+00
SB-125	2195.	427.89	1.8899E+01
TE-125m	1922.	109.27	8.0666E+02
I-131	1727.	364.48	5.2418E+00
CS-134	350.	604.70	3.0825E+00
BA-140	781.	537.31	1.6695E+01
LA-140	16.	1596.21	1.3501E+00
CEPR-144	2030.	133.51	4.3298E+01
EU-152	27.	1408.01	7.2907E+00
EU-154	80.	1274.51	7.0491E+00
EU-155	1981.	105.31	1.0573E+01
HG-203	1779.	279.20	4.1771E+00
TL-208	1877.	277.36	5.5067E+01
BI-212	92.	727.18	2.6816E+01
PB-212	2072.	238.63	7.4303E+00
BI-214	571.	609.31	8.6320E+00
PB-214	1948.	351.92	2.1855E+01
RA-224	1973.	240.99	8.0487E+01
RA-226	2688.	186.10	8.9703E+01
AC-228	128.	911.21	9.2568E+00
TH-228	1951.	84.37	1.8109E+02
TH-229	1783.	88.47	8.8610E+00
PA-233	1832.	312.17	9.8555E+00
UTH-233	1896.	245.34	2.9573E+03
PA-234M	56.	1001.03	2.9383E+00
TH-234	1764.	63.29	4.8085E+01
U-235	2633.	185.71	5.3980E+00
NP-237	2042.	86.48	1.8902E+01
NP-239	1946.	106.12	1.0033E+01

Minimum Detectable Activity Report (continued)
Sample ID : S96T000546-DUP Acquisition date : 24-APR-1996 07:16:14

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1984.	129.30	3.6810E+04
AM-243	1949.	74.67	3.8300E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 11:25:13.75                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              7895
Sample ID:               S96T555-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01
```

Removed by:

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             NI3AF:2.cnf
Geometry:                41
Count Time:              0 00:00:09.51 sec
Real Time:               0 00:00:09.57 sec
Dead Time:               0.6%
```

Verified by:

B Machelor 4/25/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 11:24:44.11
Decayed to:              24-APR-1996 10:12:25.11
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.76	21	1.34	64.17	58	14	95.0			
0	661.49*	138	1.18	1323.61	1317	14	17.0		CS-137	527.

Summary of Nuclide Activity
Sample ID : S96T555-SAM

Acquisition date : 24-APR-1996 11:24:44

Total number of lines in spectrum	2	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	5.269E+02	5.269E+02	0.897E+02	17.03	
		Total Activity :	5.269E+02	5.269E+02			
		Grand Total Activity :	5.269E+02	5.269E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T555-SAM

Acquisition date : 24-APR-1996 11:24:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3.	477.59	1.9520E+02
NA-22	2.	1274.53	3.7906E+01
NA-24	0.	1368.55	0.0000E+00
K-40	2.	1460.75	3.9820E+02
CR-51	6.	320.08	1.9747E+02
MN-54	1.	834.83	1.8745E+01
CO-56	0.	846.76	0.0000E+00
CO-57	11.	122.06	1.5759E+01
CO-58	1.	810.78	1.8358E+01
FE-59	0.	1099.25	0.0000E+00
CO-60	0.	1332.50	0.0000E+00
SE-75	8.	264.66	3.2578E+01
SR-85	2.	514.01	1.8055E+01
Y-88	0.	1836.06	0.0000E+00
NB-94	0.	871.09	1.3769E+01
ZRNB-95	0.	724.18	0.0000E+00
RU-103	0.	497.08	8.4959E+00
RURH-106	0.	621.93	0.0000E+00
AG-108m	0.	722.94	0.0000E+00
CD-109	3.	88.03	1.6788E+02
AG-110M	4.	657.76	3.1081E+01
SN-113	7.	391.69	3.8342E+01
TE-123m	3.	159.00	9.7925E+00
SB-124	0.	602.73	0.0000E+00
SB-125	6.	427.89	8.4195E+01
TE-125m	6.	109.27	3.4008E+03
I-131	4.	364.48	2.1398E+01
CS-134	0.	604.70	0.0000E+00
BA-140	1.	537.31	5.1257E+01
LA-140	0.	1596.21	0.0000E+00
CEPR-144	6.	133.51	1.9126E+02
EU-152	0.	1408.01	0.0000E+00
EU-154	2.	1274.51	1.1093E+02
EU-155	2.	105.31	2.6566E+01
HG-203	4.	279.20	1.7396E+01
TL-208	3.	277.36	1.9021E+02
BI-212	0.	727.18	0.0000E+00
PB-212	7.	238.63	3.7674E+01
BI-214	1.	609.31	3.1287E+01
PB-214	4.	351.92	3.0392E+02
RA-224	5.	240.99	3.5247E+02
RA-226	6.	186.10	3.6039E+02
AC-228	0.	911.21	0.0000E+00
TH-228	7.	84.37	7.5184E+02
TH-229	2.	88.47	2.1148E+01
PA-233	7.	312.17	5.2481E+01
UTH-233	5.	245.34	1.3519E+04
PA-234M	0.	1001.03	0.0000E+00
TH-234	5.	63.29	1.8036E+02
U-235	6.	185.71	2.1641E+01
NP-237	9.	86.48	8.7008E+01

Sample ID : S96T555-SAM Acquisition date : 24-APR-1996 11:24:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2.	106.12	2.6376E+01
PU-239	2.	129.30	8.6753E+04
AM-241	4.	59.54	2.0333E+01
AM-243	10.	74.67	1.9052E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 12:15:45.69                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7895
Sample ID:               S96T555-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1784.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:24.40 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 11:24:44.11
Decayed to:              24-APR-1996 11:24:44.11
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: [illegible]

Verified by: [illegible] 4/25/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.35	303	0.80	43.35	40	8	54.0			
0	31.57	8420	0.97	63.78	59	10	3.9			
0	36.06	2328	1.11	72.76	69	11	11.1			
0	59.38	232	0.89	119.40	116	7	64.1		AM-241	1.61
0	122.98	375	1.16	246.57	243	8	44.1		CO-57	1.22
0	609.19*	139	1.72	1219.01	1213	14	67.5			
0	661.47*	49809	1.42	1323.58	1316	15	0.9		CS-137	603.
0	723.08	35	1.15	1446.81	1441	9	95.0			
0	1274.23	45	1.53	2549.43	2545	10	45.9			

Summary of Nuclide Activity
Sample ID : S96T555-DUP

Acquisition date : 24-APR-1996 11:24:44

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	9	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	6	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.216E+00~~	~~1.216E+00~~	~~0.537E+00~~	~~44.13~~	
CS-137	30.00Y	1.000	6.031E+02	6.031E+02	0.056E+02	0.93	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~1.610E+00~~	~~1.610E+00~~	~~1.032E+00~~	~~64.07~~	
			---	---			
Total Activity :			6.059E+02	6.059E+02			

1/03/96

Grand Total Activity :	6.059E+02	6.059E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T555-DUP
Acquisition date : 24-APR-1996 11:24:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1637.	477.59	1.3854E+01
NA-22	65.	1274.53	6.9038E-01
NA-24	20.	1368.55	4.1265E-01
K-40	586.	1460.75	2.1602E+01
CR-51	1467.	320.08	9.4140E+00
MN-54	70.	834.83	4.9784E-01
CO-56	57.	846.76	4.5459E-01
CO-58	58.	810.78	4.4478E-01
FE-59	39.	1099.25	8.3893E-01
CO-60	39.	1332.50	5.5390E-01
SE-75	1484.	264.66	1.3926E+00
SR-85	936.	514.01	1.2090E+00
Y-88	8.	1836.06	3.2827E-01
NB-94	70.	871.09	5.1524E-01
ZRNB-95	120.	724.18	1.3084E+00
RU-103	1006.	497.08	1.2819E+00
RURH-106	288.	621.93	1.5507E+01
AG-108m	115.	722.94	6.1516E-01
CD-109	1619.	88.03	1.3039E+01
AG-110M	1752.	657.76	2.1114E+00
SN-113	1531.	391.69	1.8083E+00
TE-123m	1649.	159.00	7.1574E-01
SB-124	342.	602.73	8.3174E-01
SB-125	1767.	427.89	4.5798E+00
TE-125m	1651.	109.27	1.7879E+02
I-131	1371.	364.48	1.2665E+00
CS-134	328.	604.70	8.1850E-01
BA-140	645.	537.31	4.1186E+00
LA-140	15.	1596.21	4.2162E-01
CEPR-144	1743.	133.51	1.0147E+01
EU-152	30.	1408.01	2.4449E+00
EU-154	65.	1274.51	2.0060E+00
EU-155	1711.	105.31	2.3252E+00
HG-203	1487.	279.20	1.0458E+00
TL-208	1501.	277.36	1.3487E+01
BI-212	102.	727.18	7.9587E+00
PB-212	1723.	238.63	1.8567E+00
BI-214	502.	609.31	2.2232E+00
PB-214	1571.	351.92	5.3279E+00
RA-224	1594.	240.99	1.9828E+01
RA-226	2190.	186.10	2.1824E+01
AC-228	121.	911.21	2.6595E+00
TH-228	1697.	84.37	3.7784E+01
TH-229	1577.	88.47	1.8822E+00
PA-233	1417.	312.17	2.3647E+00
UTH-233	1614.	245.34	7.4787E+02
PA-234M	72.	1001.03	1.0077E+00
TH-234	1520.	63.29	9.9511E+00
U-235	2166.	185.71	1.3194E+00
NP-237	1806.	86.48	3.9956E+00
NP-239	1701.	106.12	2.2238E+00

Minimum Detectable Activity Report (continued)
Sample ID : S96T555-DUP Acquisition date : 24-APR-1996 11:24:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1703.	129.30	8.5540E+03
AM-243	1739.	74.67	7.9653E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 13:22:33.37                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7895
Sample ID:               S96T561-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1785.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:22.39 sec
Dead Time:               0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 12:31:30.47
Decayed to:              24-APR-1996 12:31:30.47
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Em Barela

Verified by: D Machelor 4/25/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.35	304	1.63	43.35	40	8	50.9			
0	31.59	7262	0.97	63.83	59	9	3.9			
0	36.19	1963	1.16	73.02	69	11	12.3			
0	42.19	230	0.89	85.02	82	6	56.2			
0	104.89	177	1.10	210.40	207	8	85.5			
0	123.14	291	1.10	246.90	244	7	49.1		CO-57	0.189
0	661.48*	42084	1.43	1323.59	1316	15	1.0		CS-137	102.
0	911.01*	34	1.52	1822.74	1817	13	111.8			
0	1274.21	59	0.77	2549.39	2544	13	36.2			
0	1376.95*	26	3.20	2754.97	2748	18	82.2			
0	1591.90*	30	1.03	3185.09	3174	22	60.0			

Sample ID : S96T561-SAM Acquisition date : 24-APR-1996 12:31:30

WHC-SD-WM-DP-183, REV. (

Total number of lines in spectrum	11	
Number of unidentified lines	6	
Number of lines tentatively identified by NID	5	45.45%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.890E-01~~	~~1.890E-01~~	~~0.928E-01~~	~~49.11~~	~~K/E~~
CS-137	30.00Y	1.000	1.019E+02	1.019E+02	0.010E+02	1.01	
			---	---			
Total Activity :			1.021E+02	1.021E+02			
Grand Total Activity :			1.021E+02	1.021E+02			

1/23/96

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T561-SAM Acquisition date : 24-APR-1996 12:31:30

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1406.	477.59	2.5679E+00
NA-22	71.	1274.53	1.4417E-01
NA-24	19.	1368.55	7.9483E-02
K-40	586.	1460.75	4.3216E+00
CR-51	1245.	320.08	1.7347E+00
MN-54	83.	834.83	1.0848E-01
CO-56	49.	846.76	8.4636E-02
CO-58	64.	810.78	9.3181E-02
FE-59	59.	1099.25	2.0507E-01
CO-60	36.	1332.50	1.0577E-01
SE-75	1332.	264.66	2.6395E-01
SR-85	756.	514.01	2.1724E-01
Y-88	7.	1836.06	5.9811E-02
NB-94	71.	871.09	1.0399E-01
ZRNB-95	101.	724.18	2.3952E-01
RU-103	881.	497.08	2.3995E-01
RURH-106	262.	621.93	2.9569E+00
AG-108m	105.	722.94	1.1747E-01
CD-109	1431.	88.03	2.4516E+00
AG-110M	1431.	657.76	3.8162E-01
SN-113	1299.	391.69	3.3311E-01
TE-123m	1485.	159.00	1.3584E-01
SB-124	287.	602.73	1.5228E-01
SB-125	1511.	427.89	8.4722E-01
TE-125m	1490.	109.27	3.3961E+01
I-131	1273.	364.48	2.4410E-01
CS-134	325.	604.70	1.6297E-01
BA-140	556.	537.31	7.6477E-01
LA-140	13.	1596.21	7.8251E-02
CEPR-144	1449.	133.51	1.8503E+00
EU-152	35.	1408.01	5.2699E-01
EU-154	71.	1274.51	4.1924E-01
EU-155	1558.	105.31	4.4379E-01
HG-203	1335.	279.20	1.9819E-01
TL-208	1334.	277.36	2.5427E+00
BI-212	83.	727.18	1.4340E+00
PB-212	1490.	238.63	3.4526E-01
BI-214	451.	609.31	4.2135E-01
PB-214	1304.	351.92	9.7051E-01
RA-224	1466.	240.99	3.8029E+00
RA-226	1941.	186.10	4.1093E+00
AC-228	157.	911.21	6.0455E-01
TH-228	1606.	84.37	7.3504E+00
TH-229	1392.	88.47	3.5375E-01
PA-233	1258.	312.17	4.4569E-01
UTH-233	1431.	245.34	1.4087E+02
PA-234M	48.	1001.03	1.6365E-01
TH-234	1392.	63.29	1.9048E+00
U-235	1917.	185.71	2.4826E-01
NP-237	1633.	86.48	7.6001E-01
NP-239	1506.	106.12	4.1856E-01

Sample ID : S96T561-SAM Acquisition date : 24-APR-1996 12:31:30

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1553.	129.30	1.6337E+03
AM-241	1546.	59.54	2.5346E-01
AM-243	1526.	74.67	1.4922E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 14:26:57.36                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              7895
Sample ID:               S96T561-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00
```

Removed by: Em Barelo

```
     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1786.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:22.79 sec
Dead Time:               0.8%
```

Verified by: Machelor 4/25/96

```
     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 13:35:54.87
Decayed to:              24-APR-1996 13:35:54.87
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

     >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.32	165	0.81	43.29	40	7	84.7			
0	31.60	7002	0.92	63.84	59	9	4.1			
0	36.14	1975	1.13	72.93	70	8	9.7			
0	58.75	170	0.75	118.14	115	7	83.5		AM-241	0.236
0	122.73	458	0.97	246.07	242	9	37.4		CO-57	0.297
0	661.47*	42930	1.41	1323.57	1316	15	1.0		CS-137	104.
0	1395.26	20	0.57	2791.60	2783	14	73.0			

Sample ID : S96T561-DUP Acquisition date : 24-APR-1996 13:35:54

Total number of lines in spectrum	7	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	3	42.86%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.969E-01~~	~~2.969E-01~~	~~1.111E-01~~	~~37.44~~	^{154}Eu
CS-137	30.00Y	1.000	1.040E+02	1.040E+02	0.010E+02	1.00	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~2.359E-01~~	~~2.359E-01~~	~~1.970E-01~~	~~83.51~~	
			---	---			
Total Activity :			1.045E+02	1.045E+02			

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Grand Total Activity : 1.045E+02 1.045E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T561-DUP Acquisition date : 24-APR-1996 13:35:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1397.	477.59	2.5595E+00
NA-22	68.	1274.53	1.4118E-01
NA-24	11.	1368.55	6.1974E-02
K-40	595.	1460.75	4.3532E+00
CR-51	1311.	320.08	1.7796E+00
MN-54	72.	834.83	1.0079E-01
CO-56	71.	846.76	1.0134E-01
CO-58	70.	810.78	9.7690E-02
FE-59	47.	1099.25	1.8340E-01
CO-60	42.	1332.50	1.1504E-01
SE-75	1357.	264.66	2.6639E-01
SR-85	803.	514.01	2.2396E-01
Y-88	7.	1836.06	5.9811E-02
NB-94	61.	871.09	9.6220E-02
ZRNB-95	111.	724.18	2.5112E-01
RU-103	940.	497.08	2.4785E-01
RURH-106	289.	621.93	3.1034E+00
AG-108m	108.	722.94	1.1895E-01
CD-109	1506.	88.03	2.5151E+00
AG-110M	1510.	657.76	3.9201E-01
SN-113	1355.	391.69	3.4016E-01
TE-123m	1475.	159.00	1.3535E-01
SB-124	344.	602.73	1.6678E-01
SB-125	1504.	427.89	8.4515E-01
TE-125m	1532.	109.27	3.4438E+01
I-131	1274.	364.48	2.4421E-01
CS-134	331.	604.70	1.6458E-01
BA-140	561.	537.31	7.6814E-01
LA-140	16.	1596.21	8.4705E-02
CEPR-144	1529.	133.51	1.9006E+00
EU-152	20.	1408.01	4.0111E-01
EU-154	68.	1274.51	4.1032E-01
EU-155	1561.	105.31	4.4419E-01
HG-203	1288.	279.20	1.9463E-01
TL-208	1252.	277.36	2.4635E+00
BI-212	102.	727.18	1.5940E+00
PB-212	1491.	238.63	3.4543E-01
BI-214	422.	609.31	4.0736E-01
PB-214	1333.	351.92	9.8110E-01
RA-224	1475.	240.99	3.8138E+00
RA-226	1966.	186.10	4.1355E+00
AC-228	116.	911.21	5.1985E-01
TH-228	1625.	84.37	7.3938E+00
TH-229	1466.	88.47	3.6302E-01
PA-233	1282.	312.17	4.4999E-01
UTH-233	1409.	245.34	1.3979E+02
PA-234M	60.	1001.03	1.8286E-01
TH-234	1431.	63.29	1.9314E+00
U-235	1946.	185.71	2.5016E-01
NP-237	1662.	86.48	7.6668E-01
NP-239	1569.	106.12	4.2722E-01

Sample ID : S96T561-DUP Acquisition date : 24-APR-1996 13:35:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1481.	129.30	1.5954E+03
AM-243	1580.	74.67	1.5182E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 16:26:59.78                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7895
Sample ID:               S96T571-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1788.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:18.01 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 15:36:02.24
Decayed to:              24-APR-1996 15:36:02.24
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Tim Barela

Verified by: RBnachelor 4/25/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.62	4311	0.96	63.89	60	8	4.9			
0	36.11	1216	1.02	72.86	69	8	12.8			
0	42.28	181	1.14	85.20	82	7	66.0			
0	86.41*	120	0.85	173.45	172	6	87.8		NP-237	2.42
0	122.86	133	1.13	246.34	244	6	80.0		CO-57	0.431
0	661.48*	24952	1.41	1323.60	1316	16	1.3		CS-137	302.

Sample ID : S96T571-SAM Acquisition date : 24-APR-1996 15:36:02

Total number of lines in spectrum 6
Number of unidentified lines 3
Number of lines tentatively identified by NID 3 50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~4.307E-01~~	~~4.307E-01~~	~~3.447E-01~~	~~80.03~~	BKG
CS-137	30.00Y	1.000	3.021E+02	3.021E+02	0.040E+02	1.33	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~2.424E+00~~	~~2.424E+00~~	~~2.129E+00~~	~~87.80~~	BKG
			---	---			
Total Activity :			3.050E+02	3.050E+02			

7/23/96

Grand Total Activity : 3.050E+02 3.050E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T571-SAM Acquisition date : 24-APR-1996 15:36:02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	903.	477.59	1.0292E+01
NA-22	58.	1274.53	6.5262E-01
NA-24	16.	1368.55	3.6749E-01
K-40	588.	1460.75	2.1650E+01
CR-51	884.	320.08	7.3097E+00
MN-54	48.	834.83	4.1168E-01
CO-56	61.	846.76	4.7049E-01
CO-58	63.	810.78	4.6161E-01
FE-59	46.	1099.25	9.0805E-01
CO-60	30.	1332.50	4.8219E-01
SE-75	876.	264.66	1.0702E+00
SR-85	513.	514.01	8.9527E-01
Y-88	15.	1836.06	4.4392E-01
NB-94	67.	871.09	5.0458E-01
ZRNB-95	95.	724.18	1.1665E+00
RU-103	585.	497.08	9.7766E-01
RURH-106	224.	621.93	1.3679E+01
AG-108m	112.	722.94	6.0594E-01
CD-109	1038.	88.03	1.0440E+01
AG-110M	912.	657.76	1.5233E+00
SN-113	816.	391.69	1.3203E+00
TE-123m	1068.	159.00	5.7591E-01
SB-124	220.	602.73	6.6789E-01
SB-125	962.	427.89	3.3787E+00
TE-125m	1075.	109.27	1.4423E+02
I-131	835.	364.48	9.8809E-01
CS-134	210.	604.70	6.5501E-01
BA-140	366.	537.31	3.1016E+00
LA-140	12.	1596.21	3.6753E-01
CEPR-144	1079.	133.51	7.9842E+00
EU-152	36.	1408.01	2.6472E+00
EU-154	58.	1274.51	1.8951E+00
EU-155	1130.	105.31	1.8895E+00
HG-203	903.	279.20	8.1495E-01
TL-208	918.	277.36	1.0547E+01
BI-212	85.	727.18	7.2771E+00
PB-212	1120.	238.63	1.4968E+00
BI-214	352.	609.31	1.8614E+00
PB-214	934.	351.92	4.1036E+00
RA-224	1007.	240.99	1.5760E+01
RA-226	1302.	186.10	1.6826E+01
AC-228	133.	911.21	2.7889E+00
TH-228	1052.	84.37	2.9746E+01
TH-229	972.	88.47	1.4779E+00
PA-233	858.	312.17	1.8403E+00
UTH-233	939.	245.34	5.7060E+02
PA-234M	68.	1001.03	9.7456E-01
TH-234	995.	63.29	8.0507E+00
U-235	1294.	185.71	1.0197E+00
NP-239	1132.	106.12	1.8144E+00
PU-239	1134.	129.30	6.9808E+03

Sample ID : S96T571-SAM Acquisition date : 24-APR-1996 15:36:02

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	1028.	59.54	1.0334E+00
AM-243	1164.	74.67	6.5147E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   24-APR-1996 17:27:32.15                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7895
Sample ID:               S96T571-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1789.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:25.56 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       24-APR-1996 16:36:26.86
Decayed to:              24-APR-1996 16:36:26.86
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: URaymond

Verified by: DBMachelor 4/25/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.37	312	1.02	43.39	39	8	56.5			
0	31.59	9846	0.98	63.84	59	10	3.5			
0	36.14	2857	1.13	72.94	69	10	8.7			
0	42.33	288	1.21	85.30	82	7	56.4			
0	59.05	225	0.69	118.75	116	6	62.3		AM-241	1.56
									EU-155	46.1
0	86.27*	158	0.92	173.17	171	6	89.1		NP-237	3.20
									EU-155	1.21
0	105.16	188	1.04	210.94	208	6	72.2		EU-155	2.27
0	122.81	382	1.04	246.25	243	7	41.3		CO-57	1.24
									EU-154	2.64
0	661.48*	55206	1.43	1323.58	1316	14	0.9		CS-137	668.
0	722.95	44	1.52	1446.55	1439	13	103.8		EU-154	2.48
0	873.56	40	1.01	1747.82	1743	10	67.1		EU-154	4.40
0	1004.88	51	1.97	2010.54	2007	9	44.0		EU-154	4.25
0	1274.52	50	2.06	2550.01	2543	14	65.3		EU-154	2.69
0	1377.36*	19	0.79	2755.79	2753	8	83.7			
0	1764.48*	18	2.46	3530.47	3523	15	102.0			

Sample ID : S96T571-DUP
Acquisition date : 24-APR-1996 16:36:26

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	15	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	10	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.238E+00~~	~~1.238E+00~~	~~0.511E+00~~	~~41.25~~	OVER
CS-137	30.00Y	1.000	6.684E+02	6.684E+02	0.059E+02	0.88	
EU-154	8.59Y	1.000	3.386E+00	3.386E+00	1.069E+00	31.56	
~~EU-155~~	~~4.68Y~~	~~1.000~~	~~2.268E+00~~	~~2.268E+00~~	~~1.638E+00~~	~~72.20~~	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~3.197E+00~~	~~3.197E+00~~	~~2.849E+00~~	~~89.14~~	BKG
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~1.557E+00~~	1.557E+00	~~0.970E+00~~	~~62.32~~	
			---	---			
	Total Activity :		6.800E+02	6.800E+02			

7/23/96

Grand Total Activity :	6.800E+02	6.800E+02

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : S96T571-DUP Acquisition date : 24-APR-1996 16:36:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1872.	477.59	1.4814E+01
NA-22	93.	1274.53	8.2513E-01
NA-24	25.	1368.55	4.5776E-01
K-40	552.	1460.75	2.0962E+01
CR-51	1566.	320.08	9.7276E+00
MN-54	61.	834.83	4.6492E-01
CO-56	73.	846.76	5.1576E-01
CO-58	58.	810.78	4.4163E-01
FE-59	61.	1099.25	1.0460E+00
CO-60	47.	1332.50	6.0951E-01
SE-75	1655.	264.66	1.4709E+00
SR-85	974.	514.01	1.2331E+00
Y-88	9.	1836.06	3.3910E-01
NB-94	76.	871.09	5.3954E-01
ZRNB-95	123.	724.18	1.3227E+00
RU-103	1154.	497.08	1.3727E+00
RURH-106	323.	621.93	1.6405E+01
AG-108m	121.	722.94	6.3050E-01
CD-109	1823.	88.03	1.3836E+01
AG-110M	1898.	657.76	2.1973E+00
SN-113	1697.	391.69	1.9038E+00
TE-123m	1710.	159.00	7.2879E-01
SB-124	373.	602.73	8.6890E-01
SB-125	2042.	427.89	4.9234E+00
TE-125m	1805.	109.27	1.8695E+02
I-131	1619.	364.48	1.3763E+00
CS-134	352.	604.70	8.4834E-01
BA-140	677.	537.31	4.2194E+00
LA-140	18.	1596.21	4.5199E-01
CEPR-144	1776.	133.51	1.0242E+01
EU-152	35.	1408.01	2.6098E+00
HG-203	1631.	279.20	1.0953E+00
TL-208	1626.	277.36	1.4035E+01
BI-212	97.	727.18	7.7625E+00
PB-212	1825.	238.63	1.9108E+00
BI-214	498.	609.31	2.2143E+00
PB-214	1656.	351.92	5.4707E+00
RA-224	1714.	240.99	2.0559E+01
RA-226	2323.	186.10	2.2478E+01
AC-228	145.	911.21	2.9137E+00
TH-228	1804.	84.37	3.8956E+01
TH-229	1735.	88.47	1.9744E+00
PA-233	1519.	312.17	2.4488E+00
UTH-233	1717.	245.34	7.7138E+02
PA-234M	49.	1001.03	8.3054E-01
TH-234	1663.	63.29	1.0411E+01
U-235	2309.	185.71	1.3623E+00
NP-239	1926.	106.12	2.3664E+00
PU-239	1895.	129.30	9.0226E+03
AM-243	1914.	74.67	8.3565E-01

LABCORE Data Entry Template for Worklist# 8055

Analyst: KRM **Instrument:** GEA00 2 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106, Sample size = .250-10-1000. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T002024	0		@GEA-01	LIQUID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T002024	0		@GEA-01	LIQUID		
5	SAMPLE	S96T002025	0		@GEA-01	LIQUID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T002025	0		@GEA-01	LIQUID		

Final page for worklist # 8055

5-3-96
Analyst Signature **Date**

5/2/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code

LABCORE Completed RadChem Report for Worklist#: 8055

Analyst: krm **Instrument:** GEA02 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106, Sample size = .250-10-1000. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	2.551e-02	2.38e-02	93.297	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1	1.41	1.410	% Ct Error
1	STD		0	@GEA-01	CS13702	LIQUID	2.707e-02	2.46e-02	90.876	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1	1.66	1.660	% Ct Error
2	BLNK		0	@GEA-01	CO60-02	LIQUID	1	<8.67e-4		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1	<2.68e-3		uCi/mL
3	SAMPLE	S96T002024	0	@GEA-01	CO60-02	LIQUID	N/A <	4.630e-03	463.0e-005	uCi/mL
3	SAMPLE	S96T002024	0	@GEA-01	CO60-02E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002024	0	@GEA-01	CS13702	LIQUID	N/A	1.280e+02	0.0e+000	uCi/mL
3	SAMPLE	S96T002024	0	@GEA-01	CS13702E	LIQUID	N/A	0.140	0.0e+000	% Ct. Error
4	DUP	S96T002024	0	@GEA-01	CO60-02	LIQUID	<4.63e-3	<4.49e-3		RPD
4	DUP	S96T002024	0	@GEA-01	CO60-02E	LIQUID	1	n/a		% Ct Error
4	DUP	S96T002024	0	@GEA-01	CS13702	LIQUID	1.28e+02	1.27e+02	0.784	RPD
4	DUP	S96T002024	0	@GEA-01	CS13702E	LIQUID	1	0.140	0.140	% Ct Error
5	SAMPLE	S96T002025	0	@GEA-01	CO60-02	LIQUID	N/A <	4.027e-03	402.7e-005	uCi/mL
5	SAMPLE	S96T002025	0	@GEA-01	CO60-02E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002025	0	@GEA-01	CS13702	LIQUID	N/A	1.040e+02	0.0e+000	uCi/mL
5	SAMPLE	S96T002025	0	@GEA-01	CS13702E	LIQUID	N/A	0.160	0.0e+000	% Ct. Error
6	DUP	S96T002025	0	@GEA-01	CO60-02	LIQUID	<4.03e-3	<4.34e-3		RPD
6	DUP	S96T002025	0	@GEA-01	CO60-02E	LIQUID	1	n/a		% Ct Error
6	DUP	S96T002025	0	@GEA-01	CS13702	LIQUID	1.04e+02	1.05e+02	0.957	RPD
6	DUP	S96T002025	0	@GEA-01	CS13702E	LIQUID	1	0.150	0.150	% Ct Error

Comments Section:

Comments for sample# S96T002024 **and test** @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T002025 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 8055

Analyst Signature **Date** **Analyst Signature** **Date**

B Bachelor 5/9/96
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 05:48:50.12                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8055
Sample ID:               WL8055-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2642.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.15 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 04:57:57.33
Decayed to:              4-MAY-1996 04:57:57.33
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by:

D. H. Milicia

Verified by:

R. Machelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	17737	1.52	1323.01	1316	14	1.7		CS-137	24.6
0	1172.93	12205	1.86	2345.91	2338	18	2.0		CO-60	24.0
0	1332.16	10874	1.94	2664.47	2654	20	2.0		CO-60	23.7

Sample ID : WL8055-STD Acquisition date : 4-MAY-1996 04:57:57

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.382E+01	2.382E+01	0.034E+01	1.41	
CS-137	30.00Y	1.000	2.461E+01	2.461E+01	0.041E+01	1.66	
		Total Activity :	4.843E+01	4.843E+01			
		Grand Total Activity :	4.843E+01	4.843E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL8055-STD Acquisition date : 4-MAY-1996 04:57:57

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	983.	477.59	1.2719E+00
NA-22	88.	1274.53	9.1616E-02
NA-24	20.	1368.55	4.6528E-02
K-40	124.	1460.75	1.1343E+00
CR-51	1045.	320.08	9.7810E-01
MN-54	622.	834.83	1.6706E-01
CO-56	645.	846.76	1.7218E-01
CO-57	1186.	122.06	7.7014E-02
CO-58	549.	810.78	1.5394E-01
FE-59	606.	1099.25	3.7455E-01
SE-75	1232.	264.66	1.6033E-01
SR-85	757.	514.01	1.2818E-01
Y-88	17.	1836.06	5.3611E-02
NB-94	692.	871.09	1.8279E-01
ZRNB-95	546.	724.18	3.1758E-01
RU-103	787.	497.08	1.3399E-01
RURH-106	544.	621.93	2.4575E+00
AG-108m	516.	722.94	1.4835E-01
CD-109	1086.	88.03	2.5306E+00
AG-110M	1041.	657.76	1.8666E-01
SN-113	992.	391.69	1.7329E-01
TE-123m	1201.	159.00	7.7550E-02
SB-124	566.	602.73	1.2392E-01
SB-125	1073.	427.89	4.2305E-01
TE-125m	1113.	109.27	2.4727E+01
I-131	1027.	364.48	1.3213E-01
CS-134	553.	604.70	1.2309E-01
BA-140	639.	537.31	4.8140E-01
LA-140	11.	1596.21	4.0362E-02
CEPR-144	1223.	133.51	1.1689E+00
EU-152	19.	1408.01	2.1858E-01
EU-154	88.	1274.51	2.6617E-01
EU-155	1101.	105.31	3.3031E-01
HG-203	1181.	279.20	1.1681E-01
TL-208	1165.	277.36	1.4905E+00
BI-212	557.	727.18	2.1146E+00
PB-212	1411.	238.63	2.1436E-01
BI-214	589.	609.31	2.7845E-01
PB-214	1021.	351.92	5.1961E-01
RA-224	1344.	240.99	2.3215E+00
RA-226	1322.	186.10	2.1208E+00
AC-228	790.	911.21	7.6239E-01
TH-228	1012.	84.37	7.5001E+00
TH-229	1079.	88.47	3.6550E-01
PA-233	1045.	312.17	2.5090E-01
UTH-233	1372.	245.34	8.7861E+01
PA-234M	605.	1001.03	3.2859E-01
TH-234	972.	63.29	4.2816E+00
U-235	1318.	185.71	1.2875E-01
NP-237	1098.	86.48	7.6360E-01
NP-239	1103.	106.12	3.1371E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL8055-STD Acquisition date : 4-MAY-1996 04:57:57

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1268.	129.30	1.0395E+03
AM-241	942.	59.54	6.7114E-01
AM-243	1027.	74.67	2.0535E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 07:19:37.24                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8055
Sample ID:               WL8055BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             NI3AF:1.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.47 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 06:17:38.05
Decayed to:              4-MAY-1996 06:17:38.05
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by:

D. H. Milicia

Spectrum # 2643

Verified by:

[signature] 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.44*	47	1.30	1322.89	1319	11	64.9		CS-137	2.68

Sample ID : WL8055BLK
Acquisition date : 4-MAY-1996 06:17:38

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~2.680E+00~~	~~2.680E+00~~	~~1.738E+00~~	~~64.86~~	BKG
			---	---			
Total Activity :			2.680E+00	2.680E+00			
Grand Total Activity :			2.680E+00	2.680E+00			

7/23/96

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL8055BLK Acquisition date : 4-MAY-1996 06:17:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	28.	477.59	8.7556E+00
NA-22	6.	1274.53	9.7665E-01
NA-24	10.	1368.55	1.3708E+00
K-40	109.	1460.75	4.3673E+01
CR-51	52.	320.08	8.9722E+00
MN-54	26.	834.83	1.3961E+00
CO-56	16.	846.76	1.1132E+00
CO-57	76.	122.06	7.9996E-01
CO-58	15.	810.78	1.0393E+00
FE-59	10.	1099.25	2.0125E+00
CO-60	4.	1332.50	8.6654E-01
SE-75	76.	264.66	1.6308E+00
SR-85	38.	514.01	1.1764E+00
Y-88	5.	1836.06	1.2077E+00
NB-94	19.	871.09	1.2318E+00
ZRNB-95	12.	724.18	1.8909E+00
RU-103	31.	497.08	1.0889E+00
RURH-106	27.	621.93	2.2384E+01
AG-108m	14.	722.94	1.0075E+00
CD-109	75.	88.03	2.7185E+01
AG-110M	27.	657.76	1.2369E+00
SN-113	46.	391.69	1.5370E+00
TE-123m	67.	159.00	7.5122E-01
SB-124	20.	602.73	9.6176E-01
SB-125	49.	427.89	3.7159E+00
TE-125m	66.	109.27	2.4730E+02
I-131	41.	364.48	1.0785E+00
CS-134	23.	604.70	1.0268E+00
BA-140	23.	537.31	3.7448E+00
LA-140	5.	1596.21	1.1310E+00
CEPR-144	80.	133.51	1.2275E+01
EU-152	7.	1408.01	5.3113E+00
EU-154	6.	1274.51	2.8470E+00
EU-155	70.	105.31	3.4234E+00
HG-203	50.	279.20	9.8476E-01
TL-208	64.	277.36	1.4380E+01
BI-212	16.	727.18	1.4506E+01
PB-212	80.	238.63	2.0861E+00
BI-214	54.	609.31	3.4630E+00
PB-214	69.	351.92	5.5201E+00
RA-224	76.	240.99	2.2568E+01
RA-226	64.	186.10	1.9201E+01
AC-228	24.	911.21	5.4317E+00
TH-228	61.	84.37	7.5432E+01
TH-229	75.	88.47	3.9533E+00
PA-233	52.	312.17	2.2953E+00
UTH-233	70.	245.34	8.1564E+02
PA-234M	7.	1001.03	1.4982E+00
TH-234	64.	63.29	4.5067E+01
U-235	62.	185.71	1.1423E+00
NP-237	73.	86.48	8.0869E+00

Sample ID : WL8055BLK Acquisition date : 4-MAY-1996 06:17:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	72.	106.12	3.2799E+00
PU-239	71.	129.30	1.0059E+04
AM-241	55.	59.54	6.6752E+00
AM-243	66.	74.67	2.1387E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 08:17:38.68                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8055
Sample ID:               S96T2024-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2644.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:55:36.98 sec
Dead Time:                10%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 07:21:20.16
Decayed to:              4-MAY-1996 07:21:20.16
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: D.H. Milicia

Verified by: R Bachelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	2245771	1.54	1322.99	1314	18	0.1		CS-137	1.278E+05
0	1004.45	195	1.82	2008.90	2005	9	69.9			
0	1274.15	284	2.26	2548.42	2544	11	33.8			
0	1321.62	1421	3.17	2643.38	2634	20	12.2			

Sample ID : S96T2024-SAM Acquisition date : 4-MAY-1996 07:21:20

Total number of lines in spectrum	4	
Number of unidentified lines	1	WHC-SD-WM-DP-183, REV. 0
Number of lines tentatively identified by NID	3	75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.278E+05	1.278E+05	0.002E+05	0.14	
		Total Activity :	1.278E+05	1.278E+05			
		Grand Total Activity :	1.278E+05	1.278E+05			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T2024-SAM Acquisition date : 4-MAY-1996 07:21:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	74442.	477.59	4.5376E+02
NA-22	834.	1274.53	1.1559E+01
NA-24	64.	1368.55	3.4633E+00
K-40	133.	1460.75	4.8159E+01
CR-51	60649.	320.08	3.0557E+02
MN-54	3569.	834.83	1.6408E+01
CO-56	3316.	846.76	1.6012E+01
CO-57	65738.	122.06	2.3505E+01
CO-58	3880.	810.78	1.6779E+01
FE-59	1233.	1099.25	2.1900E+01
CO-60	125.	1332.50	4.6297E+00
SE-75	67693.	264.66	4.8730E+01
SR-85	40127.	514.01	3.8264E+01
Y-88	4.	1836.06	1.0730E+00
NB-94	3035.	871.09	1.5689E+01
ZRNB-95	5798.	724.18	4.2416E+01
RU-103	47968.	497.08	4.2902E+01
RURH-106	17727.	621.93	5.7504E+02
AG-108m	5943.	722.94	2.0633E+01
CD-109	57254.	88.03	7.5322E+02
AG-110M	79952.	657.76	6.7056E+01
SN-113	66347.	391.69	5.8118E+01
TE-123m	66499.	159.00	2.3656E+01
SB-124	18040.	602.73	2.8684E+01
SB-125	76177.	427.89	1.4614E+02
TE-125m	60465.	109.27	7.4726E+03
I-131	62621.	364.48	4.2301E+01
CS-134	18143.	604.70	2.8895E+01
BA-140	29857.	537.31	1.3491E+02
LA-140	28.	1596.21	2.6980E+00
CEPR-144	66435.	133.51	3.5316E+02
EU-152	56.	1408.01	1.5599E+01
EU-154	834.	1274.51	3.3582E+01
EU-155	59683.	105.31	9.9710E+01
HG-203	64487.	279.20	3.5388E+01
TL-208	64748.	277.36	4.5563E+02
BI-212	5509.	727.18	2.7259E+02
PB-212	75553.	238.63	6.4307E+01
BI-214	17968.	609.31	6.3032E+01
PB-214	61687.	351.92	1.7499E+02
RA-224	74716.	240.99	7.1000E+02
RA-226	84954.	186.10	6.9711E+02
AC-228	2423.	911.21	5.4760E+01
TH-228	56584.	84.37	2.2992E+03
TH-229	57072.	88.47	1.0901E+02
PA-233	61647.	312.17	7.8999E+01
UTH-233	73460.	245.34	2.6361E+04
PA-234M	1628.	1001.03	2.2092E+01
TH-234	53061.	63.29	1.2970E+03
U-235	83966.	185.71	4.2125E+01
NP-237	57403.	86.48	2.2632E+02

Sample ID : S96T2024-SAM Acquisition date : 4-MAY-1996 07:21:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	60060.	106.12	9.4978E+01
PU-239	66152.	129.30	3.0788E+05
AM-241	52799.	59.54	2.0598E+02
AM-243	54490.	74.67	6.1323E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 09:17:12.14                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8055
Sample ID:               S96T2024-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2645.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:55:33.83 sec
Dead Time:                10%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 08:20:26.77
Decayed to:              4-MAY-1996 08:20:26.77
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: D. H. Milicia

Verified by: B. Bachelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.08	777	0.92	246.58	244	6	99.0		CO-57	15.3
0	661.48*	2225828	1.54	1322.98	1314	18	0.1		CS-137	1.266E+05
0	1273.96	260	1.66	2548.04	2541	14	42.3			
0	1321.94	1344	2.41	2644.02	2636	20	12.8			

Sample ID : S96T2024-DUP
Acquisition date : 4-MAY-1996 08:20:26

Total number of lines in spectrum	4	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

WHC-SD-WM-DP-183, REV. 0

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.532E+01~~	~~1.532E+01~~	~~1.516E+01~~	~~98.96~~	BK9
CS-137	30.00Y	1.000	1.266E+05	1.266E+05	0.002E+05	0.14	7/23/96
		Total Activity :	1.267E+05	1.267E+05			
		Grand Total Activity :	1.267E+05	1.267E+05			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : S96T2024-DUP
Acquisition date : 4-MAY-1996 08:20:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	73779.	477.59	4.5174E+02
NA-22	733.	1274.53	1.0834E+01
NA-24	40.	1368.55	2.7528E+00
K-40	132.	1460.75	4.8122E+01
CR-51	60538.	320.08	3.0529E+02
MN-54	3399.	834.83	1.6012E+01
CO-56	3297.	846.76	1.5966E+01
CO-58	3789.	810.78	1.6581E+01
FE-59	1208.	1099.25	2.1677E+01
CO-60	117.	1332.50	4.4909E+00
SE-75	67287.	264.66	4.8584E+01
SR-85	39255.	514.01	3.7846E+01
Y-88	7.	1836.06	1.4181E+00
NB-94	2941.	871.09	1.5446E+01
ZRNB-95	5787.	724.18	4.2376E+01
RU-103	47820.	497.08	4.2836E+01
RURH-106	17566.	621.93	5.7243E+02
AG-108m	5809.	722.94	2.0398E+01
CD-109	56449.	88.03	7.4790E+02
AG-110M	79463.	657.76	6.6851E+01
SN-113	65734.	391.69	5.7848E+01
TE-123m	66046.	159.00	2.3575E+01
SB-124	18161.	602.73	2.8780E+01
SB-125	76328.	427.89	1.4629E+02
TE-125m	59922.	109.27	7.4390E+03
I-131	61984.	364.48	4.2085E+01
CS-134	18271.	604.70	2.8997E+01
BA-140	29514.	537.31	1.3414E+02
LA-140	31.	1596.21	2.8213E+00
CEPR-144	65567.	133.51	3.5085E+02
EU-152	43.	1408.01	1.3605E+01
EU-154	733.	1274.51	3.1482E+01
EU-155	58925.	105.31	9.9075E+01
HG-203	63819.	279.20	3.5204E+01
TL-208	64535.	277.36	4.5488E+02
BI-212	5423.	727.18	2.7046E+02
PB-212	74580.	238.63	6.3892E+01
BI-214	18072.	609.31	6.3216E+01
PB-214	60946.	351.92	1.7384E+02
RA-224	74053.	240.99	7.0684E+02
RA-226	83834.	186.10	6.9250E+02
AC-228	2334.	911.21	5.3743E+01
TH-228	55936.	84.37	2.2860E+03
TH-229	56508.	88.47	1.0847E+02
PA-233	60736.	312.17	7.8413E+01
UTH-233	72550.	245.34	2.6197E+04
PA-234M	1749.	1001.03	2.2897E+01
TH-234	52556.	63.29	1.2908E+03
U-235	82982.	185.71	4.1878E+01
NP-237	56616.	86.48	2.2476E+02
NP-239	58973.	106.12	9.4113E+01

Sample ID : S96T2024-DUP Acquisition date : 4-MAY-1996 08:20:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	65104.	129.30	3.0543E+05
AM-241	52477.	59.54	2.0535E+02
AM-243	54351.	74.67	6.1245E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 10:21:51.68                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8055
Sample ID:               S96T2025-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2646.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:27.48 sec
Dead Time:               8.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 09:26:39.58
Decayed to:              4-MAY-1996 09:26:39.58
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: D. H. Wilcox

Verified by: RJ Machelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.07	1303	1.55	246.57	244	7	60.4		CO-57	25.7
0	661.47*	1827775	1.54	1322.97	1314	18	0.2		CS-137	1.040E+05
0	1004.10	157	1.03	2008.19	2004	10	76.3			
0	1273.71	240	1.94	2547.53	2541	12	33.8			
0	1321.84	880	2.78	2643.82	2636	17	14.3			
0	1332.29	60	1.22	2664.73	2659	13	50.1			

Sample ID : S96T2025-SAM
Acquisition date : 4-MAY-1996 09:26:39

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	6	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	5	83.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.569E+01~~	~~2.569E+01~~	~~1.552E+01~~	~~60.42~~	~~BKG~~
CS-137	30.00Y	1.000	1.040E+05	1.040E+05	0.002E+05	0.16	
			---	---			
Total Activity :			1.040E+05	1.040E+05			
Grand Total Activity :			1.040E+05	1.040E+05			

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Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T2025-SAM Acquisition date : 4-MAY-1996 09:26:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	60070.	477.59	4.0761E+02
NA-22	583.	1274.53	9.6651E+00
NA-24	45.	1368.55	2.9168E+00
K-40	130.	1460.75	4.7622E+01
CR-51	49272.	320.08	2.7542E+02
MN-54	2245.	834.83	1.3013E+01
CO-56	2157.	846.76	1.2915E+01
CO-58	2409.	810.78	1.3222E+01
FE-59	814.	1099.25	1.7788E+01
CO-60	94.	1332.50	4.0270E+00
SE-75	54992.	264.66	4.3922E+01
SR-85	31816.	514.01	3.4072E+01
Y-88	1.	1836.06	5.2560E-01
NB-94	1936.	871.09	1.2531E+01
ZRNB-95	3999.	724.18	3.5226E+01
RU-103	38293.	497.08	3.8332E+01
RURH-106	14129.	621.93	5.1337E+02
AG-108m	4020.	722.94	1.6970E+01
CD-109	46520.	88.03	6.7895E+02
AG-110M	65509.	657.76	6.0698E+01
SN-113	53231.	391.69	5.2057E+01
TE-123m	54001.	159.00	2.1317E+01
SB-124	14379.	602.73	2.5608E+01
SB-125	61896.	427.89	1.3173E+02
TE-125m	48788.	109.27	6.7124E+03
I-131	50374.	364.48	3.7938E+01
CS-134	14328.	604.70	2.5678E+01
BA-140	23578.	537.31	1.1989E+02
LA-140	21.	1596.21	2.3029E+00
CEPR-144	53867.	133.51	3.1801E+02
EU-152	42.	1408.01	1.3436E+01
EU-154	583.	1274.51	2.8069E+01
EU-155	48865.	105.31	9.0222E+01
HG-203	52482.	279.20	3.1924E+01
TL-208	52887.	277.36	4.1179E+02
BI-212	3718.	727.18	2.2395E+02
PB-212	61087.	238.63	5.7824E+01
BI-214	14450.	609.31	5.6526E+01
PB-214	49641.	351.92	1.5518E+02
RA-224	60394.	240.99	6.3828E+02
RA-226	68433.	186.10	6.2567E+02
AC-228	1582.	911.21	4.4244E+01
TH-228	45808.	84.37	2.0688E+03
TH-229	46522.	88.47	9.8421E+01
PA-233	49674.	312.17	7.0913E+01
UTH-233	59033.	245.34	2.3631E+04
PA-234M	1042.	1001.03	1.7674E+01
TH-234	42936.	63.29	1.1667E+03
U-235	67707.	185.71	3.7828E+01
NP-237	46469.	86.48	2.0362E+02
NP-239	48825.	106.12	8.5625E+01

Minimum Detectable Activity Report (continued)
Sample ID : S96T2025-SAM Acquisition date : 4-MAY-1996 09:26:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	53521.	129.30	2.7694E+05
AM-241	42886.	59.54	1.8564E+02
AM-243	44668.	74.67	5.5521E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 11:19:59.62                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8055
Sample ID:               S96T2025-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2647.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:28.92 sec
Dead Time:               8.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 10:24:47.72
Decayed to:              4-MAY-1996 10:24:47.72
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: D. H. Miller

Verified by: B Machelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	86.92	1253	1.64	174.31	172	6	53.6		NP-237	255.
									CD-109	848.
0	122.91	1652	1.09	246.25	244	7	47.8		CO-57	32.6
0	186.04*	992	1.06	372.43	370	6	77.2		RA-226	510.
0	661.47*	1838402	1.54	1322.96	1314	18	0.2		CS-137	1.046E+05
0	1274.27	300	2.09	2548.66	2542	14	30.6			
0	1322.11	770	2.13	2644.37	2638	15	15.9			
0	1332.56	51	1.48	2665.27	2659	14	73.3			

Summary of Nuclide Activity
Sample ID : S96T2025-DUP Acquisition date : 4-MAY-1996 10:24:47

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	7	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	6	85.71%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.256E+01~~	~~3.256E+01~~	~~1.556E+01~~	~~47.78~~	~~NYEN~~
~~CD-109~~	~~462.90D~~	~~1.000~~	~~8.482E+02~~	~~8.482E+02~~	~~4.547E+02~~	~~53.61~~	~~BKG~~
CS-137	30.00Y	1.000	1.046E+05	1.046E+05	0.002E+05	0.15	
~~RA-226~~	~~1600.00Y~~	~~1.000~~	~~5.104E+02~~	~~5.104E+02~~	~~3.942E+02~~	~~77.24~~	~~BKG~~
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~2.545E+02~~	~~2.545E+02~~	~~1.365E+02~~	~~53.61~~	
			---	---			
Total Activity :			1.062E+05	1.062E+05			

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Grand Total Activity : 1.062E+05 1.062E+05

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T2025-DUP Acquisition date : 4-MAY-1996 10:24:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	59660.	477.59	4.0622E+02
NA-22	624.	1274.53	9.9966E+00
NA-24	34.	1368.55	2.5232E+00
K-40	130.	1460.75	4.7611E+01
CR-51	49595.	320.08	2.7632E+02
MN-54	2251.	834.83	1.3028E+01
CO-56	2140.	846.76	1.2863E+01
CO-58	2528.	810.78	1.3543E+01
FE-59	806.	1099.25	1.7708E+01
CO-60	109.	1332.50	4.3392E+00
SE-75	54897.	264.66	4.3883E+01
SR-85	31654.	514.01	3.3985E+01
Y-88	4.	1836.06	1.0730E+00
NB-94	1953.	871.09	1.2584E+01
ZRNB-95	3910.	724.18	3.4832E+01
RU-103	38744.	497.08	3.8557E+01
RURH-106	13953.	621.93	5.1016E+02
AG-108m	3916.	722.94	1.6748E+01
AG-110M	66304.	657.76	6.1065E+01
SN-113	53492.	391.69	5.2185E+01
TE-123m	54192.	159.00	2.1355E+01
SB-124	14616.	602.73	2.5819E+01
SB-125	62244.	427.89	1.3210E+02
TE-125m	49225.	109.27	6.7424E+03
I-131	50798.	364.48	3.8098E+01
CS-134	14578.	604.70	2.5901E+01
BA-140	23775.	537.31	1.2039E+02
LA-140	17.	1596.21	2.0726E+00
CEPR-144	54562.	133.51	3.2005E+02
EU-152	33.	1408.01	1.1959E+01
EU-154	624.	1274.51	2.9056E+01
EU-155	48989.	105.31	9.0337E+01
HG-203	52550.	279.20	3.1945E+01
TL-208	52595.	277.36	4.1065E+02
BI-212	3636.	727.18	2.2147E+02
PB-212	61033.	238.63	5.7798E+01
BI-214	14470.	609.31	5.6566E+01
PB-214	49803.	351.92	1.5546E+02
RA-224	60675.	240.99	6.3977E+02
AC-228	1566.	911.21	4.4018E+01
TH-228	46249.	84.37	2.0787E+03
TH-229	46883.	88.47	9.8802E+01
PA-233	49714.	312.17	7.0942E+01
UTH-233	59472.	245.34	2.3719E+04
PA-234M	1134.	1001.03	1.8436E+01
TH-234	43328.	63.29	1.1720E+03
U-235	69187.	185.71	3.8239E+01
NP-239	49113.	106.12	8.5877E+01
PU-239	54202.	129.30	2.7869E+05
AM-241	43458.	59.54	1.8687E+02
AM-243	44842.	74.67	5.5630E+01

LABCORE Data Entry Template for Worklist# 8099

Analyst: JLF **Instrument:** GEA00 3 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106.Sample size = .100-10-.100. TAKE CARE. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T001544	0		@GEA-01	LIQUID	96000082	C-106 GRAB
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S96T001544	0		@GEA-01	LIQUID		

Final page for worklist # 8099

Jessi S. Grisby 4-27-96
Analyst Signature **Date**

Sue E. Bogan 5/6/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8099

Analyst: jlf **Instrument:** GEA03 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106.Sample size = .100-10-.100. TAKE CARE. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	2.557e-02	2.53e-02	98.944	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1	1.23	1.230	% Ct. Error
1	STD		0	@GEA-01	CS13702	LIQUID	2.708e-02	2.72e-02	100.443	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1	1.44	1.440	% Ct. Error
2	BLNK		0	@GEA-01	CO60-02	LIQUID	1	<2.16e-2		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1	<6.06e-2		uCi/mL
3	SAMPLE	S96T001544	0	@GEA-01	CO60-02	LIQUID	N/A <	3.379e-02	337.9e-004	uCi/mL
3	SAMPLE	S96T001544	0	@GEA-01	CO60-02E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001544	0	@GEA-01	CS13702	LIQUID	N/A	1.590e+02	0.0e+000	uCi/mL
3	SAMPLE	S96T001544	0	@GEA-01	CS13702E	LIQUID	N/A	0.550	0.0e+000	% Ct. Error
4	DUP	S96T001544	0	@GEA-01	CO60-02	LIQUID	<3.38e-2	<2.27e-2		RPD
4	DUP	S96T001544	0	@GEA-01	CO60-02E	LIQUID	1	n/a		% Ct. Error
4	DUP	S96T001544	0	@GEA-01	CS13702	LIQUID	1.59e+02	1.57e+02	1.266	RPD
4	DUP	S96T001544	0	@GEA-01	CS13702E	LIQUID	1	0.550	0.550	% Ct. Error

Comments Section:

Comments for sample# S96T001544 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 8099

Analyst Signature **Date** **Analyst Signature** **Date**

[signature] 5/8/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-APR-1996 14:25:04.92                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              8099
Sample ID:               WL8099-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: ALJ 4-27-96

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3271.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.61 sec
Dead Time:               0.3%
```

Verified by: BMachelor 4/29/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-APR-1996 13:34:10.60
Decayed to:              27-APR-1996 13:34:10.60
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.56*	24075	1.58	1323.30	1315	17	1.4		CS-137	27.2
0	1173.16	15900	1.91	2346.59	2337	19	1.8		CO-60	25.1
0	1332.41	14594	2.04	2665.20	2656	19	1.7		CO-60	25.5

Summary of Nuclide Activity
Sample ID : WL8099-STD

Acquisition date : 27-APR-1996 13:34:10

Total number of lines in spectrum 3
Number of unidentified lines 0
Number of lines tentatively identified by NID 3 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.531E+01	2.531E+01	0.031E+01	1.23	
CS-137	30.00Y	1.000	2.721E+01	2.721E+01	0.039E+01	1.44	
		Total Activity :	5.252E+01	5.252E+01			
		Grand Total Activity :	5.252E+01	5.252E+01			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : WL8099-STD Acquisition date : 27-APR-1996 13:34:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1227.	477.59	1.1539E+00
NA-22	92.	1274.53	7.5344E-02
NA-24	35.	1368.55	4.9799E-02
K-40	152.	1460.75	1.0096E+00
CR-51	1219.	320.08	8.6553E-01
MN-54	750.	834.83	1.4973E-01
CO-56	782.	846.76	1.5483E-01
CO-57	1299.	122.06	6.2384E-02
CO-58	694.	810.78	1.4128E-01
FE-59	741.	1099.25	3.3385E-01
SE-75	1455.	264.66	1.4169E-01
SR-85	884.	514.01	1.1200E-01
Y-88	16.	1836.06	4.1710E-02
NB-94	843.	871.09	1.6475E-01
ZRNB-95	573.	724.18	2.6505E-01
RU-103	964.	497.08	1.2009E-01
RURH-106	640.	621.93	2.1678E+00
AG-108m	601.	722.94	1.3045E-01
CD-109	1181.	88.03	1.9696E+00
AG-110M	1128.	657.76	1.5823E-01
SN-113	1146.	391.69	1.5393E-01
TE-123m	1329.	159.00	6.4900E-02
SB-124	640.	602.73	1.0710E-01
SB-125	1235.	427.89	3.7292E-01
TE-125m	1200.	109.27	1.9519E+01
I-131	1212.	364.48	1.1834E-01
CS-134	701.	604.70	1.1260E-01
BA-140	728.	537.31	4.1538E-01
LA-140	21.	1596.21	4.5468E-02
CEPR-144	1356.	133.51	9.6387E-01
EU-152	23.	1408.01	1.9293E-01
EU-154	92.	1274.51	2.1909E-01
EU-155	1250.	105.31	2.6601E-01
HG-203	1397.	279.20	1.0354E-01
TL-208	1397.	277.36	1.3297E+00
BI-212	595.	727.18	1.7808E+00
PB-212	1599.	238.63	1.8474E-01
BI-214	707.	609.31	2.4791E-01
PB-214	1206.	351.92	4.6484E-01
RA-224	1627.	240.99	2.0686E+00
RA-226	1527.	186.10	1.8295E+00
AC-228	956.	911.21	6.8499E-01
TH-228	1143.	84.37	5.9670E+00
TH-229	1161.	88.47	2.8302E-01
PA-233	1271.	312.17	2.2645E-01
UTH-233	1548.	245.34	7.5637E+01
PA-234M	745.	1001.03	2.9568E-01
TH-234	1024.	63.29	3.8045E+00
U-235	1531.	185.71	1.1136E-01
NP-237	1154.	86.48	5.8467E-01
NP-239	1259.	106.12	2.5365E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL8099-STD Acquisition date : 27-APR-1996 13:34:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1401.	129.30	8.5270E+02
AM-241	1075.	59.54	6.8777E-01
AM-243	1142.	74.67	1.6662E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-APR-1996 15:34:25.53                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8099
Sample ID:               WL8099-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+03

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3273.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.43 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-APR-1996 14:43:42.27
Decayed to:              27-APR-1996 14:43:42.27
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************

Post-NID Peak Search Report
***** No peaks found *****
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 4-27-96

Verified by: Bachelor 4/29/96

Summary of Nuclide Activity
Sample ID : WL8099-BLK

Acquisition date : 27-APR-1996 14:43:42

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL8099-BLK

Acquisition date : 27-APR-1996 14:43:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	38.	477.59	2.0492E+02
NA-22	11.	1274.53	2.5761E+01
NA-24	12.	1368.55	2.9183E+01
K-40	139.	1460.75	9.7445E+02
CR-51	51.	320.08	1.7896E+02
MN-54	12.	834.83	1.9130E+01
CO-56	19.	846.76	2.4179E+01
CO-57	75.	122.06	1.5160E+01
CO-58	22.	810.78	2.5346E+01
FE-59	9.	1099.25	3.7339E+01
CO-60	7.	1332.50	2.1586E+01
SE-75	52.	264.66	2.7014E+01
SR-85	46.	514.01	2.5741E+01
Y-88	3.	1836.06	1.8354E+01
NB-94	13.	871.09	2.0919E+01
ZRNB-95	20.	724.18	4.9427E+01
RU-103	32.	497.08	2.2167E+01
RURH-106	23.	621.93	4.1135E+02
AG-108m	17.	722.94	2.2049E+01
CD-109	70.	88.03	4.8432E+02
AG-110M	28.	657.76	2.5079E+01
SN-113	38.	391.69	2.8180E+01
TE-123m	81.	159.00	1.6206E+01
SB-124	21.	602.73	1.9361E+01
SB-125	47.	427.89	7.3123E+01
TE-125m	60.	109.27	4.3934E+03
I-131	36.	364.48	2.0622E+01
CS-134	21.	604.70	1.9466E+01
CS-137	130.	661.66	6.0619E+01
BA-140	23.	537.31	7.4645E+01
LA-140	7.	1596.21	2.6612E+01
CEPR-144	69.	133.51	2.1904E+02
EU-152	13.	1408.01	1.4716E+02
EU-154	10.	1274.51	7.4558E+01
EU-155	65.	105.31	6.1282E+01
HG-203	51.	279.20	1.9916E+01
TL-208	62.	277.36	2.8229E+02
BI-212	21.	727.18	3.3477E+02
PB-212	73.	238.63	3.9776E+01
BI-214	49.	609.31	6.5772E+01
PB-214	69.	351.92	1.1210E+02
RA-224	77.	240.99	4.5533E+02
RA-226	81.	186.10	4.2570E+02
AC-228	27.	911.21	1.1652E+02
TH-228	75.	84.37	1.5431E+03
TH-229	63.	88.47	6.6682E+01
PA-233	51.	312.17	4.5901E+01
UTH-233	62.	245.34	1.5323E+04
PA-234M	9.	1001.03	3.2987E+01
TH-234	65.	63.29	9.6637E+02
U-235	90.	185.71	2.7248E+01

Minimum Detectable Activity Report (continued)
Sample ID : WL8099-BLK Acquisition date : 27-APR-1996 14:43:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	76.	86.48	1.5125E+02
NP-239	69.	106.12	6.0115E+01
PU-239	67.	129.30	1.8844E+05
AM-241	60.	59.54	1.6352E+02
AM-243	79.	74.67	4.4315E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-APR-1996 17:10:25.52                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8099
Sample ID:               S96T001544-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+03

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3274.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:17.20 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-APR-1996 16:19:28.57
Decayed to:              27-APR-1996 16:19:28.57
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:  15-MAR-1994 10:28:40.20
*****************************************************************************
```

Removed by: [signature] 4-27-96

Verified by: [signature] 4/29/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.53*	139407	1.57	1323.24	1315	17	0.5		CS-137	1.591E+05
0	724.05	40	1.08	1448.27	1443	11	70.2			
0	1275.16	26	1.39	2550.66	2545	13	67.3			
0	1460.68*	17	2.25	2921.84	2912	22	146.3		K-40	297.

Summary of Nuclide Activity
Sample ID : S96T001544-SAM

Acquisition date : 27-APR-1996 16:19:28

Total number of lines in spectrum	4	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	4	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.968E+02~~	~~2.968E+02~~	~~4.344E+02~~	~~146.33~~	~~BKgd~~
CS-137	30.00Y	1.000	1.591E+05	1.591E+05	0.009E+05	0.55	
			---	---			
Total Activity :			1.594E+05	1.594E+05			
Grand Total Activity :			1.594E+05	1.594E+05			

1/23/96

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T001544-SAM Acquisition date : 27-APR-1996 16:19:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4205.	477.59	2.1576E+03
NA-22	36.	1274.53	4.7559E+01
NA-24	7.	1368.55	2.2630E+01
CR-51	3219.	320.08	1.4207E+03
MN-54	25.	834.83	2.7620E+01
CO-56	30.	846.76	3.0556E+01
CO-57	3613.	122.06	1.0506E+02
CO-58	29.	810.78	2.9356E+01
FE-59	16.	1099.25	4.9538E+01
CO-60	17.	1332.50	3.3788E+01
SE-75	3755.	264.66	2.2987E+02
SR-85	2118.	514.01	1.7506E+02
Y-88	5.	1836.06	2.3642E+01
NB-94	28.	871.09	3.0084E+01
ZRNB-95	76.	724.18	9.7605E+01
RU-103	2636.	497.08	2.0058E+02
RURH-106	712.	621.93	2.3101E+03
AG-108m	73.	722.94	4.5951E+01
CD-109	3033.	88.03	3.1876E+03
AG-110M	3489.	657.76	2.8102E+02
SN-113	3706.	391.69	2.7955E+02
TE-123m	3542.	159.00	1.0703E+02
SB-124	780.	602.73	1.1940E+02
SB-125	4231.	427.89	6.9729E+02
TE-125m	3192.	109.27	3.2152E+04
I-131	3419.	364.48	2.0076E+02
CS-134	794.	604.70	1.2099E+02
BA-140	1483.	537.31	5.9873E+02
LA-140	3.	1596.21	1.7263E+01
CEPR-144	3578.	133.51	1.5814E+03
EU-152	10.	1408.01	1.2990E+02
EU-154	36.	1274.51	1.3833E+02
EU-155	3163.	105.31	4.2743E+02
HG-203	3390.	279.20	1.6288E+02
TL-208	3362.	277.36	2.0838E+03
BI-212	48.	727.18	5.0870E+02
PB-212	4072.	238.63	2.9771E+02
BI-214	807.	609.31	2.6755E+02
PB-214	3366.	351.92	7.8556E+02
RA-224	4051.	240.99	3.2971E+03
RA-226	4811.	186.10	3.2803E+03
AC-228	46.	911.21	1.5231E+02
TH-228	3014.	84.37	9.7856E+03
TH-229	3005.	88.47	4.5988E+02
PA-233	3403.	312.17	3.7422E+02
UTH-233	3912.	245.34	1.2145E+05
PA-234M	22.	1001.03	5.1175E+01
TH-234	2802.	63.29	6.3548E+03
U-235	4735.	185.71	1.9779E+02
NP-237	2992.	86.48	9.5093E+02
NP-239	3176.	106.12	4.0695E+02

Minimum Detectable Activity Report (continued)
Sample ID : S96T001544-SAM Acquisition date : 27-APR-1996 16:19:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	3488.	129.30	1.3588E+06
AM-241	2847.	59.54	1.1304E+03
AM-243	2919.	74.67	2.6905E+02

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-APR-1996 18:18:17.50                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8099
Sample ID:               S96T001544-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+03

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3275.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:16.97 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-APR-1996 17:27:19.54
Decayed to:              27-APR-1996 17:27:19.54
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

Removed by:

Verified by: Bachelor 4/29/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.54*	137281	1.57	1323.26	1315	17	0.6		CS-137	1.567E+05
0	1274.30	15	1.82	2548.93	2543	14	117.8			

Summary of Nuclide Activity
Sample ID : S96T001544-DUP

Acquisition date : 27-APR-1996 17:27:19

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.567E+05	1.567E+05	0.009E+05	0.55	
		Total Activity :	1.567E+05	1.567E+05			
		Grand Total Activity :	1.567E+05	1.567E+05			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4048.	477.59	2.1171E+03
NA-22	27.	1274.53	4.1193E+01
NA-24	4.	1368.55	1.7107E+01
K-40	115.	1460.75	8.8634E+02
CR-51	3234.	320.08	1.4239E+03
MN-54	31.	834.83	3.0792E+01
CO-56	31.	846.76	3.1258E+01
CO-57	3514.	122.06	1.0361E+02
CO-58	29.	810.78	2.9211E+01
FE-59	22.	1099.25	5.7934E+01
CO-60	8.	1332.50	2.2735E+01
SE-75	3593.	264.66	2.2487E+02
SR-85	2023.	514.01	1.7110E+02
Y-88	5.	1836.06	2.3642E+01
NB-94	38.	871.09	3.5214E+01
ZRNB-95	66.	724.18	9.0784E+01
RU-103	2481.	497.08	1.9459E+02
RURH-106	736.	621.93	2.3484E+03
AG-108m	61.	722.94	4.1827E+01
CD-109	2953.	88.03	3.1452E+03
AG-110M	3359.	657.76	2.7575E+02
SN-113	3665.	391.69	2.7798E+02
TE-123m	3614.	159.00	1.0811E+02
SB-124	774.	602.73	1.1895E+02
SB-125	4113.	427.89	6.8744E+02
TE-125m	3052.	109.27	3.1442E+04
I-131	3328.	364.48	1.9806E+02
CS-134	808.	604.70	1.2206E+02
BA-140	1565.	537.31	6.1510E+02
LA-140	8.	1596.21	2.8584E+01
CEPR-144	3494.	133.51	1.5628E+03
EU-152	14.	1408.01	1.5638E+02
EU-154	27.	1274.51	1.1968E+02
EU-155	3165.	105.31	4.2760E+02
HG-203	3463.	279.20	1.6462E+02
TL-208	3529.	277.36	2.1347E+03
BI-212	48.	727.18	5.1114E+02
PB-212	4107.	238.63	2.9898E+02
BI-214	808.	609.31	2.6762E+02
PB-214	3315.	351.92	7.7948E+02
RA-224	3947.	240.99	3.2543E+03
RA-226	4656.	186.10	3.2268E+03
AC-228	38.	911.21	1.3813E+02
TH-228	2927.	84.37	9.6435E+03
TH-229	2929.	88.47	4.5398E+02
PA-233	3239.	312.17	3.6505E+02
UTH-233	3925.	245.34	1.2165E+05
PA-234M	20.	1001.03	4.8579E+01
TH-234	2789.	63.29	6.3408E+03
U-235	4609.	185.71	1.9514E+02
NP-237	2975.	86.48	9.4811E+02

Sample ID : S96T001544-DUP Acquisition date : 27-APR-1996 17:27:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3191.	106.12	4.0792E+02
PU-239	3467.	129.30	1.3547E+06
AM-241	2678.	59.54	1.0965E+03
AM-243	2920.	74.67	2.6910E+02

LABCORE Data Entry Template for Worklist# 8491

Analyst: KRM **Instrument:** GEA00 4 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: Re-run #1; use 0.100 mL sample. -PPB

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T000546	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T000546	0	F	@GEA-01	SOLID		
5	SAMPLE	S96T000571	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T000571	0	F	@GEA-01	SOLID		

Final page for worklist # 8491

5-10-96
Analyst Signature **Date**

5/13/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8491

Analyst: krm **Instrument:** GEA04 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: Re-run #1; use 0.100 mL sample. -PPB

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	2.545e-02	2.46e-02	96.660	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1	0.650	0.650	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.706e-02	2.60e-02	96.083	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1	0.760	0.760	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1	<1.52e-1		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1	<2.04e-1		uCi/g
3	SAMPLE	S96T000546	0	F	@GEA-01	CO60-02	SOLID	N/A <	2.329e-01	233.0e-003	uCi/g
3	SAMPLE	S96T000546	0	F	@GEA-01	CO60-02E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T000546	0	F	@GEA-01	CS13702	SOLID	N/A	4.027e+02	0.0e+000	uCi/g
3	SAMPLE	S96T000546	0	F	@GEA-01	CS13702E	SOLID	N/A	0.580	0.0e+000	% Ct. Error
4	DUP	S96T000546	0	F	@GEA-01	CO60-02	SOLID	<2.33e-1	<2.27e-1		RPD
4	DUP	S96T000546	0	F	@GEA-01	CO60-02E	SOLID	1	n/a		% Ct Error
4	DUP	S96T000546	0	F	@GEA-01	CS13702	SOLID	4.03e+02	4.17e+02	3.415	RPD
4	DUP	S96T000546	0	F	@GEA-01	CS13702E	SOLID	1.00	0.540	0.540	% Ct Error
5	SAMPLE	S96T000571	0	F	@GEA-01	CO60-02	SOLID	N/A <	1.276e-01	128.0e-003	uCi/g
5	SAMPLE	S96T000571	0	F	@GEA-01	CO60-02E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T000571	0	F	@GEA-01	CS13702	SOLID	N/A	2.046e+02	0.0e+000	uCi/g
5	SAMPLE	S96T000571	0	F	@GEA-01	CS13702E	SOLID	N/A	0.640	0.0e+000	% Ct. Error
6	DUP	S96T000571	0	F	@GEA-01	CO60-02	SOLID	<1.28e-1	3.51e-01		RPD
6	DUP	S96T000571	0	F	@GEA-01	CO60-02E	SOLID	1	28.0	28.000	% Ct Error
6	DUP	S96T000571	0	F	@GEA-01	CS13702	SOLID	2.05e+02	5.31e+02	88.587	RPD
6	DUP	S96T000571	0	F	@GEA-01	CS13702E	SOLID	1.00	0.450	0.450	% Ct Error

Comments Section:

Comments for sample# S96T000546 **and test** @GEA-01 .
R(0) DL=0 => n/a. High Cs-137 RPD - poss. tech error. Rerun.
R(1) DL=0 => n/a. RPD OK => original high RPD due to tech error.

Comments for sample# S96T000571 **and test** @GEA-01 .
R(0) DL=0 => n/a. High RPD Cs-137 - poss tech error. Rerun.
R(1) DL=0 => n/a. Reproducible high RPD Cs-137 => not tech error.

Final page for worklist# 8491

Analyst Signature **Date** **Analyst Signature** **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed RadChem Report for Worklist#: 8491

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit

B Machelor 5/14/96
Reviewer Signature Date

```
*****************************************************************************
* 222-S Laboratory Counting Room    10-MAY-1996 05:59:14.70                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8491
Sample ID:               WL8491-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4806.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:32.88 sec
Dead Time:               1.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 05:08:01.52
Decayed to:              10-MAY-1996 05:08:01.52
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       18-APR-1994 11:17:09.37
 Date of last efficiency calibration:   18-APR-1994 11:18:36.88
*****************************************************************************
```

Removed by: Em Baula

Verified by: B Machelor 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.66*	84956	1.49	1323.23	1316	15	0.8		CS-137	26.0
0	1173.15*	55704	1.83	2346.25	2338	17	0.9		CO-60	24.6
0	1332.41	51375	1.91	2664.81	2655	21	0.9		CO-60	24.7

Summary of Nuclide Activity
Sample ID : WL8491-STD Acquisition date : 10-MAY-1996 05:08:01

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.463E+01	2.463E+01	0.016E+01	0.65	
CS-137	30.00Y	1.000	2.604E+01	2.604E+01	0.020E+01	0.76	
			---	---			
Total Activity :			5.067E+01	5.067E+01			
Grand Total Activity :			5.067E+01	5.067E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4029.	477.59	5.9244E-01
NA-22	303.	1274.53	3.7730E-02
NA-24	95.	1368.55	2.2635E-02
K-40	878.	1460.75	6.7004E-01
CR-51	3848.	320.08	4.1890E-01
MN-54	2458.	834.83	7.7045E-02
CO-56	2402.	846.76	7.7398E-02
CO-57	3684.	122.06	2.8657E-02
CO-58	2277.	810.78	7.2245E-02
FE-59	2428.	1099.25	1.7032E-01
SE-75	4089.	264.66	6.4659E-02
SR-85	2878.	514.01	5.7829E-02
Y-88	56.	1836.06	2.2092E-02
NB-94	2657.	871.09	8.3988E-02
ZRNB-95	2021.	724.18	1.3755E-01
RU-103	3158.	497.08	6.2049E-02
RURH-106	2197.	621.93	1.0981E+00
AG-108m	2014.	722.94	6.5937E-02
CD-109	3166.	88.03	8.5482E-01
AG-110M	2950.	657.76	6.9385E-02
SN-113	3848.	391.69	7.6841E-02
TE-123m	3762.	159.00	2.9723E-02
SB-124	2230.	602.73	5.5133E-02
SB-125	4102.	427.89	1.8762E-01
TE-125m	3323.	109.27	8.8117E+00
I-131	3686.	364.48	5.6136E-02
CS-134	2210.	604.70	5.5087E-02
BA-140	2540.	537.31	2.2127E-01
LA-140	69.	1596.21	2.2729E-02
CEPR-144	3641.	133.51	4.3144E-01
EU-152	112.	1408.01	1.1847E-01
EU-154	303.	1274.51	1.0956E-01
EU-155	3338.	105.31	1.1763E-01
HG-203	3976.	279.20	4.7544E-02
TL-208	4101.	277.36	6.2026E-01
BI-212	1996.	727.18	9.0216E-01
PB-212	4582.	238.63	8.5125E-02
BI-214	2350.	609.31	1.2427E-01
PB-214	3871.	351.92	2.2759E-01
RA-224	4674.	240.99	9.5471E-01
RA-226	4425.	186.10	8.4556E-01
AC-228	3132.	911.21	3.5769E-01
TH-228	3363.	84.37	2.6942E+00
TH-229	3183.	88.47	1.2431E-01
PA-233	3863.	312.17	1.0752E-01
UTH-233	4443.	245.34	3.4891E+01
PA-234M	2593.	1001.03	1.5703E-01
TH-234	3183.	63.29	1.5739E+00
U-235	4421.	185.71	5.1368E-02
NP-237	3261.	86.48	2.5983E-01
NP-239	3339.	106.12	1.1184E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL8491-STD Acquisition date : 10-MAY-1996 05:08:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	3793.	129.30	3.8320E+02
AM-241	3019.	59.54	2.5168E-01
AM-243	3350.	74.67	7.2991E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 08:01:30.73                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8491
Sample ID:               WL8491-BLK                          Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01                         C.J. Owen

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                                 Verified by:
File Number:             dka300:[spec.GEA4]4g4807.cnf
Geometry:                41                                  B Bachelor 5/13/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.08 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 07:10:48.82
Decayed to:              10-MAY-1996 07:10:48.82
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       18-APR-1994 11:17:09.37
 Date of last efficiency calibration:   18-APR-1994 11:18:36.88
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	242.18	97	0.72	484.31	482	7	61.9		RA-224	2.92
0	661.86*	63	1.72	1323.62	1317	13	99.0		CS-137	0.192
0	1630.45	20	1.26	3261.01	3256	11	78.0			

Summary of Nuclide Activity
Sample ID : WL8491-BLK

Acquisition date : 10-MAY-1996 07:10:48

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~1.922E-01~~	~~1.922E-01~~	~~1.903E-01~~	~~99.02~~	
~~RA-224~~	~~3.62D~~	~~1.003~~	~~2.911E+00~~	~~2.921E+00~~	~~1.808E+00~~	~~61.91~~	
			---	---			
Total Activity :			3.104E+00	3.113E+00			

BKG 1/23/96

Grand Total Activity : 3.104E+00 3.113E+00

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	166.	477.59	1.2027E+00
NA-22	45.	1274.53	1.4595E-01
NA-24	36.	1368.55	1.4046E-01
K-40	824.	1460.75	6.4921E+00
CR-51	243.	320.08	1.0517E+00
MN-54	88.	834.83	1.4590E-01
CO-56	74.	846.76	1.3579E-01
CO-57	306.	122.06	8.2648E-02
CO-58	83.	810.78	1.3776E-01
FE-59	71.	1099.25	2.9100E-01
CO-60	41.	1332.50	1.4298E-01
SE-75	310.	264.66	1.7817E-01
SR-85	209.	514.01	1.5599E-01
Y-88	11.	1836.06	9.7880E-02
NB-94	79.	871.09	1.4522E-01
ZRNB-95	110.	724.18	3.2032E-01
RU-103	169.	497.08	1.4372E-01
RURH-106	111.	621.93	2.4683E+00
AG-108m	90.	722.94	1.3905E-01
CD-109	325.	88.03	2.7386E+00
AG-110M	107.	657.76	1.3188E-01
SN-113	213.	391.69	1.8058E-01
TE-123m	350.	159.00	9.0719E-02
SB-124	117.	602.73	1.2623E-01
SB-125	203.	427.89	4.1737E-01
TE-125m	275.	109.27	2.5368E+01
I-131	209.	364.48	1.3362E-01
CS-134	137.	604.70	1.3700E-01
BA-140	148.	537.31	5.3489E-01
LA-140	19.	1596.21	1.2106E-01
CEPR-144	308.	133.51	1.2542E+00
EU-152	51.	1408.01	8.0374E-01
EU-154	45.	1274.51	4.2385E-01
EU-155	295.	105.31	3.4994E-01
HG-203	309.	279.20	1.3244E-01
TL-208	339.	277.36	1.7832E+00
BI-212	127.	727.18	2.2727E+00
PB-212	458.	238.63	2.6906E-01
BI-214	319.	609.31	4.5765E-01
PB-214	371.	351.92	7.0080E-01
RA-226	400.	186.10	2.5427E+00
AC-228	164.	911.21	8.1932E-01
TH-228	348.	84.37	8.6650E+00
TH-229	328.	88.47	3.9927E-01
PA-233	278.	312.17	2.8855E-01
UTH-233	331.	245.34	9.5222E+01
PA-234M	88.	1001.03	2.8863E-01
TH-234	304.	63.29	4.8642E+00
U-235	402.	185.71	1.5490E-01
NP-237	335.	86.48	8.3320E-01
NP-239	300.	106.12	3.3504E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL8491-BLK Acquisition date : 10-MAY-1996 07:10:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	319.	129.30	1.1119E+03
AM-241	252.	59.54	7.2762E-01
AM-243	388.	74.67	2.4839E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    10-MAY-1996 10:08:38.87                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8491
Sample ID:               S96T000546
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4808.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:16.87 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 09:17:44.78
Decayed to:              10-MAY-1996 09:17:44.78
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 CJO
Background Subtract:     DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       18-APR-1994 11:17:09.37
 Date of last efficiency calibration:   18-APR-1994 11:18:36.88
*****************************************************************************
```

Removed by:

Verified by: 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	86.97	509	0.70	173.93	170	8	43.2		NP-237	4.98
									EU-155	1.88
									CD-109	16.6
0	105.48	289	1.13	210.93	208	7	67.3		EU-155	1.26
0	123.09	816	1.14	246.16	243	8	26.4		CO-57	0.828
									EU-154	1.76
0	661.64*	123800	1.48	1323.19	1315	16	0.6		CS-137	379.
0	723.04	112	1.51	1445.99	1439	13	46.6		EU-154	1.60
0	756.91	62	1.48	1513.72	1511	8	56.8			
0	873.47	66	2.50	1746.85	1739	15	80.2		EU-154	1.93
0	1004.47	72	1.61	2008.87	2006	9	44.4		EU-154	1.59
0	1173.08*	69	2.47	2346.10	2340	13	63.6			
0	1274.43	119	2.14	2548.84	2542	12	31.2		EU-154	1.61
0	1729.51	13	1.54	3459.15	3457	6	81.4			

Summary of Nuclide Activity
Sample ID : S96T000546

Acquisition date : 10-MAY-1996 09:17:44

Total number of lines in spectrum	11	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	9	81.82%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~8.283E-01~~	~~8.283E-01~~	~~2.188E-01~~	~~26.41~~	~~154Eu~~
~~CD-109~~	~~462.90D~~	~~1.000~~	~~1.662E+01~~	~~1.662E+01~~	~~0.718E+01~~	~~43.19~~	~~155Eu~~
CS-137	30.00Y	1.000	3.795E+02	3.795E+02	0.022E+02	0.58	
EU-154	8.59Y	1.000	1.620E+00	1.620E+00	0.350E+00	21.60	
~~EU-155~~	~~4.68Y~~	~~1.000~~	~~1.264E+00~~	~~1.264E+00~~	~~0.850E+00~~	~~67.29~~	~~BKG~~
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~4.978E+00~~	~~4.978E+00~~	~~2.150E+00~~	~~43.19~~	~~155Eu~~
			---	---			
Total Activity :			4.048E+02	4.048E+02			

1/23/96

Grand Total Activity : 4.048E+02 4.048E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum-Detectable Activity Report
Sample ID : S96T000546 Acquisition date : 10-MAY-1996 09:17:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3680.	477.59	5.6623E+00
NA-22	176.	1274.53	2.8755E-01
NA-24	34.	1368.55	1.3551E-01
K-40	842.	1460.75	6.5634E+00
CR-51	3022.	320.08	3.7127E+00
MN-54	114.	834.83	1.6608E-01
CO-56	96.	846.76	1.5458E-01
CO-58	101.	810.78	1.5227E-01
FE-59	87.	1099.25	3.2251E-01
CO-60	97.	1332.50	2.1977E-01
SE-75	3120.	264.66	5.6484E-01
SR-85	1923.	514.01	4.7268E-01
Y-88	10.	1836.06	9.4613E-02
NB-94	127.	871.09	1.8370E-01
ZRNB-95	215.	724.18	4.4875E-01
RU-103	2245.	497.08	5.2317E-01
RURH-106	736.	621.93	6.3579E+00
AG-108m	208.	722.94	2.1217E-01
AG-110M	1878.	657.76	5.5354E-01
SN-113	3276.	391.69	7.0894E-01
TE-123m	2984.	159.00	2.6471E-01
SB-124	802.	602.73	3.3060E-01
SB-125	3765.	427.89	1.7975E+00
TE-125m	2842.	109.27	8.1487E+01
I-131	3095.	364.48	5.1441E-01
CS-134	797.	604.70	3.3077E-01
BA-140	1320.	537.31	1.5948E+00
LA-140	25.	1596.21	1.3749E-01
CEPR-144	2936.	133.51	3.8743E+00
EU-152	38.	1408.01	6.9438E-01
HG-203	3010.	279.20	4.1370E-01
TL-208	3002.	277.36	5.3075E+00
BI-212	134.	727.18	2.3356E+00
PB-212	3519.	238.63	7.4609E-01
BI-214	871.	609.31	7.5665E-01
PB-214	3147.	351.92	2.0465E+00
RA-224	3369.	240.99	8.1052E+00
RA-226	3983.	186.10	8.0228E+00
AC-228	210.	911.21	9.2689E-01
TH-228	2826.	84.37	2.4698E+01
TH-229	2773.	88.47	1.1604E+00
PA-233	2993.	312.17	9.4643E-01
UTH-233	3358.	245.34	3.0335E+02
PA-234M	109.	1001.03	3.2211E-01
TH-234	2547.	63.29	1.4077E+01
U-235	3880.	185.71	4.8125E-01
NP-239	3104.	106.12	1.0783E+00
PU-239	2944.	129.30	3.3761E+03
AM-241	2576.	59.54	2.3248E+00
AM-243	2790.	74.67	6.6608E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 12:13:51.32                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8491
Sample ID:               S96T000546-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4809.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:19.35 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 11:22:49.48
Decayed to:              10-MAY-1996 11:22:49.48
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 CJO
Background Subtract:     DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       18-APR-1994 11:17:09.37
 Date of last efficiency calibration:   18-APR-1994 11:18:36.88
*****************************************************************************
```

Removed by: M B [illegible]

Verified by: B Bachelor 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
3	26.24	1239	0.96	52.48	49	31	11.3	2.50E+01		
3	28.04	1447	1.32	56.09	49	31	13.2			
3	29.84	2527	2.77	59.67	49	31	13.6			
3	32.08	1148	1.79	64.15	49	31	21.2			
3	33.99	484	1.35	67.98	49	31	39.2			
3	35.75	700	2.18	71.50	49	31	39.3			
0	86.65*	311	1.34	173.28	170	8	77.2		NP-237	3.04
									EU-155	1.15
									CD-109	10.2
0	105.45	257	1.14	210.88	208	7	81.6		EU-155	1.12
0	123.04	725	1.13	246.06	242	8	33.2		CO-57	0.737
									EU-154	1.56
0	661.64*	143570	1.49	1323.19	1316	15	0.5		CS-137	440.
0	722.28	131	1.68	1444.47	1437	19	63.7		EU-154	1.88
0	911.80*	52	1.85	1823.51	1818	14	93.8			
0	995.68	64	1.68	1991.29	1985	15	73.8		EU-154	2.43
0	1004.41	89	2.09	2008.75	2005	12	48.7		EU-154	1.94
0	1274.16	176	1.58	2548.29	2541	16	23.2		EU-154	2.38
0	1332.07	104	1.57	2664.13	2656	16	28.8			
0	1594.43	46	5.40	3188.95	3181	16	48.6			
0	1841.95	15	1.35	3684.10	3681	9	63.1			

Summary of Nuclide Activity
Sample ID : S96T000546-DUP Acquisition date : 10-MAY-1996 11:22:49

Total number of lines in spectrum	18	
Number of unidentified lines	8	
Number of lines tentatively identified by NID	10	55.56%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~7.366E-01~~	~~7.367E-01~~	~~2.448E-01~~	~~33.23~~	~~LSVE~~
~~CD-109~~	~~462.90D~~	~~1.000~~	~~1.015E+01~~	~~1.015E+01~~	~~0.783E+01~~	~~77.15~~	~~BKG~~
CS-137	30.00Y	1.000	4.401E+02	4.401E+02	0.024E+02	0.54	
EU-154	8.59Y	1.000	2.230E+00	2.230E+00	0.430E+00	19.30	
~~EU-155~~	~~4.68Y~~	~~1.000~~	~~1.124E+00~~	~~1.124E+00~~	~~0.917E+00~~	~~81.59~~	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~3.041E+00~~	~~3.041E+00~~	~~2.346E+00~~	~~77.15~~	~~BKG~~
			---	---			
Total Activity :			4.574E+02	4.574E+02			

7/23/96

Grand Total Activity : 4.574E+02 4.574E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T000546-DUP Acquisition date : 10-MAY-1996 11:22:49

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4187.	477.59	6.0394E+00
NA-22	200.	1274.53	3.0671E-01
NA-24	42.	1368.55	1.5140E-01
K-40	837.	1460.75	6.5449E+00
CR-51	3412.	320.08	3.9446E+00
MN-54	109.	834.83	1.6228E-01
CO-56	120.	846.76	1.7303E-01
CO-58	109.	810.78	1.5786E-01
FE-59	66.	1099.25	2.8029E-01
CO-60	115.	1332.50	2.3933E-01
SE-75	3608.	264.66	6.0739E-01
SR-85	2104.	514.01	4.9445E-01
Y-88	20.	1836.06	1.3261E-01
NB-94	130.	871.09	1.8576E-01
ZRNB-95	245.	724.18	4.7876E-01
RU-103	2576.	497.08	5.6032E-01
RURH-106	831.	621.93	6.7555E+00
AG-108m	255.	722.94	2.3472E-01
AG-110M	2071.	657.76	5.8140E-01
SN-113	3718.	391.69	7.5533E-01
TE-123m	3396.	159.00	2.8239E-01
SB-124	914.	602.73	3.5305E-01
SB-125	4386.	427.89	1.9399E+00
TE-125m	3174.	109.27	8.6116E+01
I-131	3411.	364.48	5.4005E-01
CS-134	891.	604.70	3.4978E-01
BA-140	1461.	537.31	1.6783E+00
LA-140	32.	1596.21	1.5504E-01
CEPR-144	3418.	133.51	4.1805E+00
EU-152	53.	1408.01	8.1897E-01
HG-203	3370.	279.20	4.3769E-01
TL-208	3468.	277.36	5.7042E+00
BI-212	132.	727.18	2.3183E+00
PB-212	3995.	238.63	7.9493E-01
BI-214	1071.	609.31	8.3891E-01
PB-214	3546.	351.92	2.1732E+00
RA-224	4052.	240.99	8.8883E+00
RA-226	4520.	186.10	8.5459E+00
AC-228	190.	911.21	8.8201E-01
TH-228	3301.	84.37	2.6694E+01
TH-229	3355.	88.47	1.2763E+00
PA-233	3471.	312.17	1.0192E+00
UTH-233	3831.	245.34	3.2398E+02
PA-234M	91.	1001.03	2.9431E-01
TH-234	2918.	63.29	1.5068E+01
U-235	4467.	185.71	5.1635E-01
NP-239	3551.	106.12	1.1533E+00
PU-239	3361.	129.30	3.6072E+03
AM-241	2920.	59.54	2.4753E+00
AM-243	3151.	74.67	7.0787E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 14:42:06.68                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8491
Sample ID:               S96T000571-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4811.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:14.14 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 13:51:11.05
Decayed to:              10-MAY-1996 13:51:11.05
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 CJO
Background Subtract:     DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      18-APR-1994 11:17:09.37
 Date of last efficiency calibration:  18-APR-1994 11:18:36.88
*****************************************************************************
```

Removed by:

C.J. Opinion 5/10/96

Verified by:

[illegible] Machelor 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	105.65	368	1.16	211.27	207	8	52.9			
0	123.18	585	1.01	246.34	243	8	34.3		CO-57	0.594
									EU-154	1.26
0	661.65*	101060	1.48	1323.20	1316	15	0.6		CS-137	310.
0	723.21	80	1.29	1446.32	1442	9	55.3		EU-154	1.15
0	911.58*	39	1.61	1823.07	1818	13	115.6			
0	995.73	58	1.46	1991.39	1984	13	67.1		EU-154	2.18
0	1004.50	111	1.29	2008.92	2004	13	36.9		EU-154	2.42
0	1273.80	109	1.52	2547.57	2539	15	35.3		EU-154	1.48
0	1587.09	30	1.06	3174.25	3166	14	52.3			
0	1592.06	19	1.15	3184.21	3181	7	65.1			

Summary of Nuclide Activity
Sample ID : S96T000571-SAM

Acquisition date : 10-MAY-1996 13:51:11

Total number of lines in spectrum	10	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	8	80.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~5.945E-01~~	~~5.945E-01~~	~~2.041E-01~~	~~34.33~~	~~154Eu~~
CS-137	30.00Y	1.000	3.098E+02	3.098E+02	0.020E+02	0.64	
EU-154	8.59Y	1.000	1.568E+00	1.568E+00	0.357E+00	22.76	1/23/96
			---	---			
Total Activity :			3.119E+02	3.119E+02			
Grand Total Activity :			3.119E+02	3.119E+02			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T000571-SAM Acquisition date : 10-MAY-1996 13:51:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2961.	477.59	5.0790E+00
NA-22	146.	1274.53	2.6149E-01
NA-24	43.	1368.55	1.5281E-01
K-40	834.	1460.75	6.5304E+00
CR-51	2437.	320.08	3.3338E+00
MN-54	113.	834.83	1.6482E-01
CO-56	84.	846.76	1.4439E-01
CO-58	90.	810.78	1.4356E-01
FE-59	70.	1099.25	2.8899E-01
CO-60	75.	1332.50	1.9326E-01
SE-75	2639.	264.66	5.1945E-01
SR-85	1586.	514.01	4.2935E-01
Y-88	14.	1836.06	1.1082E-01
NB-94	132.	871.09	1.8692E-01
ZRNB-95	218.	724.18	4.5166E-01
RU-103	1888.	497.08	4.7977E-01
RURH-106	626.	621.93	5.8640E+00
AG-108m	209.	722.94	2.1239E-01
CD-109	2450.	88.03	7.5199E+00
AG-110M	1470.	657.76	4.8984E-01
SN-113	2663.	391.69	6.3925E-01
TE-123m	2472.	159.00	2.4092E-01
SB-124	635.	602.73	2.9424E-01
SB-125	3155.	427.89	1.6453E+00
TE-125m	2404.	109.27	7.4958E+01
I-131	2496.	364.48	4.6197E-01
CS-134	587.	604.70	2.8389E-01
BA-140	1096.	537.31	1.4538E+00
LA-140	20.	1596.21	1.2281E-01
CEPR-144	2483.	133.51	3.5633E+00
EU-152	48.	1408.01	7.8060E-01
EU-155	2603.	105.31	1.0387E+00
HG-203	2547.	279.20	3.8053E-01
TL-208	2569.	277.36	4.9097E+00
BI-212	162.	727.18	2.5700E+00
PB-212	3073.	238.63	6.9717E-01
BI-214	798.	609.31	7.2436E-01
PB-214	2497.	351.92	1.8222E+00
RA-224	2844.	240.99	7.4472E+00
RA-226	3382.	186.10	7.3923E+00
AC-228	177.	911.21	8.5060E-01
TH-228	2362.	84.37	2.2580E+01
TH-229	2340.	88.47	1.0659E+00
PA-233	2350.	312.17	8.3853E-01
UTH-233	2787.	245.34	2.7633E+02
PA-234M	92.	1001.03	2.9594E-01
TH-234	2123.	63.29	1.2854E+01
U-235	3339.	185.71	4.4647E-01
NP-237	2560.	86.48	2.3021E+00
NP-239	2564.	106.12	9.8008E-01
PU-239	2455.	129.30	3.0831E+03

Minimum Detectable Activity Report (continued)
Sample ID : S96T000571-SAM Acquisition date : 10-MAY-1996 13:51:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	2124.	59.54	2.1112E+00
AM-243	2248.	74.67	5.9797E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 15:53:23.93                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8491
Sample ID:               S96T000571-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4812.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:27.14 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 15:02:19.11
Decayed to:              10-MAY-1996 15:02:19.11
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 CJO
Background Subtract:     DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       18-APR-1994 11:17:09.37
 Date of last efficiency calibration:   18-APR-1994 11:18:36.88
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: EM Burke

Verified by: B Machelor 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	86.91	377	0.91	173.81	171	7	68.0		NP-237	3.69
									EU-155	1.39
									CD-109	12.3
0	96.75	219	0.89	193.48	192	5	83.5			
0	105.24	452	0.94	210.47	208	6	48.5		EU-155	1.98
0	123.09	1111	1.16	246.16	243	7	23.1		CO-57	1.13
									EU-154	2.39
0	661.65*	208379	1.49	1323.19	1315	16	0.4		CS-137	639.
0	723.22	138	1.27	1446.35	1440	11	41.7		EU-154	1.98
0	872.89	110	1.04	1745.69	1740	12	44.0		EU-154	3.21
0	996.04	90	1.41	1992.00	1988	11	46.8		EU-154	3.39
0	1004.29	113	1.58	2008.50	2003	15	51.0		EU-154	2.47
0	1172.97*	73	2.07	2345.90	2342	10	51.1		CO-60	0.321
0	1274.22	215	1.25	2548.42	2542	12	19.3		EU-154	2.91
0	1332.04	111	1.69	2664.06	2657	14	32.1		CO-60	0.531
0	1764.41*	17	0.89	3528.98	3522	14	134.9			

Summary of Nuclide Activity
Sample ID : S96T000571-DUP

Acquisition date : 10-MAY-1996 15:02:19

Total number of lines in spectrum	13	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	12	92.31%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.128E+00~~	~~1.128E+00~~	~~0.260E+00~~	~~23.09~~	~~^{154}Eu~~
CO-60	5.27Y	1.000	4.218E-01	4.218E-01	1.182E-01	28.03	
~~CD-109~~	~~462.90D~~	~~1.000~~	~~1.231E+01~~	~~1.231E+01~~	~~0.837E+01~~	~~67.95~~	~~BKGD~~
CS-137	30.00Y	1.000	6.387E+02	6.387E+02	0.028E+02	0.45	
EU-154	8.59Y	1.000	2.698E+00	2.698E+00	0.403E+00	14.93	
EU-155	4.68Y	1.000	1.978E+00	1.978E+00	0.960E+00	48.53	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~3.688E+00~~	~~3.688E+00~~	~~2.506E+00~~	~~67.95~~	~~BKGD~~
			---	---			
Total Activity :			6.610E+02	6.610E+02			

7/23/96

Grand Total Activity :	6.610E+02	6.610E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T000571-DUP Acquisition date : 10-MAY-1996 15:02:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	6081.	477.59	7.2790E+00
NA-22	260.	1274.53	3.4955E-01
NA-24	40.	1368.55	1.4629E-01
K-40	797.	1460.75	6.3869E+00
CR-51	4727.	320.08	4.6432E+00
MN-54	129.	834.83	1.7643E-01
CO-56	97.	846.76	1.5591E-01
CO-58	112.	810.78	1.6002E-01
FE-59	79.	1099.25	3.0701E-01
SE-75	4970.	264.66	7.1287E-01
SR-85	3125.	514.01	6.0259E-01
Y-88	15.	1836.06	1.1363E-01
NB-94	183.	871.09	2.2025E-01
ZRNB-95	309.	724.18	5.3750E-01
RU-103	3719.	497.08	6.7335E-01
RURH-106	1167.	621.93	8.0025E+00
AG-108m	296.	722.94	2.5289E-01
AG-110M	2993.	657.76	6.9891E-01
SN-113	5368.	391.69	9.0754E-01
TE-123m	4930.	159.00	3.4028E-01
SB-124	1274.	602.73	4.1676E-01
SB-125	6356.	427.89	2.3355E+00
TE-125m	4593.	109.27	1.0360E+02
I-131	4954.	364.48	6.5081E-01
CS-134	1223.	604.70	4.0977E-01
BA-140	2115.	537.31	2.0190E+00
LA-140	40.	1596.21	1.7260E-01
CEPR-144	4770.	133.51	4.9383E+00
EU-152	46.	1408.01	7.6371E-01
HG-203	4881.	279.20	5.2677E-01
TL-208	4759.	277.36	6.6819E+00
BI-212	175.	727.18	2.6731E+00
PB-212	5760.	238.63	9.5446E-01
BI-214	1379.	609.31	9.5197E-01
PB-214	4968.	351.92	2.5758E+00
RA-224	5559.	240.99	1.0411E+01
RA-226	6532.	186.10	1.0274E+01
AC-228	166.	911.21	8.2466E-01
TH-228	4720.	84.37	3.1917E+01
TH-229	4724.	88.47	1.5144E+00
PA-233	4889.	312.17	1.2095E+00
UTH-233	5400.	245.34	3.8465E+02
PA-234M	100.	1001.03	3.0849E-01
TH-234	4193.	63.29	1.8062E+01
U-235	6467.	185.71	6.2130E-01
NP-239	5018.	106.12	1.3711E+00
PU-239	4866.	129.30	4.3401E+03
AM-241	4231.	59.54	2.9798E+00
AM-243	4361.	74.67	8.3277E-01

LABCORE Data Entry Template for Worklist# 8880

Analyst: KNT **Instrument:** GEA00 3 **Book#** 12656

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106. RUSH! Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T001678	0	F	@GEA-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001678	0	F	@GEA-01	SOLID		
5	SAMPLE	S96T001689	0	F	@GEA-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T001689	0	F	@GEA-01	SOLID		

Final page for worklist # 8880

Kim Thomas 5-18-96
Analyst Signature **Date**

[illegible] 5/20/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WHC-SD-WM-DP-183, REV. 0

LABCORE Completed RadChem Report for Worklist#: 8880

Analyst: knt **Instrument:** GEA03 **Book#** 12B56

Method: LA-548-124 Rev/Mod E-0

Worklist Comment: C-106. RUSH! Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	2.537e-02	2.53e-02	99.724	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1	1.21	1.210	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.705e-02	2.73e-02	100.924	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1	1.43	1.430	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1	<2.20e-2		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1	<5.54e-1		uCi/g
3	SAMPLE	S96T001678	0	F	@GEA-01	CO60-02	SOLID	N/A	2.936e+00	0.0e+000	uCi/g
3	SAMPLE	S96T001678	0	F	@GEA-01	CO60-02E	SOLID	N/A	23.9	0.0e+000	% Ct. Error
3	SAMPLE	S96T001678	0	F	@GEA-01	CS13702	SOLID	N/A	9.352e+03	0.0e+000	uCi/g
3	SAMPLE	S96T001678	0	F	@GEA-01	CS13702E	SOLID	N/A	0.340	0.0e+000	% Ct. Error
4	DUP	S96T001678	0	F	@GEA-01	CO60-02	SOLID	2.94e+00	3.20e+00	8.469	RPD
4	DUP	S96T001678	0	F	@GEA-01	CO60-02E	SOLID	1	20.0	20.000	% Ct Error
4	DUP	S96T001678	0	F	@GEA-01	CS13702	SOLID	9.35e+03	8.37e+03	11.061	RPD
4	DUP	S96T001678	0	F	@GEA-01	CS13702E	SOLID	1.00	0.350	0.350	% Ct Error
5	SAMPLE	S96T001689	0	F	@GEA-01	CO60-02	SOLID	N/A <	3.034e-01	303.0e-003	uCi/g
5	SAMPLE	S96T001689	0	F	@GEA-01	CO60-02E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T001689	0	F	@GEA-01	CS13702	SOLID	N/A	4.827e+02	0.0e+000	uCi/g
5	SAMPLE	S96T001689	0	F	@GEA-01	CS13702E	SOLID	N/A	0.990	0.0e+000	% Ct. Error
6	DUP	S96T001689	0	F	@GEA-01	CO60-02	SOLID	<3.03e-1	<4.13e-1		RPD
6	DUP	S96T001689	0	F	@GEA-01	CO60-02E	SOLID	1	n/a		% Ct Error
6	DUP	S96T001689	0	F	@GEA-01	CS13702	SOLID	4.83e+02	5.09e+02	5.242	RPD
6	DUP	S96T001689	0	F	@GEA-01	CS13702E	SOLID	1.00	0.960	0.960	% Ct Error

Comments Section:

Comments for sample# S96T001678 **and test** @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T001689 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 8880

Analyst Signature **Date** **Analyst Signature** **Date**

Bachelor 5/22/96
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 05:42:35.87                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8880
Sample ID:               WL8880-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3460.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.67 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 04:51:45.72
Decayed to:              19-MAY-1996 04:51:45.72
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Raymond

Verified by: RAJones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.72*	24115	1.59	1323.61	1315	16	1.4		CS-137	27.3
0	1173.40	16314	1.89	2347.07	2339	17	1.7		CO-60	25.7
0	1332.68	14235	2.02	2665.74	2657	18	1.7		CO-60	24.9

Sample ID : WL8880-STD
Acquisition date : 19-MAY-1996 04:51:45

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.531E+01	2.531E+01	0.031E+01	1.21	
CS-137	30.00Y	1.000	2.726E+01	2.726E+01	0.039E+01	1.43	
		Total Activity :	5.256E+01	5.257E+01			
		Grand Total Activity :	5.256E+01	5.257E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL8880-STD
Acquisition date : 19-MAY-1996 04:51:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1249.	477.59	1.1643E+00
NA-22	92.	1274.53	7.5150E-02
NA-24	25.	1368.55	4.2724E-02
K-40	142.	1460.75	9.7437E-01
CR-51	1245.	320.08	8.7463E-01
MN-54	750.	834.83	1.4971E-01
CO-56	757.	846.76	1.5233E-01
CO-57	1315.	122.06	6.2749E-02
CO-58	698.	810.78	1.4165E-01
FE-59	763.	1099.25	3.3868E-01
SE-75	1422.	264.66	1.4008E-01
SR-85	932.	514.01	1.1499E-01
Y-88	12.	1836.06	3.6276E-02
NB-94	819.	871.09	1.6236E-01
ZRNB-95	573.	724.18	2.6515E-01
RU-103	950.	497.08	1.1922E-01
RURH-106	692.	621.93	2.2539E+00
AG-108m	568.	722.94	1.2686E-01
CD-109	1162.	88.03	1.9531E+00
AG-110M	894.	657.76	1.4085E-01
SN-113	1234.	391.69	1.5968E-01
TE-123m	1356.	159.00	6.5561E-02
SB-124	651.	602.73	1.0795E-01
SB-125	1296.	427.89	3.8202E-01
TE-125m	1284.	109.27	2.0190E+01
I-131	1153.	364.48	1.1542E-01
CS-134	624.	604.70	1.0621E-01
BA-140	751.	537.31	4.2170E-01
LA-140	24.	1596.21	4.8674E-02
CEPR-144	1421.	133.51	9.8661E-01
EU-152	18.	1408.01	1.7093E-01
EU-154	92.	1274.51	2.1814E-01
EU-155	1182.	105.31	2.5869E-01
HG-203	1394.	279.20	1.0341E-01
TL-208	1316.	277.36	1.2908E+00
BI-212	615.	727.18	1.8115E+00
PB-212	1679.	238.63	1.8930E-01
BI-214	673.	609.31	2.4186E-01
PB-214	1166.	351.92	4.5717E-01
RA-224	1561.	240.99	2.0266E+00
RA-226	1570.	186.10	1.8552E+00
AC-228	940.	911.21	6.7913E-01
TH-228	1191.	84.37	6.0910E+00
TH-229	1183.	88.47	2.8570E-01
PA-233	1230.	312.17	2.2270E-01
UTH-233	1554.	245.34	7.5780E+01
PA-234M	768.	1001.03	3.0020E-01
TH-234	1090.	63.29	3.9255E+00
U-235	1559.	185.71	1.1236E-01
NP-237	1158.	86.48	5.8569E-01
NP-239	1186.	106.12	2.4623E-01

Sample ID : WL8880-STD Acquisition date : 19-MAY-1996 04:51:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1353.	129.30	8.3785E+02
AM-241	1019.	59.54	6.6956E-01
AM-243	1125.	74.67	1.6535E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   20-MAY-1996 09:48:45.14                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8880
Sample ID:               WL8880-BLNK
Sample Size:             1.00000E-03 L
Dilution Factor:         4.20000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             NI3AC:1.cnf 3g3461
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.44 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 06:32:53.31
Decayed to:              19-MAY-1996 06:32:53.31
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by:

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.77*	21	1.69	1323.72	1319	14	139.7		CS-137	1.02

Total number of lines in spectrum 1
Number of unidentified lines 0
Number of lines tentatively identified by NID 1 100.00%

WHC-SD-WM-DP-183, REV. 0

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~1.018E+00~~	~~1.018E+00~~	~~1.421E+00~~	~~139.68~~	
			---	---			
Total Activity :			1.018E+00	1.018E+00			

BL 7/23/96

Grand Total Activity : 1.018E+00 1.018E+00

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL8880-BLNK
Acquisition date : 19-MAY-1996 06:32:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/
BE-7	36.	477.59	8.3266E+00
NA-22	6.	1274.53	7.9402E-01
NA-24	6.	1368.55	8.5783E-01
K-40	136.	1460.75	4.0132E+01
CR-51	40.	320.08	6.5819E+00
MN-54	16.	834.83	9.0989E-01
CO-56	18.	846.76	9.8889E-01
CO-57	74.	122.06	6.2352E-01
CO-58	16.	810.78	9.0482E-01
FE-59	12.	1099.25	1.8145E+00
CO-60	6.	1332.50	8.5087E-01
SE-75	76.	264.66	1.3576E+00
SR-85	50.	514.01	1.1176E+00
Y-88	4.	1836.06	8.8133E-01
NB-94	10.	871.09	7.5973E-01
ZRNB-95	11.	724.18	1.5283E+00
RU-103	26.	497.08	8.3256E-01
RURH-106	21.	621.93	1.6659E+01
AG-108m	10.	722.94	7.1647E-01
CD-109	61.	88.03	1.8828E+01
AG-110M	24.	657.76	9.7311E-01
SN-113	41.	391.69	1.2154E+00
TE-123m	63.	159.00	5.9570E-01
SB-124	25.	602.73	8.8831E-01
SB-125	42.	427.89	2.8830E+00
TE-125m	84.	109.27	2.1654E+02
I-131	44.	364.48	9.5008E-01
CS-134	24.	604.70	8.7870E-01
BA-140	26.	537.31	3.2982E+00
LA-140	4.	1596.21	7.8252E-01
CEPR-144	81.	133.51	9.8683E+00
EU-152	7.	1408.01	4.4918E+00
EU-154	6.	1274.51	2.3148E+00
EU-155	69.	105.31	2.6168E+00
HG-203	58.	279.20	8.8423E-01
TL-208	64.	277.36	1.1930E+01
BI-212	21.	727.18	1.4159E+01
PB-212	99.	238.63	1.9291E+00
BI-214	42.	609.31	2.5413E+00
PB-214	80.	351.92	5.0081E+00
RA-224	75.	240.99	1.8708E+01
RA-226	79.	186.10	1.7454E+01
AC-228	35.	911.21	5.5140E+00
TH-228	85.	84.37	6.8215E+01
TH-229	61.	88.47	2.7153E+00
PA-233	40.	312.17	1.6908E+00
UTH-233	73.	245.34	6.9054E+02
PA-234M	17.	1001.03	1.8884E+00
TH-234	60.	63.29	3.8830E+01
U-235	78.	185.71	1.0545E+00
NP-237	67.	86.48	5.8960E+00

Sample ID : WL8880-BLNK Acquisition date : 19-MAY-1996 06:32:53

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	78.	106.12	2.6475E+00
PU-239	66.	129.30	7.7771E+03
AM-241	55.	59.54	6.5607E+00
AM-243	57.	74.67	1.5621E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 08:47:29.19                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8880
Sample ID:               S96T1678-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.20000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3462.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:45.83 sec
Dead Time:               1.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 07:56:03.30
Decayed to:              19-MAY-1996 07:56:03.30
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: [signature]

Verified by: [signature]

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	86.29	651	1.34	173.09	171	6	45.5		~~NP-237~~	101.
									EU-155	38.2
0	105.17	466	0.97	210.85	209	6	63.7		EU-155	31.7
0	122.91	1452	1.05	246.30	243	7	23.9		~~CO-57~~	22.7
									EU-154	48.1
0	661.70*	362970	1.58	1323.57	1315	17	0.3		CS-137	1.723E+04
0	723.54	234	1.63	1447.26	1444	10	24.2		EU-154	51.0
0	757.34	79	1.24	1514.84	1510	11	63.3			
0	873.41	172	2.36	1747.00	1742	11	22.2		EU-154	73.1
0	996.12	134	1.68	1992.43	1985	15	34.7		EU-154	74.6
0	1005.10	174	1.35	2010.41	2002	16	28.5		EU-154	56.3
0	1173.40	79	2.67	2347.07	2339	18	45.5		CO-60	5.22
0	1274.76	257	1.82	2549.86	2540	20	17.9		EU-154	53.0
0	1332.80	75	1.50	2665.98	2660	15	28.2		CO-60	5.48
0	1764.95*	5	1.49	3530.75	3525	12	157.1			

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum 13
Number of unidentified lines 1
Number of lines tentatively identified by NID 12 92.31%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.270E+01~~	~~2.270E+01~~	~~0.544E+01~~	~~23.95~~	Eu-154
CO-60	5.27Y	1.000	5.399E+00	5.399E+00	1.293E+00	23.95	
CS-137	30.00Y	1.000	1.723E+04	1.723E+04	0.006E+04	0.34	
EU-154	8.59Y	1.000	5.699E+01	5.699E+01	0.609E+01	10.69	
~~EU-155~~	~~4.68Y~~	~~1.000~~	~~3.166E+01~~	~~3.166E+01~~	~~2.017E+01~~	~~63.70~~	>50%
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.012E+02~~	~~1.012E+02~~	~~0.461E+02~~	~~45.51~~	Eu-155
			---	---			
Total Activity :			1.745E+04	1.745E+04			

7/27/96

Grand Total Activity : 1.745E+04 1.745E+04

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : S96T1678-SAM Acquisition date : 19-MAY-1996 07:56:03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	10765.	477.59	1.4356E+02
NA-22	284.	1274.53	5.5531E+00
NA-24	6.	1368.55	9.0374E-01
K-40	126.	1460.75	3.8646E+01
CR-51	8866.	320.08	9.8047E+01
MN-54	109.	834.83	2.3993E+00
CO-56	116.	846.76	2.5036E+00
CO-58	128.	810.78	2.5436E+00
FE-59	52.	1099.25	3.7253E+00
SE-75	9538.	264.66	1.5235E+01
SR-85	5425.	514.01	1.1652E+01
Y-88	2.	1836.06	6.2319E-01
NB-94	168.	871.09	3.0886E+00
ZRNB-95	387.	724.18	9.1502E+00
RU-103	6851.	497.08	1.3448E+01
RURH-106	1963.	621.93	1.5944E+02
AG-108m	392.	722.94	4.4270E+00
CD-109	9069.	88.03	2.2921E+02
AG-110M	6723.	657.76	1.6222E+01
SN-113	9578.	391.69	1.8687E+01
TE-123m	9653.	159.00	7.3470E+00
SB-124	2168.	602.73	8.2773E+00
SB-125	11200.	427.89	4.7175E+01
TE-125m	9319.	109.27	2.2846E+03
I-131	8862.	364.48	1.3440E+01
CS-134	2173.	604.70	8.3253E+00
BA-140	3835.	537.31	4.0038E+01
LA-140	18.	1596.21	1.7649E+00
CEPR-144	9790.	133.51	1.0878E+02
EU-152	13.	1408.01	6.1590E+00
HG-203	9167.	279.20	1.1138E+01
TL-208	9183.	277.36	1.4320E+02
BI-212	176.	727.18	4.0743E+01
PB-212	10678.	238.63	2.0048E+01
BI-214	2058.	609.31	1.7765E+01
PB-214	8739.	351.92	5.2887E+01
RA-224	10815.	240.99	2.2402E+02
RA-226	12777.	186.10	2.2229E+02
AC-228	97.	911.21	9.1819E+00
TH-228	8927.	84.37	7.0037E+02
TH-229	8920.	88.47	3.2946E+01
PA-233	8718.	312.17	2.4906E+01
UTH-233	10580.	245.34	8.3052E+03
PA-234M	73.	1001.03	3.8850E+00
TH-234	7910.	63.29	4.4404E+02
U-235	12628.	185.71	1.3431E+01
NP-239	9563.	106.12	2.9366E+01
PU-239	9750.	129.30	9.4469E+04
AM-241	7900.	59.54	7.8307E+01
AM-243	8442.	74.67	1.9027E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 10:13:04.79                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8880
Sample ID:               S96T1678-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.20000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3463.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:43.85 sec
Dead Time:               1.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 09:21:40.65
Decayed to:              19-MAY-1996 09:21:40.65
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: URaymond

Verified by: RAJones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	86.30	669	1.25	173.13	170	7	49.2		~~NP-237~~	104.
									EU-155	39.2
0	105.22	844	1.78	210.94	208	7	38.5		EU-155	57.4
0	122.79	1384	1.25	246.06	242	8	27.4		~~CO-57~~	21.6
									EU-154	45.9
0	661.71*	346160	1.57	1323.59	1315	17	0.3		CS-137	1.643E+04
0	723.13	224	1.71	1446.44	1440	14	28.9		EU-154	48.8
0	757.18	59	1.46	1514.52	1510	10	74.7			
0	872.95	119	1.38	1746.07	1742	12	37.4		EU-154	50.5
2	996.45	106	2.11	1993.09	1985	31	35.1	9.88E-01	EU-154	58.7
2	1004.90	180	2.14	2010.00	1985	31	21.0		EU-154	58.4
0	1173.55	99	1.27	2347.38	2340	14	33.2		CO-60	6.59
0	1274.63	257	2.05	2549.59	2544	16	15.5		EU-154	52.9
0	1332.60	83	1.99	2665.57	2658	18	25.1		CO-60	6.09

Sample ID : S96T1678-DUP
Acquisition date : 19-MAY-1996 09:21:40

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum 12
Number of unidentified lines 1
Number of lines tentatively identified by NID 11 91.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.164E+01~~	~~2.164E+01~~	~~0.593E+01~~	~~27.38~~	Eu-154
CO-60	5.27Y	1.000	6.257E+00	6.257E+00	1.254E+00	20.04	
CS-137	30.00Y	1.000	1.643E+04	1.643E+04	0.006E+04	0.35	
EU-154	8.59Y	1.000	5.361E+01	5.361E+01	0.562E+01	10.49	
EU-155	4.68Y	1.000	5.738E+01	5.738E+01	2.210E+01	38.52	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.040E+02~~	~~1.040E+02~~	~~0.511E+02~~	~~49.17~~	Eu-155
			---	---			
Total Activity :			1.668E+04	1.668E+04			

7/23/96

Grand Total Activity : 1.668E+04 1.668E+04

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T1678-DUP
Acquisition date : 19-MAY-1996 09:21:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	10511.	477.59	1.4186E+02
NA-22	277.	1274.53	5.4905E+00
NA-24	15.	1368.55	1.3822E+00
K-40	120.	1460.75	3.7704E+01
CR-51	8238.	320.08	9.4511E+01
MN-54	113.	834.83	2.4398E+00
CO-56	119.	846.76	2.5339E+00
CO-58	108.	810.78	2.3347E+00
FE-59	43.	1099.25	3.3668E+00
SE-75	9217.	264.66	1.4976E+01
SR-85	5196.	514.01	1.1403E+01
Y-88	4.	1836.06	8.8133E-01
NB-94	166.	871.09	3.0743E+00
ZRNB-95	338.	724.18	8.5535E+00
RU-103	6529.	497.08	1.3128E+01
RURH-106	1893.	621.93	1.5658E+02
AG-108m	352.	722.94	4.1924E+00
CD-109	8577.	88.03	2.2290E+02
AG-110M	6280.	657.76	1.5678E+01
SN-113	9107.	391.69	1.8222E+01
TE-123m	9294.	159.00	7.2091E+00
SB-124	2091.	602.73	8.1281E+00
SB-125	10855.	427.89	4.6443E+01
TE-125m	8621.	109.27	2.1974E+03
I-131	8539.	364.48	1.3193E+01
CS-134	2068.	604.70	8.1212E+00
BA-140	3732.	537.31	3.9493E+01
LA-140	14.	1596.21	1.5266E+00
CEPR-144	9204.	133.51	1.0547E+02
EU-152	13.	1408.01	6.0593E+00
HG-203	8784.	279.20	1.0903E+01
TL-208	8754.	277.36	1.3982E+02
BI-212	141.	727.18	3.6385E+01
PB-212	10320.	238.63	1.9709E+01
BI-214	2007.	609.31	1.7541E+01
PB-214	8247.	351.92	5.1360E+01
RA-224	10302.	240.99	2.1864E+02
RA-226	12379.	186.10	2.1880E+02
AC-228	89.	911.21	8.7773E+00
TH-228	8547.	84.37	6.8528E+02
TH-229	8405.	88.47	3.1981E+01
PA-233	8287.	312.17	2.4282E+01
UTH-233	10030.	245.34	8.0866E+03
PA-234M	74.	1001.03	3.9201E+00
TH-234	7548.	63.29	4.3376E+02
U-235	12285.	185.71	1.3248E+01
NP-239	9132.	106.12	2.8697E+01
PU-239	9354.	129.30	9.2534E+04
AM-241	7650.	59.54	7.7060E+01
AM-243	8045.	74.67	1.8574E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 11:06:33.09                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8880
Sample ID:               S96T1689-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3464.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:05.69 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 10:15:48.79
Decayed to:              19-MAY-1996 10:15:48.79
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: URaymond

Verified by: RHJones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.90	229	0.95	246.28	242	9	64.8		CO-57	0.854
									EU-154	1.81
0	661.72*	42421	1.57	1323.62	1315	17	1.0		CS-137	479.
0	723.28	53	1.53	1446.72	1440	16	49.5		EU-154	2.77
0	875.03	53	4.21	1750.23	1739	24	44.2			
0	910.68*	14	2.75	1821.53	1816	12	119.0			
0	1004.79	35	0.89	2009.78	2005	9	48.6		EU-154	2.68
0	1274.88	37	1.45	2550.10	2545	13	43.9		EU-154	1.79

Sample ID : S96T1689-SAM
Acquisition date : 19-MAY-1996 10:15:48

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	7	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	6	85.71%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~8.540E-01~~	~~8.540E-01~~	~~5.538E-01~~	~~64.84~~	Eu-154
CS-137	30.00Y	1.000	4.795E+02	4.795E+02	0.048E+02	0.99	
EU-154	8.59Y	1.000	2.171E+00	2.171E+00	0.604E+00	27.81	7/23/96
		Total Activity :	4.825E+02	4.825E+02			
		Grand Total Activity :	4.825E+02	4.825E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T1689-SAM
Acquisition date : 19-MAY-1996 10:15:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1362.	477.59	1.2159E+01
NA-22	42.	1274.53	5.0852E-01
NA-24	13.	1368.55	3.0317E-01
K-40	144.	1460.75	9.8326E+00
CR-51	1087.	320.08	8.1752E+00
MN-54	19.	834.83	2.3692E-01
CO-56	19.	846.76	2.4187E-01
CO-58	25.	810.78	2.6834E-01
FE-59	23.	1099.25	5.8390E-01
CO-60	14.	1332.50	3.0111E-01
SE-75	1192.	264.66	1.2825E+00
SR-85	650.	514.01	9.6009E-01
Y-88	2.	1836.06	1.4838E-01
NB-94	31.	871.09	3.1597E-01
ZRNB-95	64.	724.18	8.8725E-01
RU-103	831.	497.08	1.1154E+00
RURH-106	294.	621.93	1.4687E+01
AG-108m	63.	722.94	4.2272E-01
CD-109	1186.	88.03	1.9733E+01
AG-110M	709.	657.76	1.2539E+00
SN-113	1138.	391.69	1.5337E+00
TE-123m	1170.	159.00	6.0899E-01
SB-124	216.	602.73	6.2198E-01
SB-125	1352.	427.89	3.9020E+00
TE-125m	1160.	109.27	1.9191E+02
I-131	1113.	364.48	1.1339E+00
CS-134	225.	604.70	6.3810E-01
BA-140	483.	537.31	3.3838E+00
LA-140	7.	1596.21	2.5284E-01
CEPR-144	1294.	133.51	9.4163E+00
EU-152	4.	1408.01	8.1343E-01
EU-155	1197.	105.31	2.6034E+00
HG-203	1137.	279.20	9.3382E-01
TL-208	1176.	277.36	1.2199E+01
BI-212	24.	727.18	3.5819E+00
PB-212	1337.	238.63	1.6892E+00
BI-214	237.	609.31	1.4356E+00
PB-214	1101.	351.92	4.4396E+00
RA-224	1285.	240.99	1.8388E+01
RA-226	1524.	186.10	1.8281E+01
AC-228	33.	911.21	1.2806E+00
TH-228	1095.	84.37	5.8405E+01
TH-229	1144.	88.47	2.8096E+00
PA-233	1058.	312.17	2.0657E+00
UTH-233	1368.	245.34	7.1107E+02
PA-234M	26.	1001.03	5.5522E-01
TH-234	982.	63.29	3.7256E+01
U-235	1487.	185.71	1.0975E+00
NP-237	1250.	86.48	6.0846E+00
NP-239	1175.	106.12	2.4506E+00
PU-239	1265.	129.30	8.1026E+03

Sample ID : S96T1689-SAM Acquisition date : 19-MAY-1996 10:15:48

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	960.	59.54	6.4984E+00
AM-243	1007.	74.67	1.5649E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 12:11:33.24                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8880
Sample ID:               S96T1689-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3465.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:05.98 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 11:20:47.95
Decayed to:              19-MAY-1996 11:20:47.95
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: CRaymond

Verified by: RAJones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.27	212	1.28	247.03	244	7	59.4		CO-57	0.790
0	661.72*	44973	1.58	1323.62	1315	18	1.0		CS-137	508.
0	1005.06	25	1.54	2010.32	2002	14	60.9			
0	1274.30	34	0.81	2548.93	2542	16	51.1			
0	1332.97	26	1.96	2666.31	2661	13	39.2			

Summary of Nuclide Activity
Sample ID : S96T1689-DUP

Acquisition date : 19-MAY-1996 11:20:47

WHC-SD-WM-DP-183, REV. C

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~7.901E-01~~	~~7.901E-01~~	~~4.690E-01~~	~~59.36~~	>50%
CS-137	30.00Y	1.000	5.083E+02	5.083E+02	0.049E+02	0.96	
		Total Activity :	5.091E+02	5.091E+02			
		Grand Total Activity :	5.091E+02	5.091E+02			

LAD 7/30/96

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Sample ID : S96T1689-DUP
Acquisition date : 19-MAY-1996 11:20:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1355.	477.59	1.2127E+01
NA-22	37.	1274.53	4.7855E-01
NA-24	5.	1368.55	1.8248E-01
K-40	121.	1460.75	9.0017E+00
CR-51	1095.	320.08	8.2046E+00
MN-54	25.	834.83	2.7338E-01
CO-56	15.	846.76	2.1281E-01
CO-58	12.	810.78	1.8467E-01
FE-59	6.	1099.25	3.0636E-01
CO-60	26.	1332.50	4.1218E-01
SE-75	1275.	264.66	1.3263E+00
SR-85	684.	514.01	9.8498E-01
Y-88	1.	1836.06	1.0492E-01
NB-94	27.	871.09	2.9336E-01
ZRNB-95	38.	724.18	6.7979E-01
RU-103	821.	497.08	1.1086E+00
RURH-106	267.	621.93	1.4002E+01
AG-108m	42.	722.94	3.4601E-01
CD-109	1216.	88.03	1.9986E+01
AG-110M	805.	657.76	1.3362E+00
SN-113	1230.	391.69	1.5943E+00
TE-123m	1247.	159.00	6.2865E-01
SB-124	265.	602.73	6.8952E-01
SB-125	1400.	427.89	3.9712E+00
TE-125m	1165.	109.27	1.9230E+02
I-131	1167.	364.48	1.1610E+00
CS-134	254.	604.70	6.7778E-01
BA-140	468.	537.31	3.3295E+00
LA-140	5.	1596.21	2.1083E-01
CEPR-144	1265.	133.51	9.3089E+00
EU-152	7.	1408.01	1.0499E+00
EU-154	37.	1274.51	1.3888E+00
EU-155	1239.	105.31	2.6489E+00
HG-203	1164.	279.20	9.4494E-01
TL-208	1199.	277.36	1.2319E+01
BI-212	23.	727.18	3.4647E+00
PB-212	1370.	238.63	1.7097E+00
BI-214	291.	609.31	1.5894E+00
PB-214	1137.	351.92	4.5118E+00
RA-224	1345.	240.99	1.8811E+01
RA-226	1639.	186.10	1.8958E+01
AC-228	31.	911.21	1.2369E+00
TH-228	1157.	84.37	6.0029E+01
TH-229	1189.	88.47	2.8641E+00
PA-233	1109.	312.17	2.1146E+00
UTH-233	1449.	245.34	7.3169E+02
PA-234M	15.	1001.03	4.1357E-01
TH-234	1051.	63.29	3.8530E+01
U-235	1600.	185.71	1.1385E+00
NP-237	1249.	86.48	6.0830E+00
NP-239	1235.	106.12	2.5122E+00

Sample ID : S96T1689-DUP Acquisition date : 19-MAY-1996 11:20:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1239.	129.30	8.0190E+03
AM-241	1048.	59.54	6.7902E+00
AM-243	1084.	74.67	1.6236E+00

LABCORE Data Entry Template for Worklist# 8882

Analyst: KNT **Instrument:** GEA00 2 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106. RUSH! Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T002718	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested:	CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S96T002718	0	F	@GEA-01	SOLID		

Final page for worklist # 8882

Kim Thomas 5-18-96
Analyst Signature **Date**

5/20/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8882

Analyst: knt **Instrument:** GEA02 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106. RUSH! Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	2.537e-02		2.51e-02	98.936	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1		1.40	1.400	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.705e-02		2.65e-02	97.967	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		1.66	1.660	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1		<3.01e-1		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<4.49e-1		uCi/g
3	SAMPLE	S96T002718	0	F	@GEA-01	CO60-02	SOLID	N/A	<	5.331e-01	533.0e-003	uCi/g
3	SAMPLE	S96T002718	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002718	0	F	@GEA-01	CS13702	SOLID	N/A		5.796e+02	0.0e+000	uCi/g
3	SAMPLE	S96T002718	0	F	@GEA-01	CS13702E	SOLID	N/A		1.10	0.0e+000	% Ct. Error
4	DUP	S96T002718	0	F	@GEA-01	CO60-02	SOLID	<5.33e-1		<4.23e-1		RPD
4	DUP	S96T002718	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002718	0	F	@GEA-01	CS13702	SOLID	5.80e+02		6.33e+02	8.739	RPD
4	DUP	S96T002718	0	F	@GEA-01	CS13702E	SOLID	1.00		1.07	1.070	% Ct Error

Comments Section:

Comments for sample# S96T002718 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 8882

Analyst Signature **Date** **Analyst Signature** **Date**

BMachelor 5/22/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

****
* 222-S Laboratory Counting Room 19-MAY-1996 05:41:05.50 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<WHC-SD-WM-DP-183, REV. 0

Worklist #: 8882
Sample ID: WL8882-STD
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by:

>>>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID:
File Number: dka300:[spec.GEA2]2g2756.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:08.57 sec
Dead Time: 0.3%

Verified by:

>>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time: 19-MAY-1996 04:50:15.39
Decayed to: 19-MAY-1996 04:50:15.39
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: ALJ
Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.78*	19122	1.53	1323.58	1315	18	1.7		CS-137	26.5
0	1173.40	12842	1.86	2346.86	2337	19	2.0		CO-60	25.2
0	1332.67	11462	1.93	2665.49	2655	20	1.9		CO-60	24.9

Sample ID : WL8882-STD
Acquisition date : 19-MAY-1996 04:50:15

Total number of lines in spectrum 3
Number of unidentified lines 0
Number of lines tentatively identified by NID 3 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.508E+01	2.508E+01	0.035E+01	1.40	
CS-137	30.00Y	1.000	2.654E+01	2.654E+01	0.044E+01	1.66	
		Total Activity :	5.162E+01	5.162E+01			
		Grand Total Activity :	5.162E+01	5.162E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL8882-STD Acquisition date : 19-MAY-1996 04:50:15

Nuclide	Bckgnd Sum	Energy (keV)	(uCi/L)
BE-7	973.	477.59	1.2654E+00
NA-22	65.	1274.53	7.8596E-02
NA-24	28.	1368.55	5.5396E-02
K-40	115.	1460.75	1.0935E+00
CR-51	1051.	320.08	9.8085E-01
MN-54	636.	834.83	1.6893E-01
CO-56	611.	846.76	1.6771E-01
CO-57	1228.	122.06	7.8346E-02
CO-58	597.	810.78	1.6054E-01
FE-59	616.	1099.25	3.7762E-01
SE-75	1285.	264.66	1.6377E-01
SR-85	783.	514.01	1.3033E-01
Y-88	10.	1836.06	4.1667E-02
NB-94	666.	871.09	1.7930E-01
ZRNB-95	545.	724.18	3.1707E-01
RU-103	820.	497.08	1.3682E-01
RURH-106	603.	621.93	2.5870E+00
AG-108m	543.	722.94	1.5212E-01
CD-109	1093.	88.03	2.5387E+00
AG-110M	903.	657.76	1.7381E-01
SN-113	1063.	391.69	1.7943E-01
TE-123m	1256.	159.00	7.9290E-02
SB-124	593.	602.73	1.2684E-01
SB-125	1117.	427.89	4.3153E-01
TE-125m	1167.	109.27	2.5318E+01
I-131	1007.	364.48	1.3084E-01
CS-134	585.	604.70	1.2654E-01
BA-140	659.	537.31	4.8897E-01
LA-140	20.	1596.21	5.4762E-02
CEPR-144	1289.	133.51	1.1996E+00
EU-152	21.	1408.01	2.3282E-01
EU-154	65.	1274.51	2.2799E-01
EU-155	1163.	105.31	3.3947E-01
HG-203	1222.	279.20	1.1881E-01
TL-208	1252.	277.36	1.5455E+00
BI-212	515.	727.18	2.0320E+00
PB-212	1433.	238.63	2.1598E-01
BI-214	635.	609.31	2.8913E-01
PB-214	1071.	351.92	5.3208E-01
RA-224	1429.	240.99	2.3941E+00
RA-226	1376.	186.10	2.1636E+00
AC-228	787.	911.21	7.6099E-01
TH-228	1088.	84.37	7.7763E+00
TH-229	1112.	88.47	3.7108E-01
PA-233	1151.	312.17	2.6329E-01
UTH-233	1354.	245.34	8.7281E+01
PA-234M	672.	1001.03	3.4616E-01
TH-234	985.	63.29	4.3096E+00
U-235	1338.	185.71	1.2971E-01
NP-237	1059.	86.48	7.4965E-01
NP-239	1164.	106.12	3.2229E-01

Sample ID : WL8882-STD Acquisition date : 19-MAY-1996 04:50:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1267.	129.30	1.0393E+03
AM-241	1049.	59.54	7.0814E-01
AM-243	1056.	74.67	2.0821E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 07:21:24.18                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8882
Sample ID:               WL8882-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2757.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.48 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 06:30:41.34
Decayed to:              19-MAY-1996 06:30:41.34
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: VRaymond

Verified by: RJones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	586.86	14	1.25	1173.77	1172	5	74.3			
0	661.79*	27	1.30	1323.60	1317	14	122.1		CS-137	0.382
0	1764.90*	7	0.60	3530.44	3524	13	125.7			

Sample ID : WL8882-BLK
Acquisition date : 19-MAY-1996 06:30:41

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~3.815E-01~~	~~3.815E-01~~	~~4.659E-01~~	~~122.12~~	BL
			---	---			
Total Activity :			3.815E-01	3.815E-01			>50% 7/23/96
Grand Total Activity :			3.815E-01	3.815E-01			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL8882-BLK

Acquisition date : 19-MAY-1996 06:30:41

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	31.	477.59	2.2408E+00
NA-22	10.	1274.53	3.0800E-01
NA-24	6.	1368.55	2.4787E-01
K-40	98.	1460.75	1.0100E+01
CR-51	48.	320.08	2.0905E+00
MN-54	15.	834.83	2.5912E-01
CO-56	15.	846.76	2.6288E-01
CO-57	72.	122.06	1.8986E-01
CO-58	24.	810.78	3.2034E-01
FE-59	14.	1099.25	5.6449E-01
CO-60	6.	1332.50	2.5524E-01
SE-75	51.	264.66	3.2637E-01
SR-85	45.	514.01	3.1289E-01
Y-88	2.	1836.06	1.8630E-01
NB-94	14.	871.09	2.5831E-01
ZRNB-95	18.	724.18	5.7640E-01
RU-103	27.	497.08	2.4766E-01
RURH-106	23.	621.93	5.0990E+00
AG-108m	18.	722.94	2.7955E-01
CD-109	75.	88.03	6.6374E+00
AG-110M	21.	657.76	2.6303E-01
SN-113	44.	391.69	3.6643E-01
TE-123m	79.	159.00	1.9825E-01
SB-124	14.	602.73	1.9188E-01
SB-125	38.	427.89	7.9842E-01
TE-125m	73.	109.27	6.3335E+01
I-131	44.	364.48	2.7384E-01
CS-134	22.	604.70	2.4518E-01
BA-140	24.	537.31	9.3858E-01
LA-140	8.	1596.21	3.4892E-01
CEPR-144	57.	133.51	2.5254E+00
EU-152	4.	1408.01	1.0289E+00
EU-154	10.	1274.51	8.9664E-01
EU-155	70.	105.31	8.3264E-01
HG-203	58.	279.20	2.5869E-01
TL-208	70.	277.36	3.6476E+00
BI-212	20.	727.18	3.9598E+00
PB-212	84.	238.63	5.2377E-01
BI-214	47.	609.31	7.8563E-01
PB-214	61.	351.92	1.2730E+00
RA-224	73.	240.99	5.4277E+00
RA-226	85.	186.10	5.3722E+00
AC-228	26.	911.21	1.3834E+00
TH-228	72.	84.37	2.0029E+01
TH-229	71.	88.47	9.3612E-01
PA-233	53.	312.17	5.6579E-01
UTH-233	57.	245.34	1.7930E+02
PA-234M	10.	1001.03	4.1808E-01
TH-234	49.	63.29	9.6212E+00
U-235	88.	185.71	3.3302E-01
NP-237	82.	86.48	2.0921E+00

Sample ID : WL8882-BLK Acquisition date : 19-MAY-1996 06:30:41

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	76.	106.12	8.2091E-01
PU-239	65.	129.30	2.3619E+03
AM-241	57.	59.54	1.6572E+00
AM-243	76.	74.67	5.5845E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 08:45:16.68                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              8882
Sample ID:               S96T2718-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2758.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:05.33 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 07:54:31.31
Decayed to:              19-MAY-1996 07:54:31.31
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by:

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.25	189	1.00	246.93	243	8	71.2		~~CO-57~~	0.909
									EU-154	1.92
0	661.78*	35477	1.54	1323.58	1315	17	1.1		CS-137	492.
0	723.59	45	1.07	1447.19	1443	10	43.9		EU-154	2.87
0	874.89	16	2.91	1749.76	1738	14	130.3			
0	1004.42	23	0.68	2008.84	2003	14	110.8		EU-154	2.20
0	1274.00	49	1.11	2548.12	2541	16	42.9		EU-154	2.97

Sample ID : S96T2718-SAM
Acquisition date : 19-MAY-1996 07:54:31

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	6	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	5	83.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~9.093E-01~~	~~9.093E-01~~	~~6.476E-01~~	~~71.22~~	Eu-154
CS-137	30.00Y	1.000	4.923E+02	4.923E+02	0.054E+02	1.10	
EU-154	8.59Y	1.000	2.833E+00	2.833E+00	0.840E+00	29.66	1
			---	---			
Total Activity :			4.961E+02	4.961E+02			

LAD 7/30/96

Grand Total Activity :	4.961E+02	4.961E+02

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T2718-SAM
Acquisition date : 19-MAY-1996 07:54:31

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1186.	477.59	1.3971E+01
NA-22	56.	1274.53	7.3164E-01
NA-24	10.	1368.55	3.2533E-01
K-40	93.	1460.75	9.8391E+00
CR-51	963.	320.08	9.3907E+00
MN-54	13.	834.83	2.3860E-01
CO-56	19.	846.76	2.9552E-01
CO-58	26.	810.78	3.3414E-01
FE-59	18.	1099.25	6.4123E-01
CO-60	20.	1332.50	4.5250E-01
SE-75	1122.	264.66	1.5302E+00
SR-85	634.	514.01	1.1735E+00
Y-88	4.	1836.06	2.5047E-01
NB-94	29.	871.09	3.7244E-01
ZRNB-95	58.	724.18	1.0329E+00
RU-103	700.	497.08	1.2636E+00
RURH-106	267.	621.93	1.7227E+01
AG-108m	56.	722.94	4.8816E-01
CD-109	1212.	88.03	2.6724E+01
AG-110M	728.	657.76	1.5601E+00
SN-113	1058.	391.69	1.7898E+00
TE-123m	1203.	159.00	7.7611E-01
SB-124	265.	602.73	8.4806E-01
SB-125	1249.	427.89	4.5638E+00
TE-125m	1134.	109.27	2.4959E+02
I-131	1028.	364.48	1.3220E+00
CS-134	266.	604.70	8.5338E-01
BA-140	428.	537.31	3.9373E+00
LA-140	6.	1596.21	3.1113E-01
CEPR-144	1140.	133.51	1.1283E+01
EU-152	7.	1408.01	1.3462E+00
EU-155	1168.	105.31	3.4024E+00
HG-203	1023.	279.20	1.0870E+00
TL-208	1039.	277.36	1.4076E+01
BI-212	29.	727.18	4.8356E+00
PB-212	1254.	238.63	2.0207E+00
BI-214	284.	609.31	1.9327E+00
PB-214	1027.	351.92	5.2079E+00
RA-224	1255.	240.99	2.2434E+01
RA-226	1467.	186.10	2.2345E+01
AC-228	32.	911.21	1.5398E+00
TH-228	1104.	84.37	7.8344E+01
TH-229	1178.	88.47	3.8202E+00
PA-233	957.	312.17	2.4005E+00
UTH-233	1237.	245.34	8.3424E+02
PA-234M	24.	1001.03	6.6048E-01
TH-234	1005.	63.29	4.3540E+01
U-235	1447.	185.71	1.3486E+00
NP-237	1240.	86.48	8.1121E+00
NP-239	1187.	106.12	3.2553E+00
PU-239	1177.	129.30	1.0014E+04

Minimum Detectable Activity Report (continued)
Sample ID : S96T2718-SAM Acquisition date : 19-MAY-1996 07:54:31

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	1020.	59.54	6.9838E+00
AM-243	1086.	74.67	2.1138E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 10:11:17.92                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              8882
Sample ID:               S96T2718-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01
```

Removed by: URaymond

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2759.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:05.54 sec
Dead Time:               0.2%
```

Verified by: RHJones

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 09:20:28.47
Decayed to:              19-MAY-1996 09:20:28.47
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.44	258	1.27	247.32	244	10	62.8		CO-57	1.24
0	661.78*	37355	1.52	1323.58	1315	18	1.1		CS-137	518.
0	723.18	53	2.84	1446.36	1442	10	35.4			
0	911.92*	10	1.05	1823.82	1818	11	135.8			
0	1274.42	30	1.74	2548.96	2544	12	48.7			

Total number of lines in spectrum 5
Number of unidentified lines 0
Number of lines tentatively identified by NID 5 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.239E+00~~	~~1.239E+00~~	~~0.778E+00~~	~~62.76~~	>50% 7/23/96
CS-137	30.00Y	1.000	5.184E+02	5.184E+02	0.055E+02	1.07	
		Total Activity :	5.196E+02	5.196E+02			
		Grand Total Activity :	5.196E+02	5.196E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1209.	477.59	1.4103E+01
NA-22	36.	1274.53	5.8823E-01
NA-24	8.	1368.55	2.9798E-01
K-40	114.	1460.75	1.0874E+01
CR-51	998.	320.08	9.5581E+00
MN-54	18.	834.83	2.8771E-01
CO-56	28.	846.76	3.5908E-01
CO-58	16.	810.78	2.6092E-01
FE-59	17.	1099.25	6.2748E-01
CO-60	12.	1332.50	3.4649E-01
SE-75	1153.	264.66	1.5509E+00
SR-85	650.	514.01	1.1873E+00
Y-88	5.	1836.06	2.9300E-01
NB-94	24.	871.09	3.4112E-01
ZRNB-95	57.	724.18	1.0269E+00
RU-103	726.	497.08	1.2869E+00
RURH-106	270.	621.93	1.7319E+01
AG-108m	64.	722.94	5.2155E-01
CD-109	1225.	88.03	2.6871E+01
AG-110M	785.	657.76	1.6202E+00
SN-113	1112.	391.69	1.8347E+00
TE-123m	1274.	159.00	7.9866E-01
SB-124	298.	602.73	8.9952E-01
SB-125	1273.	427.89	4.6086E+00
TE-125m	1121.	109.27	2.4811E+02
I-131	1011.	364.48	1.3110E+00
CS-134	300.	604.70	9.0625E-01
BA-140	434.	537.31	3.9688E+00
LA-140	7.	1596.21	3.3470E-01
CEPR-144	1295.	133.51	1.2027E+01
EU-152	4.	1408.01	1.0130E+00
EU-154	36.	1274.51	1.7080E+00
EU-155	1246.	105.31	3.5139E+00
HG-203	1130.	279.20	1.1423E+00
TL-208	1088.	277.36	1.4406E+01
BI-212	23.	727.18	4.2925E+00
PB-212	1336.	238.63	2.0854E+00
BI-214	305.	609.31	2.0029E+00
PB-214	1070.	351.92	5.3163E+00
RA-224	1309.	240.99	2.2910E+01
RA-226	1513.	186.10	2.2693E+01
AC-228	30.	911.21	1.4912E+00
TH-228	1148.	84.37	7.9894E+01
TH-229	1215.	88.47	3.8802E+00
PA-233	1002.	312.17	2.4567E+00
UTH-233	1271.	245.34	8.4555E+02
PA-234M	22.	1001.03	6.2601E-01
TH-234	949.	63.29	4.2313E+01
U-235	1503.	185.71	1.3749E+00
NP-237	1243.	86.48	8.1216E+00
NP-239	1281.	106.12	3.3812E+00

Minimum Detectable Activity Report (continued) Page : 4
Sample ID : S96T2718-DUP Acquisition date : 19-MAY-1996 09:20:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1231.	129.30	1.0243E+04
AM-241	1045.	59.54	7.0685E+00
AM-243	1053.	74.67	2.0789E+00

05/21/96 10:42
A-0004-1

LABCORE Data Entry Template for Worklist# 9036

Analyst: CLJ **Instrument:** GEA00 #1 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: SUPER RUSH! Rerun. Use 0.500-10-1.00 sample size. RA **SUPER SUPER RUSH**

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T001036	0	F	@GEA-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001036	0	F	@GEA-01	SOLID		
5	SAMPLE	S96T001563	0	F	@GEA-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T001563	0	F	@GEA-01	SOLID		

Final page for worklist # 9036

C. Johnson 5/21/96
Analyst Signature **Date**

C.J. Quinn 5/22/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 9036

Analyst: crj **Instrument:** GEA01 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: SUPER RUSH! Rerun. Use 0.500-10-1.00 sample size. RAJ

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	2.535e-02		2.57e-02	101.381	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1		1.32	1.320	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.704e-02		2.79e-02	103.180	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		1.48	1.480	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1		<4.12e-1		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<4.46e-1		uCi/g
3	SAMPLE	S96T001036	0	F	@GEA-01	CO60-02	SOLID	N/A	<	5.751e-01	575.0e-003	uCi/g
3	SAMPLE	S96T001036	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001036	0	F	@GEA-01	CS13702	SOLID	N/A		8.993e+02	0.0e+000	uCi/g
3	SAMPLE	S96T001036	0	F	@GEA-01	CS13702E	SOLID	N/A		0.810	0.0e+000	% Ct. Error
4	DUP	S96T001036	0	F	@GEA-01	CO60-02	SOLID	<5.75e-1		<5.58e-1		RPD
4	DUP	S96T001036	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T001036	0	F	@GEA-01	CS13702	SOLID	8.99e+02		7.16e+02	22.663	RPD
4	DUP	S96T001036	0	F	@GEA-01	CS13702E	SOLID	1.00		0.900	0.900	% Ct Error
5	SAMPLE	S96T001563	0	F	@GEA-01	CO60-02	SOLID	N/A	<	6.243e-01	624.0e-003	uCi/g
5	SAMPLE	S96T001563	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T001563	0	F	@GEA-01	CS13702	SOLID	N/A		8.885e+02	0.0e+000	uCi/g
5	SAMPLE	S96T001563	0	F	@GEA-01	CS13702E	SOLID	N/A		0.810	0.0e+000	% Ct. Error
6	DUP	S96T001563	0	F	@GEA-01	CO60-02	SOLID	<6.24e-1		<5.83e-1		RPD
6	DUP	S96T001563	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
6	DUP	S96T001563	0	F	@GEA-01	CS13702	SOLID	8.88e+02		8.92e+02	0.449	RPD
6	DUP	S96T001563	0	F	@GEA-01	CS13702E	SOLID	1.00		0.820	0.820	% Ct Error

Comments Section:

Comments for sample# S96T001036 **and test** @GEA-01 .
R(0) DL=0 => n/a. Low std recovery and high RPD. Rerun
R(1) DL=0 => n/a. Reproducible high RPD. No rerun.

Comments for sample# S96T001563 **and test** @GEA-01 .
R(0) DL=0 => n/a. Low std recovery. Rerun
R(1) DL=0 => n/a.

Final page for worklist# 9036

Analyst Signature **Date** **Analyst Signature** **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed RadChem Report for Worklist#: 9036

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit

S J Machelor 5/22/96
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 09:47:08.28                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              9036
Sample ID:               WL9036-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: Sue E. Hogan

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             NI3AF:2.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:28.52 sec
Dead Time:               0.9%
```

Verified by: [illegible] 5/22/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-MAY-1996 16:19:50.12
Decayed to:              21-MAY-1996 16:19:50.12
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SEH
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.90	3893	1.06	64.45	60	10	6.2			
0	36.43	1051	0.91	73.50	70	8	15.2			
0	661.51*	23059	1.42	1323.64	1316	15	1.5		CS-137	27.9
0	1172.83	14910	1.76	2346.55	2337	20	1.9		CO-60	25.7
0	1332.02	13493	1.90	2665.06	2656	18	1.8		CO-60	25.7
0	1407.57	29	1.77	2816.23	2814	10	67.7			
0	1764.21*	43	1.74	3529.93	3523	15	56.0			

Sample ID : WL9036-STD
Acquisition date : 21-MAY-1996 16:19:50

Total number of lines in spectrum	7	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	5	71.43%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.570E+01	2.570E+01	0.034E+01	1.32	
CS-137	30.00Y	1.000	2.792E+01	2.792E+01	0.041E+01	1.48	
		Total Activity :	5.362E+01	5.362E+01			
		Grand Total Activity :	5.362E+01	5.362E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL9036-STD
Acquisition date : 21-MAY-1996 16:19:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1284.	477.59	1.2272E+00
NA-22	75.	1274.53	7.4236E-02
NA-24	36.	1368.55	5.5259E-02
K-40	588.	1460.75	2.1641E+00
CR-51	1302.	320.08	8.8670E-01
MN-54	821.	834.83	1.7029E-01
CO-56	784.	846.76	1.6866E-01
CO-57	1495.	122.06	5.8310E-02
CO-58	735.	810.78	1.5776E-01
FE-59	732.	1099.25	3.6267E-01
SE-75	1448.	264.66	1.3757E-01
SR-85	998.	514.01	1.2484E-01
Y-88	26.	1836.06	5.8093E-02
NB-94	920.	871.09	1.8744E-01
ZRNB-95	662.	724.18	3.0718E-01
RU-103	1045.	497.08	1.3067E-01
RURH-106	658.	621.93	2.3420E+00
AG-108m	662.	722.94	1.4753E-01
CD-109	1343.	88.03	1.1876E+00
AG-110M	1419.	657.76	1.9002E-01
SN-113	1285.	391.69	1.6563E-01
TE-123m	1486.	159.00	6.7928E-02
SB-124	737.	602.73	1.2212E-01
SB-125	1348.	427.89	4.0005E-01
TE-125m	1451.	109.27	1.6759E+01
I-131	1284.	364.48	1.2254E-01
CS-134	709.	604.70	1.2041E-01
BA-140	871.	537.31	4.7874E-01
LA-140	28.	1596.21	5.6944E-02
CEPR-144	1528.	133.51	9.5004E-01
EU-152	54.	1408.01	3.2703E-01
EU-154	75.	1274.51	2.1554E-01
EU-155	1426.	105.31	2.1226E-01
HG-203	1405.	279.20	1.0166E-01
TL-208	1419.	277.36	1.3113E+00
BI-212	681.	727.18	2.0541E+00
PB-212	1611.	238.63	1.7954E-01
BI-214	951.	609.31	3.0583E-01
PB-214	1513.	351.92	5.2323E-01
RA-224	1522.	240.99	1.9371E+00
RA-226	1754.	186.10	1.9535E+00
AC-228	1085.	911.21	7.9589E-01
TH-228	1375.	84.37	3.4006E+00
TH-229	1331.	88.47	1.7297E-01
PA-233	1300.	312.17	2.2656E-01
UTH-233	1568.	245.34	7.3717E+01
PA-234M	823.	1001.03	3.3944E-01
TH-234	1215.	63.29	8.8982E-01
U-235	1722.	185.71	1.1766E-01
NP-237	1340.	86.48	3.4416E-01
NP-239	1445.	106.12	2.0496E-01

Sample ID : WL9036-STD Acquisition date : 21-MAY-1996 16:19:50

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1494.	129.30	8.0116E+02
AM-241	1196.	59.54	1.1144E-01
AM-243	1461.	74.67	7.2989E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-MAY-1996 22:44:16.45                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9036
Sample ID:               WL9036-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1959.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:11.66 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-MAY-1996 21:53:27.75
Decayed to:              21-MAY-1996 21:53:27.75
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: [signature]

Verified by: [signature] 5/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	16.11	139	1.23	32.87	29	8	54.1			
0	351.86*	110	1.12	704.30	698	13	68.6			
0	661.32*	33	1.14	1323.27	1320	10	105.6		CS-137	0.838
0	911.20*	30	1.69	1823.14	1817	12	113.1			
0	1763.94*	14	1.97	3529.37	3520	17	115.8			

Sample ID : WL9036-BLK
Acquisition date : 21-MAY-1996 21:53:27

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	5	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	4	80.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~8.380E-01~~	~~8.380E-01~~	~~8.846E-01~~	~~105.56~~	~~BKG~~
			---	---			
Total Activity :			8.380E-01	8.380E-01			
Grand Total Activity :			8.380E-01	8.380E-01			

LAD 7/30/96

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL9036-BLK Acquisition date : 21-MAY-1996 21:53:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	126.	477.59	8.0640E+00
NA-22	37.	1274.53	1.0927E+00
NA-24	24.	1368.55	9.4041E-01
K-40	563.	1460.75	4.4473E+01
CR-51	233.	320.08	7.8759E+00
MN-54	58.	834.83	9.5237E-01
CO-56	61.	846.76	9.8657E-01
CO-57	522.	122.06	7.2314E-01
CO-58	57.	810.78	9.1847E-01
FE-59	51.	1099.25	2.0179E+00
CO-60	17.	1332.50	7.7418E-01
SE-75	292.	264.66	1.2973E+00
SR-85	135.	514.01	9.6568E-01
Y-88	10.	1836.06	7.6194E-01
NB-94	60.	871.09	1.0066E+00
ZRNB-95	72.	724.18	2.1287E+00
RU-103	129.	497.08	9.6527E-01
RURH-106	89.	621.93	1.8089E+01
AG-108m	77.	722.94	1.0581E+00
CD-109	418.	88.03	1.3919E+01
AG-110M	72.	657.76	8.9698E-01
SN-113	164.	391.69	1.2416E+00
TE-123m	472.	159.00	8.0407E-01
SB-124	97.	602.73	9.3156E-01
SB-125	140.	427.89	2.7115E+00
TE-125m	483.	109.27	2.0312E+02
I-131	168.	364.48	9.3110E-01
CS-134	88.	604.70	8.8824E-01
BA-140	95.	537.31	3.3162E+00
LA-140	14.	1596.21	8.4332E-01
CEPR-144	531.	133.51	1.1767E+01
EU-152	32.	1408.01	5.2431E+00
EU-154	37.	1274.51	3.1795E+00
EU-155	443.	105.31	2.4855E+00
HG-203	265.	279.20	9.2697E-01
TL-208	267.	277.36	1.1939E+01
BI-212	95.	727.18	1.6094E+01
PB-212	417.	238.63	1.9185E+00
BI-214	232.	609.31	3.1718E+00
PB-214	347.	351.92	5.2478E+00
RA-224	355.	240.99	1.9648E+01
RA-226	450.	186.10	2.0769E+01
AC-228	144.	911.21	6.0820E+00
TH-228	456.	84.37	4.1114E+01
TH-229	435.	88.47	2.0766E+00
PA-233	206.	312.17	1.8933E+00
UTH-233	335.	245.34	7.1568E+02
PA-234M	52.	1001.03	1.8005E+00
TH-234	426.	63.29	1.1068E+01
U-235	430.	185.71	1.2341E+00
NP-237	433.	86.48	4.1093E+00

Minimum Detectable Activity Report (continued)
Sample ID : WL9036-BLK Acquisition date : 21-MAY-1996 21:53:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	436.	106.12	2.3642E+00
PU-239	526.	129.30	9.9857E+03
AM-241	364.	59.54	1.2906E+00
AM-243	518.	74.67	9.1243E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-MAY-1996 23:53:24.63                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              9036
Sample ID:               S96T1036-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1960.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:28.85 sec
Dead Time:               1.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-MAY-1996 23:02:19.91
Decayed to:              21-MAY-1996 23:02:19.91
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

Removed by:

Verified by: 5/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.61	496	1.19	43.88	39	10	44.5			
0	31.83	11301	1.09	64.31	60	10	3.3			
0	36.36	3123	0.98	73.37	69	9	8.1			
0	42.49	257	0.90	85.63	83	7	64.5			
0	59.62	290	1.32	119.88	117	7	56.0		AM-241	4.22
0	123.17	283	1.07	246.96	244	7	58.5		CO-57	1.92
0	526.19	84	1.41	1052.98	1050	7	109.1			
0	661.52*	66402	1.42	1323.67	1316	16	0.8		CS-137	1.688E+03
0	1460.37*	36	1.76	2921.89	2915	17	151.7		K-40	14.6
0	1591.30*	13	1.24	3183.90	3180	9	95.2			

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum 10
Number of unidentified lines 6
Number of lines tentatively identified by NID 4 40.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.465E+01~~	~~1.465E+01~~	~~2.222E+01~~	~~151.68~~	BKG
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.924E+00~~	~~1.924E+00~~	~~1.125E+00~~	~~58.50~~	BKG
CS-137	30.00Y	1.000	1.688E+03	1.688E+03	0.014E+03	0.81	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~4.224E+00~~	~~4.224E+00~~	~~2.366E+00~~	~~56.02~~	BKG
			---	---			
Total Activity :			1.709E+03	1.709E+03			

1/23/96

Grand Total Activity : 1.709E+03 1.709E+03

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T1036-SAM Acquisition date : 21-MAY-1996 23:02:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2197.	477.59	3.3708E+01
NA-22	59.	1274.53	1.3819E+00
NA-24	22.	1368.55	9.0622E-01
CR-51	1891.	320.08	2.2446E+01
MN-54	71.	834.83	1.0487E+00
CO-56	54.	846.76	9.2964E-01
CO-58	64.	810.78	9.7369E-01
FE-59	43.	1099.25	1.8545E+00
CO-60	34.	1332.50	1.0807E+00
SE-75	1915.	264.66	3.3227E+00
SR-85	1146.	514.01	2.8094E+00
Y-88	9.	1836.06	7.1211E-01
NB-94	73.	871.09	1.1079E+00
ZRNB-95	104.	724.18	2.5544E+00
RU-103	1385.	497.08	3.1583E+00
RURH-106	376.	621.93	3.7187E+01
AG-108m	102.	722.94	1.2156E+00
CD-109	1939.	88.03	2.9962E+01
AG-110M	2216.	657.76	4.9865E+00
SN-113	2018.	391.69	4.3590E+00
TE-123m	2079.	159.00	1.6876E+00
SB-124	416.	602.73	1.9264E+00
SB-125	2374.	427.89	1.1148E+01
TE-125m	2043.	109.27	4.1767E+02
I-131	1928.	364.48	3.1540E+00
CS-134	450.	604.70	2.0131E+00
BA-140	850.	537.31	9.9291E+00
LA-140	10.	1596.21	7.2313E-01
CEPR-144	2037.	133.51	2.3038E+01
EU-152	22.	1408.01	4.3202E+00
EU-154	59.	1274.51	4.0135E+00
EU-155	2083.	105.31	5.3871E+00
HG-203	1944.	279.20	2.5105E+00
TL-208	1874.	277.36	3.1647E+01
BI-212	79.	727.18	1.4727E+01
PB-212	2059.	238.63	4.2619E+00
BI-214	580.	609.31	5.0171E+00
PB-214	1978.	351.92	1.2564E+01
RA-224	1946.	240.99	4.5998E+01
RA-226	2790.	186.10	5.1736E+01
AC-228	136.	911.21	5.9136E+00
TH-228	1954.	84.37	8.5149E+01
TH-229	1893.	88.47	4.3317E+00
PA-233	1802.	312.17	5.6006E+00
UTH-233	1981.	245.34	1.7403E+03
PA-234M	45.	1001.03	1.6747E+00
TH-234	1920.	63.29	2.3488E+01
U-235	2734.	185.71	3.1130E+00
NP-237	2037.	86.48	8.9122E+00
NP-239	2119.	106.12	5.2128E+00
PU-239	2079.	129.30	1.9846E+04

Sample ID : S96T1036-SAM Acquisition date : 21-MAY-1996 23:02:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-243	2034.	74.67	1.8086E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 00:48:38.69                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9036
Sample ID:               S96T1036-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1961.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:25.17 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-MAY-1996 23:57:33.46
Decayed to:              21-MAY-1996 23:57:33.46
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: URaymond

Verified by: DMacheber 5/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.76	365	1.02	44.16	41	7	40.4			
0	31.87	8790	1.06	64.39	60	9	3.6			
0	36.36	2538	0.86	73.37	69	9	9.0			
0	42.65	281	1.63	85.94	82	8	60.4			
0	122.98	316	1.03	246.59	243	8	53.2		CO-57	2.15
0	609.07*	123	1.64	1218.75	1213	12	71.0			
0	661.52*	53315	1.41	1323.66	1316	16	0.9		CS-137	1.356E+03
0	722.87	37	1.54	1446.39	1444	8	76.7			
0	1401.29	24	1.45	2803.66	2800	7	54.5			
0	1764.00*	15	2.30	3529.50	3523	18	124.9			

Summary of Nuclide Activity
Sample ID : S96T1036-DUP

Acquisition date : 21-MAY-1996 23:57:33

Total number of lines in spectrum	10	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	5	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.149E+00~~	~~2.149E+00~~	~~1.143E+00~~	~~53.16~~	~~BK~~
CS-137	30.00Y	1.000	1.356E+03	1.356E+03	0.012E+03	0.90	
			---	---			
Total Activity :			1.358E+03	1.358E+03			
Grand Total Activity :			1.358E+03	1.358E+03			

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Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1810.	477.59	3.0593E+01
NA-22	80.	1274.53	1.6080E+00
NA-24	27.	1368.55	1.0124E+00
K-40	548.	1460.75	4.3884E+01
CR-51	1540.	320.08	2.0257E+01
MN-54	65.	834.83	1.0056E+00
CO-56	58.	846.76	9.6093E-01
CO-58	64.	810.78	9.7464E-01
FE-59	56.	1099.25	2.0993E+00
CO-60	32.	1332.50	1.0609E+00
SE-75	1639.	264.66	3.0740E+00
SR-85	948.	514.01	2.5544E+00
Y-88	10.	1836.06	7.5024E-01
NB-94	56.	871.09	9.7428E-01
ZRNB-95	103.	724.18	2.5480E+00
RU-103	1129.	497.08	2.8524E+00
RURH-106	310.	621.93	3.3786E+01
AG-108m	103.	722.94	1.2244E+00
CD-109	1731.	88.03	2.8310E+01
AG-110M	1827.	657.76	4.5267E+00
SN-113	1633.	391.69	3.9208E+00
TE-123m	1679.	159.00	1.5166E+00
SB-124	357.	602.73	1.7839E+00
SB-125	1851.	427.89	9.8432E+00
TE-125m	1685.	109.27	3.7926E+02
I-131	1564.	364.48	2.8409E+00
CS-134	343.	604.70	1.7580E+00
BA-140	625.	537.31	8.5139E+00
LA-140	12.	1596.21	7.8557E-01
CEPR-144	1754.	133.51	2.1378E+01
EU-152	32.	1408.01	5.3006E+00
EU-154	80.	1274.51	4.6730E+00
EU-155	1799.	105.31	5.0070E+00
HG-203	1543.	279.20	2.2366E+00
TL-208	1543.	277.36	2.8718E+01
BI-212	82.	727.18	1.4988E+01
PB-212	1816.	238.63	4.0022E+00
BI-214	547.	609.31	4.8701E+00
PB-214	1700.	351.92	1.1640E+01
RA-224	1681.	240.99	4.2755E+01
RA-226	2298.	186.10	4.6952E+01
AC-228	137.	911.21	5.9409E+00
TH-228	1752.	84.37	8.0612E+01
TH-229	1674.	88.47	4.0734E+00
PA-233	1475.	312.17	5.0667E+00
UTH-233	1648.	245.34	1.5871E+03
PA-234M	56.	1001.03	1.8673E+00
TH-234	1584.	63.29	2.1339E+01
U-235	2275.	185.71	2.8395E+00
NP-237	1842.	86.48	8.4750E+00
NP-239	1784.	106.12	4.7831E+00

Sample ID : S96T1036-DUP Acquisition date : 21-MAY-1996 23:57:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1787.	129.30	1.8401E+04
AM-241	1699.	59.54	2.7898E+00
AM-243	1785.	74.67	1.6946E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 02:06:41.64                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              9036
Sample ID:               S96T1563-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1962.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:27.78 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-MAY-1996 01:15:33.49
Decayed to:              22-MAY-1996 01:15:33.49
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

Removed by: [signature]

Verified by: [signature] 5/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	8.90	304	1.92	18.46	17	6	38.0			
0	21.57	388	1.08	43.78	40	8	47.6			
0	31.81	11568	1.10	64.26	59	11	3.3			
0	36.36	3237	1.00	73.37	69	9	7.6			
0	59.55	212	0.83	119.73	116	8	86.8		AM-241	3.08
0	123.27	370	1.17	247.16	243	8	48.5		CO-57	2.52
0	661.51*	65161	1.42	1323.65	1316	15	0.8		CS-137	1.657E+03
0	1110.08	20	0.89	2221.01	2219	7	79.8			

Sample ID : S96T1563-SAM
Acquisition date : 22-MAY-1996 01:15:33

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	8	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	3	37.50%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.517E+00~~	~~2.517E+00~~	~~1.222E+00~~	~~48.54~~	ISVEL
CS-137	30.00Y	1.000	1.657E+03	1.657E+03	0.013E+03	0.81	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~3.079E+00~~	~~3.079E+00~~	~~2.673E+00~~	~~86.82~~	BKG
			---	---			
Total Activity :			1.662E+03	1.662E+03			

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Grand Total Activity :	1.662E+03	1.662E+03

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2107.	477.59	3.3008E+01
NA-22	76.	1274.53	1.5673E+00
NA-24	22.	1368.55	8.9964E-01
K-40	595.	1460.75	4.5717E+01
CR-51	1787.	320.08	2.1819E+01
MN-54	71.	834.83	1.0481E+00
CO-56	51.	846.76	9.0590E-01
CO-58	59.	810.78	9.3939E-01
FE-59	40.	1099.25	1.7802E+00
CO-60	39.	1332.50	1.1665E+00
SE-75	1913.	264.66	3.3211E+00
SR-85	1169.	514.01	2.8368E+00
Y-88	9.	1836.06	7.1130E-01
NB-94	63.	871.09	1.0332E+00
ZRNB-95	109.	724.18	2.6121E+00
RU-103	1376.	497.08	3.1482E+00
RURH-106	390.	621.93	3.7883E+01
AG-108m	111.	722.94	1.2684E+00
CD-109	1976.	88.03	3.0253E+01
AG-110M	2174.	657.76	4.9380E+00
SN-113	1933.	391.69	4.2664E+00
TE-123m	1906.	159.00	1.6158E+00
SB-124	448.	602.73	2.0003E+00
SB-125	2290.	427.89	1.0949E+01
TE-125m	1983.	109.27	4.1149E+02
I-131	1949.	364.48	3.1706E+00
CS-134	426.	604.70	1.9585E+00
BA-140	804.	537.31	9.6574E+00
LA-140	12.	1596.21	7.7641E-01
CEPR-144	2105.	133.51	2.3417E+01
EU-152	28.	1408.01	4.8860E+00
EU-154	76.	1274.51	4.5554E+00
EU-155	2102.	105.31	5.4121E+00
HG-203	1802.	279.20	2.4176E+00
TL-208	1816.	277.36	3.1151E+01
BI-212	90.	727.18	1.5712E+01
PB-212	2094.	238.63	4.2981E+00
BI-214	595.	609.31	5.0803E+00
PB-214	1933.	351.92	1.2416E+01
RA-224	2025.	240.99	4.6929E+01
RA-226	2677.	186.10	5.0671E+01
AC-228	149.	911.21	6.2003E+00
TH-228	2027.	84.37	8.6724E+01
TH-229	1936.	88.47	4.3808E+00
PA-233	1880.	312.17	5.7204E+00
UTH-233	1954.	245.34	1.7284E+03
PA-234M	61.	1001.03	1.9411E+00
TH-234	1858.	63.29	2.3107E+01
U-235	2675.	185.71	3.0795E+00
NP-237	2081.	86.48	9.0086E+00
NP-239	2044.	106.12	5.1197E+00

Sample ID : S96T1563-SAM Acquisition date : 22-MAY-1996 01:15:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	2129.	129.30	2.0082E+04
AM-243	2061.	74.67	1.8210E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 03:01:53.01                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              9036
Sample ID:               S96T1563-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01
```

Removed by: CRaymond

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]lg1963.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:28.29 sec
Dead Time:               0.9%
```

Verified by: DB/Bachelor 5/22/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-MAY-1996 02:10:40.93
Decayed to:              22-MAY-1996 02:10:40.93
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.57	274	1.03	43.78	41	8	68.4			
0	31.87	11150	1.09	64.38	60	10	3.3			
0	36.37	3057	0.97	73.39	70	9	8.0			
0	58.85	173	1.66	118.34	116	7	94.8		AM-241	2.52
0	87.01*	214	1.60	174.65	172	6	67.0		NP-237	9.07
									CD-109	31.2
0	123.02	274	0.98	246.66	243	8	65.9		CO-57	1.86
0	661.52*	64802	1.42	1323.67	1316	15	0.8		CS-137	1.648E+03
0	910.68*	35	1.68	1822.08	1816	11	99.4			
0	1004.93	46	1.57	2010.64	2003	17	89.6			
0	1172.80	41	1.44	2346.49	2341	11	59.9			
0	1274.36	45	1.96	2549.70	2545	10	52.3			
0	1460.34*	51	1.93	2921.84	2914	19	109.4		K-40	20.5
0	1764.16*	11	1.63	3529.81	3525	11	160.2			

Summary of Nuclide Activity
Sample ID : S96T1563-DUP

Acquisition date : 22-MAY-1996 02:10:40

Total number of lines in spectrum	13	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	10	76.92%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.048E+01~~	~~2.048E+01~~	~~2.241E+01~~	~~109.41~~	BKG
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.863E+00~~	~~1.863E+00~~	~~1.228E+00~~	~~65.91~~	BKG
~~CD-109~~	~~462.90D~~	~~1.000~~	~~3.125E+01~~	~~3.125E+01~~	~~2.094E+01~~	~~67.00~~	BKG
CS-137	30.00Y	1.000	1.648E+03	1.648E+03	0.013E+03	0.82	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~9.067E+00~~	~~9.067E+00~~	~~6.075E+00~~	~~67.00~~	BKG
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~2.524E+00~~	~~2.524E+00~~	~~2.393E+00~~	~~94.80~~	BKG
			---	---			
	Total Activity :		1.713E+03	1.713E+03			

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Grand Total Activity :	1.713E+03	1.713E+03

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T1563-DUP

Acquisition date : 22-MAY-1996 02:10:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2118.	477.59	3.3094E+01
NA-22	75.	1274.53	1.5578E+00
NA-24	17.	1368.55	8.0075E-01
CR-51	1812.	320.08	2.1972E+01
MN-54	83.	834.83	1.1387E+00
CO-56	56.	846.76	9.4876E-01
CO-58	71.	810.78	1.0326E+00
FE-59	48.	1099.25	1.9492E+00
CO-60	34.	1332.50	1.0789E+00
SE-75	1877.	264.66	3.2893E+00
SR-85	1163.	514.01	2.8299E+00
Y-88	9.	1836.06	7.2910E-01
NB-94	55.	871.09	9.6394E-01
ZRNB-95	107.	724.18	2.5897E+00
RU-103	1322.	497.08	3.0865E+00
RURH-106	371.	621.93	3.6947E+01
AG-108m	103.	722.94	1.2202E+00
AG-110M	2174.	657.76	4.9385E+00
SN-113	1991.	391.69	4.3301E+00
TE-123m	1998.	159.00	1.6542E+00
SB-124	422.	602.73	1.9407E+00
SB-125	2305.	427.89	1.0986E+01
TE-125m	1977.	109.27	4.1080E+02
I-131	1893.	364.48	3.1252E+00
CS-134	413.	604.70	1.9286E+00
BA-140	793.	537.31	9.5899E+00
LA-140	13.	1596.21	8.1731E-01
CEPR-144	1981.	133.51	2.2719E+01
EU-152	20.	1408.01	4.1735E+00
EU-154	75.	1274.51	4.5254E+00
EU-155	2035.	105.31	5.3248E+00
HG-203	1862.	279.20	2.4570E+00
TL-208	1806.	277.36	3.1063E+01
BI-212	94.	727.18	1.6055E+01
PB-212	2107.	238.63	4.3111E+00
BI-214	566.	609.31	4.9531E+00
PB-214	1986.	351.92	1.2588E+01
RA-224	1984.	240.99	4.6444E+01
RA-226	2782.	186.10	5.1663E+01
AC-228	147.	911.21	6.1483E+00
TH-228	1906.	84.37	8.4096E+01
TH-229	1962.	88.47	4.4095E+00
PA-233	1785.	312.17	5.5737E+00
UTH-233	1919.	245.34	1.7125E+03
PA-234M	55.	1001.03	1.8509E+00
TH-234	1877.	63.29	2.3226E+01
U-235	2718.	185.71	3.1039E+00
NP-239	2011.	106.12	5.0775E+00
PU-239	2086.	129.30	1.9879E+04
AM-243	2025.	74.67	1.8046E+00

LABCORE Data Entry Template for Worklist# 9037

Analyst: CRJ **Instrument:** GEA00 #2 **Book#** 12356

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: SUPER RUSH. Rerun. Use 0.500-10-1.00 sample size. RAJ

SUPER SUPER RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T001531	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001531	0	F	@GEA-01	SOLID		
5	SAMPLE	S96T001541	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T001541	0	F	@GEA-01	SOLID		

Final page for worklist # 9037

Johnson 5/21/96
Analyst Signature **Date**

Sue E. Hogan 5-22-96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 9037

Analyst: crj **Instrument:** GEA02 **Book#** 12856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: SUPER RUSH. Rerun. Use 0.500-10-1.00 sample size. RAJ

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	2.535e-02		2.57e-02	101.381	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1		1.34	1.340	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.704e-02		2.68e-02	99.112	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		1.61	1.610	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1		<2.87e-1		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<8.64e-1		uCi/g
3	SAMPLE	S96T001531	0	F	@GEA-01	CO60-02	SOLID	N/A	<	4.960e-01	496.0e-003	uCi/g
3	SAMPLE	S96T001531	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001531	0	F	@GEA-01	CS13702	SOLID	N/A		6.610e+02	0.0e+000	uCi/g
3	SAMPLE	S96T001531	0	F	@GEA-01	CS13702E	SOLID	N/A		0.940	0.0e+000	% Ct. Error
4	DUP	S96T001531	0	F	@GEA-01	CO60-02	SOLID	<4.96e-1		<4.35e-1		RPD
4	DUP	S96T001531	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T001531	0	F	@GEA-01	CS13702	SOLID	6.61e+02		6.25e+02	5.599	RPD
4	DUP	S96T001531	0	F	@GEA-01	CS13702E	SOLID	1.00		0.950	0.950	% Ct Error
5	SAMPLE	S96T001541	0	F	@GEA-01	CO60-02	SOLID	N/A	<	5.477e-01	548.0e-003	uCi/g
5	SAMPLE	S96T001541	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T001541	0	F	@GEA-01	CS13702	SOLID	N/A		6.163e+02	0.0e+000	uCi/g
5	SAMPLE	S96T001541	0	F	@GEA-01	CS13702E	SOLID	N/A		1.02	0.0e+000	% Ct. Error
6	DUP	S96T001541	0	F	@GEA-01	CO60-02	SOLID	<5.48e-1		<5.72e-1		RPD
6	DUP	S96T001541	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
6	DUP	S96T001541	0	F	@GEA-01	CS13702	SOLID	6.16e+02		6.71e+02	8.547	RPD
6	DUP	S96T001541	0	F	@GEA-01	CS13702E	SOLID	1.00		0.970	0.970	% Ct Error

Comments Section:

Comments for sample# S96T001531 **and test** @GEA-01 .
R(0) DL=0 => n/a. Low std recovery. Rerun
R(1) DL=0 => n/a.

Comments for sample# S96T001541 **and test** @GEA-01 .
R(0) DL=0 => n/a. Low std recovery. Rerun
R(1) DL=0 => n/a.

Final page for worklist# 9037

Analyst Signature **Date** **Analyst Signature** **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed RadChem Report for Worklist#: 9037

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit

B Machelor 5/22/96
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 08:20:38.74                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9037
Sample ID:               WL9037-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             NI3AF:1.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.67 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-MAY-1996 16:22:07.42
Decayed to:              21-MAY-1996 16:22:07.42
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SEH
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: Lee E. Hogan

Verified by: B. Bachelor 5/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.72*	19318	1.50	1323.45	1315	16	1.6		CS-137	26.8
0	1173.26	13138	1.80	2346.58	2337	18	1.9		CO-60	25.8
0	1332.51	11795	1.98	2665.17	2655	19	1.9		CO-60	25.7
0	1460.90*	25	1.76	2922.06	2915	15	100.6		K-40	0.545

Summary of Nuclide Activity
Sample ID : WL9037-STD

Acquisition date : 21-MAY-1996 16:22:07

Total number of lines in spectrum	4	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	4	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~5.453E-01~~	~~5.453E-01~~	~~5.487E-01~~	~~100.63~~	~~M~~
CO-60	5.27Y	1.000	2.574E+01	2.574E+01	0.034E+01	1.34	
CS-137	30.00Y	1.000	2.681E+01	2.681E+01	0.043E+01	1.61	
		Total Activity :	5.309E+01	5.309E+01			
		Grand Total Activity :	5.309E+01	5.309E+01			

7/23/96

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : WL9037-STD Acquisition date : 21-MAY-1996 16:22:07

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1108.	477.59	1.3499E+00
NA-22	95.	1274.53	9.4988E-02
NA-24	17.	1368.55	4.3398E-02
CR-51	1078.	320.08	9.9364E-01
MN-54	626.	834.83	1.6762E-01
CO-56	653.	846.76	1.7335E-01
CO-57	1245.	122.06	7.8911E-02
CO-58	593.	810.78	1.5997E-01
FE-59	658.	1099.25	3.9014E-01
SE-75	1324.	264.66	1.6622E-01
SR-85	750.	514.01	1.2758E-01
Y-88	9.	1836.06	3.9520E-02
NB-94	708.	871.09	1.8483E-01
ZRNB-95	532.	724.18	3.1339E-01
RU-103	829.	497.08	1.3756E-01
RURH-106	595.	621.93	2.5688E+00
AG-108m	529.	722.94	1.5020E-01
CD-109	1109.	88.03	2.5571E+00
AG-110M	945.	657.76	1.7781E-01
SN-113	1070.	391.69	1.7997E-01
TE-123m	1305.	159.00	8.0837E-02
SB-124	583.	602.73	1.2580E-01
SB-125	1106.	427.89	4.2940E-01
TE-125m	1197.	109.27	2.5644E+01
I-131	1006.	364.48	1.3075E-01
CS-134	566.	604.70	1.2449E-01
BA-140	698.	537.31	5.0290E-01
LA-140	20.	1596.21	5.5441E-02
CEPR-144	1333.	133.51	1.2199E+00
EU-152	27.	1408.01	2.6250E-01
EU-154	95.	1274.51	2.7614E-01
EU-155	1131.	105.31	3.3475E-01
HG-203	1214.	279.20	1.1844E-01
TL-208	1230.	277.36	1.5320E+00
BI-212	491.	727.18	1.9839E+00
PB-212	1505.	238.63	2.2134E-01
BI-214	638.	609.31	2.8974E-01
PB-214	1134.	351.92	5.4765E-01
RA-224	1475.	240.99	2.4320E+00
RA-226	1431.	186.10	2.2070E+00
AC-228	849.	911.21	7.9063E-01
TH-228	1111.	84.37	7.8590E+00
TH-229	1096.	88.47	3.6838E-01
PA-233	1170.	312.17	2.6546E-01
UTH-233	1465.	245.34	9.0799E+01
PA-234M	647.	1001.03	3.3969E-01
TH-234	1082.	63.29	4.5166E+00
U-235	1415.	185.71	1.3336E-01
NP-237	1096.	86.48	7.6290E-01
NP-239	1145.	106.12	3.1972E-01
PU-239	1313.	129.30	1.0580E+03

Minimum Detectable Activity Report (continued)
Sample ID : WL9037-STD Acquisition date : 21-MAY-1996 16:22:07

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	1007.	59.54	6.9381E-01
AM-243	1068.	74.67	2.0942E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    21-MAY-1996 22:47:43.41                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9037
Sample ID:               WL9037-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2768.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.48 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-MAY-1996 21:57:06.89
Decayed to:              21-MAY-1996 21:57:06.89
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************

Post-NID Peak Search Report
***** No peaks found *****
```

Removed by: CRaymond

Verified by: BBachelor 5/22/96

Summary of Nuclide Activity
Sample ID : WL9037-BLK Acquisition date : 21-MAY-1996 21:57:06

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL9037-BLK Acquisition date : 21-MAY-1996 21:57:06

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	44.	477.59	5.6192E+00
NA-22	10.	1274.53	6.4681E-01
NA-24	6.	1368.55	5.4191E-01
K-40	105.	1460.75	2.1969E+01
CR-51	54.	320.08	4.6655E+00
MN-54	15.	834.83	5.4729E-01
CO-56	24.	846.76	6.9719E-01
CO-57	74.	122.06	4.0337E-01
CO-58	16.	810.78	5.4433E-01
FE-59	7.	1099.25	8.6648E-01
CO-60	8.	1332.50	6.0453E-01
SE-75	77.	264.66	8.4001E-01
SR-85	46.	514.01	6.6432E-01
Y-88	4.	1836.06	5.2599E-01
NB-94	15.	871.09	5.6653E-01
ZRNB-95	14.	724.18	1.0623E+00
RU-103	28.	497.08	5.3108E-01
RURH-106	24.	621.93	1.0806E+01
AG-108m	11.	722.94	4.4434E-01
CD-109	75.	88.03	1.3926E+01
AG-110M	19.	657.76	5.3617E-01
SN-113	45.	391.69	7.7762E-01
TE-123m	67.	159.00	3.8521E-01
SB-124	31.	602.73	6.1179E-01
SB-125	31.	427.89	1.5021E+00
TE-125m	67.	109.27	1.2766E+02
I-131	47.	364.48	5.9604E-01
CS-134	24.	604.70	5.3514E-01
CS-137	180.	661.66	1.8175E+00
BA-140	31.	537.31	2.2142E+00
LA-140	3.	1596.21	4.7833E-01
CEPR-144	70.	133.51	5.8562E+00
EU-152	4.	1408.01	2.1274E+00
EU-154	10.	1274.51	1.8829E+00
EU-155	65.	105.31	1.6841E+00
HG-203	54.	279.20	5.2398E-01
TL-208	54.	277.36	6.7440E+00
BI-212	22.	727.18	8.8751E+00
PB-212	91.	238.63	1.1405E+00
BI-214	40.	609.31	1.5284E+00
PB-214	63.	351.92	2.7156E+00
RA-224	82.	240.99	1.2071E+01
RA-226	80.	186.10	1.0956E+01
AC-228	27.	911.21	2.9836E+00
TH-228	70.	84.37	4.1311E+01
TH-229	75.	88.47	2.0242E+00
PA-233	45.	312.17	1.0895E+00
UTH-233	63.	245.34	3.9659E+02
PA-234M	18.	1001.03	1.2021E+00
TH-234	48.	63.29	1.9895E+01
U-235	81.	185.71	6.7050E-01

Sample ID : WL9037-BLK Acquisition date : 21-MAY-1996 21:57:06
WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	74.	86.48	4.1736E+00
NP-239	71.	106.12	1.6687E+00
PU-239	78.	129.30	5.4092E+03
AM-241	66.	59.54	3.7351E+00
AM-243	59.	74.67	1.0298E+00

****
* 222-S Laboratory Counting Room 21-MAY-1996 23:54:17.49 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #: 9037
Sample ID: S96T1531-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 2.10000E+01

Removed by: Raymond

>>>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID:
File Number: dka300:[spec.GEA2]2g2769.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:06.90 sec
Dead Time: 0.2%

Verified by: Bachelor 5/22/96

>>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time: 21-MAY-1996 23:03:33.05
Decayed to: 21-MAY-1996 23:03:33.05
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: VR
Background Subtract: DKA300:[SPEC.GEA2]2GBACK

>>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 21-MAR-1994 09:31:55.15
Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.87	149	1.34	246.17	243	7	91.4		CO-57	1.50
0	661.72*	47767	1.53	1323.45	1315	17	0.9		CS-137	1.392E+03
0	723.33	23	1.21	1446.66	1443	7	72.3			
0	878.33	15	4.42	1756.65	1751	16	97.6			
0	1274.40	19	0.99	2548.92	2544	14	102.2			
0	1332.05	23	1.62	2664.25	2658	13	52.4			

Summary of Nuclide Activity
Sample ID : S96T1531-SAM

Acquisition date : 21-MAY-1996 23:03:33

Total number of lines in spectrum	6	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	5	83.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.504E+00~~	~~1.504E+00~~	~~1.375E+00~~	~~91.41~~	BKG 9/23/96
CS-137	30.00Y	1.000	1.392E+03	1.392E+03	0.013E+03	0.94	
			---	---			
Total Activity :			1.394E+03	1.394E+03			
Grand Total Activity :			1.394E+03	1.394E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T1531-SAM Acquisition date : 21-MAY-1996 23:03:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1558.	477.59	3.3626E+01
NA-22	33.	1274.53	1.1823E+00
NA-24	8.	1368.55	6.0734E-01
K-40	110.	1460.75	2.2492E+01
CR-51	1282.	320.08	2.2754E+01
MN-54	20.	834.83	6.2498E-01
CO-56	17.	846.76	5.8723E-01
CO-58	14.	810.78	5.1547E-01
FE-59	21.	1099.25	1.4781E+00
CO-60	24.	1332.50	1.0430E+00
SE-75	1547.	264.66	3.7726E+00
SR-85	781.	514.01	2.7340E+00
Y-88	3.	1836.06	4.5188E-01
NB-94	32.	871.09	8.2995E-01
ZRNB-95	49.	724.18	1.9897E+00
RU-103	941.	497.08	3.0773E+00
RURH-106	338.	621.93	4.0641E+01
AG-108m	50.	722.94	9.6695E-01
CD-109	1472.	88.03	6.1850E+01
AG-110M	1078.	657.76	3.9884E+00
SN-113	1327.	391.69	4.2101E+00
TE-123m	1538.	159.00	1.8429E+00
SB-124	350.	602.73	2.0478E+00
SB-125	1620.	427.89	1.0915E+01
TE-125m	1472.	109.27	5.9727E+02
I-131	1270.	364.48	3.0855E+00
CS-134	353.	604.70	2.0645E+00
BA-140	574.	537.31	9.5769E+00
LA-140	5.	1596.21	5.8584E-01
CEPR-144	1605.	133.51	2.8120E+01
EU-152	9.	1408.01	3.2055E+00
EU-154	33.	1274.51	3.4350E+00
EU-155	1539.	105.31	8.2007E+00
HG-203	1361.	279.20	2.6336E+00
TL-208	1448.	277.36	3.4904E+01
BI-212	28.	727.18	9.9184E+00
PB-212	1624.	238.63	4.8297E+00
BI-214	380.	609.31	4.6926E+00
PB-214	1283.	351.92	1.2229E+01
RA-224	1602.	240.99	5.3223E+01
RA-226	1946.	186.10	5.4035E+01
AC-228	24.	911.21	2.8035E+00
TH-228	1378.	84.37	1.8375E+02
TH-229	1471.	88.47	8.9634E+00
PA-233	1221.	312.17	5.6938E+00
UTH-233	1550.	245.34	1.9610E+03
PA-234M	26.	1001.03	1.4372E+00
TH-234	1256.	63.29	1.0219E+02
U-235	1915.	185.71	3.2587E+00
NP-237	1467.	86.48	1.8530E+01
NP-239	1495.	106.12	7.6718E+00

Minimum Detectable Activity Report (continued)
Sample ID : S96T1531-SAM Acquisition date : 21-MAY-1996 23:03:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1517.	129.30	2.3879E+04
AM-241	1325.	59.54	1.6712E+01
AM-243	1345.	74.67	4.9339E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 00:49:43.20                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9037
Sample ID:               S96T1531-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2770.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:06.84 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-MAY-1996 23:58:55.52
Decayed to:              21-MAY-1996 23:58:55.52
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Raymond

Verified by: Bachelor 5/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.73*	47125	1.54	1323.47	1315	16	0.9		CS-137	1.373E+03
0	723.55	54	2.30	1447.10	1440	18	49.6			
0	1004.56	18	1.22	2009.12	2006	10	85.8			

Summary of Nuclide Activity
Sample ID : S96T1531-DUP

Acquisition date : 21-MAY-1996 23:58:55

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.373E+03	1.373E+03	0.013E+03	0.95	
		Total Activity :	1.373E+03	1.373E+03			
		Grand Total Activity :	1.373E+03	1.373E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1511.	477.59	3.3108E+01
NA-22	31.	1274.53	1.1406E+00
NA-24	3.	1368.55	3.8320E-01
K-40	114.	1460.75	2.2897E+01
CR-51	1273.	320.08	2.2671E+01
MN-54	20.	834.83	6.2797E-01
CO-56	21.	846.76	6.5260E-01
CO-57	1630.	122.06	1.8955E+00
CO-58	24.	810.78	6.7270E-01
FE-59	15.	1099.25	1.2277E+00
CO-60	20.	1332.50	9.5249E-01
SE-75	1481.	264.66	3.6922E+00
SR-85	749.	514.01	2.6781E+00
Y-88	5.	1836.06	6.1858E-01
NB-94	22.	871.09	6.8152E-01
ZRNB-95	56.	724.18	2.1347E+00
RU-103	937.	497.08	3.0715E+00
RURH-106	335.	621.93	4.0507E+01
AG-108m	58.	722.94	1.0425E+00
CD-109	1430.	88.03	6.0970E+01
AG-110M	1019.	657.76	3.8784E+00
SN-113	1403.	391.69	4.3279E+00
TE-123m	1550.	159.00	1.8500E+00
SB-124	388.	602.73	2.1560E+00
SB-125	1541.	427.89	1.0647E+01
TE-125m	1474.	109.27	5.9753E+02
I-131	1274.	364.48	3.0904E+00
CS-134	345.	604.70	2.0418E+00
BA-140	561.	537.31	9.4741E+00
LA-140	4.	1596.21	5.4100E-01
CEPR-144	1507.	133.51	2.7240E+01
EU-152	8.	1408.01	3.0205E+00
EU-154	31.	1274.51	3.3160E+00
EU-155	1515.	105.31	8.1357E+00
HG-203	1395.	279.20	2.6655E+00
TL-208	1401.	277.36	3.4331E+01
BI-212	20.	727.18	8.3281E+00
PB-212	1611.	238.63	4.8100E+00
BI-214	335.	609.31	4.4113E+00
PB-214	1262.	351.92	1.2130E+01
RA-224	1590.	240.99	5.3033E+01
RA-226	1889.	186.10	5.3250E+01
AC-228	25.	911.21	2.8488E+00
TH-228	1351.	84.37	1.8196E+02
TH-229	1367.	88.47	8.6425E+00
PA-233	1230.	312.17	5.7145E+00
UTH-233	1576.	245.34	1.9775E+03
PA-234M	19.	1001.03	1.2095E+00
TH-234	1293.	63.29	1.0371E+02
U-235	1857.	185.71	3.2087E+00
NP-237	1422.	86.48	1.8244E+01

Sample ID : S96T1531-DUP Acquisition date : 21-MAY-1996 23:58:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1502.	106.12	7.6892E+00
PU-239	1523.	129.30	2.3926E+04
AM-241	1295.	59.54	1.6521E+01
AM-243	1304.	74.67	4.8588E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 02:07:32.31                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              9037
Sample ID:               S96T1541-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01
```

Removed by: URaymond

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2771.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:05.96 sec
Dead Time:               0.2%
```

Verified by: BMacheler 5/22/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-MAY-1996 01:16:47.04
Decayed to:              22-MAY-1996 01:16:47.04
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.18	206	1.25	246.78	243	9	75.9		CO-57	2.08
									EU-154	4.40
0	661.73*	40423	1.53	1323.48	1315	17	1.0		CS-137	1.178E+03
0	723.48	34	0.95	1446.96	1440	13	70.4		EU-154	4.55
0	737.70	25	5.28	1475.40	1469	23	118.5			
0	1004.31	42	1.84	2008.63	2000	17	44.7		EU-154	8.28
0	1274.67	30	1.86	2549.45	2547	6	42.7		EU-154	3.88

Sample ID : S96T1541-SAM Acquisition date : 22-MAY-1996 01:16:47

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	6	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	5	83.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.078E+00~~	~~2.078E+00~~	~~1.577E+00~~	~~75.88~~	~~K~~
CS-137	30.00Y	1.000	1.178E+03	1.178E+03	0.012E+03	1.02	
EU-154	8.59Y	1.000	4.599E+00	4.599E+00	1.367E+00	29.72	
			---	---			
Total Activity :			1.185E+03	1.185E+03			
Grand Total Activity :			1.185E+03	1.185E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report
Sample ID : S96T1541-SAM

Acquisition date : 22-MAY-1996 01:16:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1269.	477.59	3.0339E+01
NA-22	41.	1274.53	1.3057E+00
NA-24	11.	1368.55	7.1703E-01
K-40	97.	1460.75	2.1139E+01
CR-51	1170.	320.08	2.1736E+01
MN-54	26.	834.83	7.1461E-01
CO-56	14.	846.76	5.3326E-01
CO-58	15.	810.78	5.3195E-01
FE-59	18.	1099.25	1.3686E+00
CO-60	24.	1332.50	1.0488E+00
SE-75	1274.	264.66	3.4235E+00
SR-85	676.	514.01	2.5441E+00
Y-88	4.	1836.06	5.5327E-01
NB-94	26.	871.09	7.5089E-01
ZRNB-95	49.	724.18	2.0051E+00
RU-103	846.	497.08	2.9189E+00
RURH-106	307.	621.93	3.8743E+01
AG-108m	50.	722.94	9.7263E-01
CD-109	1248.	88.03	5.6954E+01
AG-110M	908.	657.76	3.6594E+00
SN-113	1159.	391.69	3.9347E+00
TE-123m	1341.	159.00	1.7206E+00
SB-124	307.	602.73	1.9154E+00
SB-125	1383.	427.89	1.0084E+01
TE-125m	1301.	109.27	5.6142E+02
I-131	1119.	364.48	2.8952E+00
CS-134	294.	604.70	1.8845E+00
BA-140	512.	537.31	9.0445E+00
LA-140	8.	1596.21	7.3275E-01
CEPR-144	1341.	133.51	2.5704E+01
EU-152	6.	1408.01	2.5038E+00
EU-155	1315.	105.31	7.5821E+00
HG-203	1180.	279.20	2.4514E+00
TL-208	1245.	277.36	3.2359E+01
BI-212	18.	727.18	7.9547E+00
PB-212	1401.	238.63	4.4846E+00
BI-214	328.	609.31	4.3622E+00
PB-214	1137.	351.92	1.1512E+01
RA-224	1403.	240.99	4.9821E+01
RA-226	1649.	186.10	4.9743E+01
AC-228	27.	911.21	2.9836E+00
TH-228	1279.	84.37	1.7708E+02
TH-229	1225.	88.47	8.1807E+00
PA-233	1113.	312.17	5.4364E+00
UTH-233	1339.	245.34	1.8227E+03
PA-234M	16.	1001.03	1.1358E+00
TH-234	1076.	63.29	9.4610E+01
U-235	1644.	185.71	3.0188E+00
NP-237	1244.	86.48	1.7065E+01
NP-239	1351.	106.12	7.2910E+00
PU-239	1359.	129.30	2.2605E+04

Sample ID : S96T1541-SAM Acquisition date : 22-MAY-1996 01:16:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	1155.	59.54	1.5603E+01
AM-243	1216.	74.67	4.6918E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 03:02:39.05                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9037
Sample ID:               S96T1541-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2772.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:06.61 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-MAY-1996 02:11:51.21
Decayed to:              22-MAY-1996 02:11:51.21
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: Raymond

Verified by: Bachelor 5/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.50	257	1.20	247.43	243	9	63.2		CO-57	2.59
0	661.74*	45188	1.50	1323.50	1316	16	1.0		CS-137	1.317E+03
0	1005.25	25	0.90	2010.50	2006	12	73.6			
0	1274.78	38	1.72	2549.67	2543	15	39.4			
0	1331.73	22	0.98	2663.61	2657	15	70.0			

Sample ID : S96T1541-DUP
Acquisition date : 22-MAY-1996 02:11:51

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.594E+00~~	~~2.595E+00~~	~~1.640E+00~~	~~63.22~~	~~K~~
CS-137	30.00Y	1.000	1.317E+03	1.317E+03	0.013E+03	0.97	
			---	---			
Total Activity :			1.319E+03	1.319E+03			
Grand Total Activity :			1.319E+03	1.319E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T1541-DUP Acquisition date : 22-MAY-1996 02:11:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1412.	477.59	3.2014E+01
NA-22	40.	1274.53	1.2945E+00
NA-24	4.	1368.55	4.4071E-01
K-40	97.	1460.75	2.1073E+01
CR-51	1263.	320.08	2.2585E+01
MN-54	14.	834.83	5.2436E-01
CO-56	27.	846.76	7.4031E-01
CO-58	16.	810.78	5.4507E-01
FE-59	23.	1099.25	1.5261E+00
CO-60	28.	1332.50	1.1253E+00
SE-75	1349.	264.66	3.5234E+00
SR-85	734.	514.01	2.6512E+00
Y-88	5.	1836.06	5.9430E-01
NB-94	30.	871.09	7.9891E-01
ZRNB-95	62.	724.18	2.2536E+00
RU-103	894.	497.08	3.0004E+00
RURH-106	317.	621.93	3.9379E+01
AG-108m	64.	722.94	1.0981E+00
CD-109	1414.	88.03	6.0636E+01
AG-110M	989.	657.76	3.8202E+00
SN-113	1265.	391.69	4.1104E+00
TE-123m	1421.	159.00	1.7714E+00
SB-124	355.	602.73	2.0603E+00
SB-125	1538.	427.89	1.0635E+01
TE-125m	1439.	109.27	5.9047E+02
I-131	1295.	364.48	3.1157E+00
CS-134	355.	604.70	2.0711E+00
BA-140	536.	537.31	9.2549E+00
LA-140	2.	1596.21	3.6637E-01
CEPR-144	1477.	133.51	2.6975E+01
EU-152	7.	1408.01	2.8143E+00
EU-154	40.	1274.51	3.7570E+00
EU-155	1398.	105.31	7.8150E+00
HG-203	1378.	279.20	2.6494E+00
TL-208	1365.	277.36	3.3884E+01
BI-212	29.	727.18	1.0095E+01
PB-212	1590.	238.63	4.7780E+00
BI-214	392.	609.31	4.7714E+00
PB-214	1286.	351.92	1.2243E+01
RA-224	1524.	240.99	5.1913E+01
RA-226	1773.	186.10	5.1580E+01
AC-228	29.	911.21	3.0904E+00
TH-228	1342.	84.37	1.8133E+02
TH-229	1403.	88.47	8.7545E+00
PA-233	1219.	312.17	5.6902E+00
UTH-233	1516.	245.34	1.9396E+03
PA-234M	19.	1001.03	1.2216E+00
TH-234	1200.	63.29	9.9907E+01
U-235	1747.	185.71	3.1120E+00
NP-237	1421.	86.48	1.8236E+01
NP-239	1447.	106.12	7.5474E+00

Sample ID : S96T1541-DUP Acquisition date : 22-MAY-1996 02:11:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1450.	129.30	2.3351E+04
AM-241	1311.	59.54	1.6626E+01
AM-243	1289.	74.67	4.8303E+00

LABCORE Data Entry Template for Worklist# 9211

Analyst: RDM **Instrument:** GEA00 3 **Book#** 12B56 **SUPER RUSH**

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: Rerun #1. Use sample size 0.500-10-0.500. RAJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T001678	0	F	@GEA-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001678	0	F	@GEA-01	SOLID		

Final page for worklist # 9211

R Douglas 5/25/96
Analyst Signature **Date**

Gary Hammett 5/26/96
Analyst Signature **Date**

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 9211

Analyst: rdm **Instrument:** GEA03 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Rerun #1. Use sample size 0.500-10-0.500. RAJ

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	2.531e-02		2.53e-02	99.960	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1		1.22	1.220	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.703e-02		2.72e-02	100.629	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		1.43	1.430	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1		<1.06e-3		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<2.56e-3		uCi/g
3	SAMPLE	S96T001678	0	F	@GEA-01	CO60-02	SOLID	N/A	<	7.173e-01	717.0e-003	uCi/g
3	SAMPLE	S96T001678	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001678	0	F	@GEA-01	CS13702	SOLID	N/A		4.502e+02	0.0e+000	uCi/g
3	SAMPLE	S96T001678	0	F	@GEA-01	CS13702E	SOLID	N/A		1.55	0.0e+000	% Ct. Error
4	DUP	S96T001678	0	F	@GEA-01	CO60-02	SOLID	<7.17e-1		<5.87e-1	RPD	
4	DUP	S96T001678	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T001678	0	F	@GEA-01	CS13702	SOLID	4.50e+02		4.08e+02	9.790	RPD
4	DUP	S96T001678	0	F	@GEA-01	CS13702E	SOLID	1.00		1.58	1.580	% Ct Error

Comments Section:

Comments for sample# S96T001678 **and test** @GEA-01 .
DL=0 => n/a.
DL=0=>n/a

Final page for worklist# 9211

Analyst Signature **Date** **Analyst Signature** **Date**

RAJone 5/28/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   25-MAY-1996 11:59:48.12                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9211
Sample ID:               WL9211-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             NI3AC:1.cnf(GEA3) 3 521
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.62 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       25-MAY-1996 10:09:48.43
Decayed to:              25-MAY-1996 10:09:48.43
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 5-25-96

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.55*	24073	1.58	1323.27	1316	16	1.4		CS-137	27.2
0	1173.11	16003	1.94	2346.50	2336	20	1.7		CO-60	25.2
0	1332.37	14508	1.99	2665.12	2655	20	1.7		CO-60	25.4

Sample ID : WL9211-STD
Acquisition date : 25-MAY-1996 10:09:48

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.532E+01	2.532E+01	0.031E+01	1.22	
CS-137	30.00Y	1.000	2.721E+01	2.721E+01	0.039E+01	1.43	
			---	---			
Total Activity :			5.253E+01	5.253E+01			
Grand Total Activity :			5.253E+01	5.253E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL9211-STD
Acquisition date : 25-MAY-1996 10:09:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1245.	477.59	1.1623E+00
NA-22	109.	1274.53	8.1831E-02
NA-24	24.	1368.55	4.1433E-02
K-40	163.	1460.75	1.0437E+00
CR-51	1176.	320.08	8.5032E-01
MN-54	738.	834.83	1.4853E-01
CO-56	751.	846.76	1.5175E-01
CO-57	1294.	122.06	6.2249E-02
CO-58	730.	810.78	1.4490E-01
FE-59	750.	1099.25	3.3582E-01
SE-75	1453.	264.66	1.4157E-01
SR-85	869.	514.01	1.1106E-01
Y-88	12.	1836.06	3.5747E-02
NB-94	796.	871.09	1.6012E-01
ZRNB-95	607.	724.18	2.7286E-01
RU-103	998.	497.08	1.2218E-01
RURH-106	644.	621.93	2.1740E+00
AG-108m	612.	722.94	1.3168E-01
CD-109	1196.	88.03	1.9820E+00
AG-110M	1140.	657.76	1.5906E-01
SN-113	1202.	391.69	1.5765E-01
TE-123m	1343.	159.00	6.5259E-02
SB-124	683.	602.73	1.1062E-01
SB-125	1256.	427.89	3.7612E-01
TE-125m	1245.	109.27	1.9882E+01
I-131	1185.	364.48	1.1702E-01
CS-134	728.	604.70	1.1471E-01
BA-140	799.	537.31	4.3507E-01
LA-140	20.	1596.21	4.3793E-02
CEPR-144	1342.	133.51	9.5906E-01
EU-152	32.	1408.01	2.3126E-01
EU-154	109.	1274.51	2.3792E-01
EU-155	1210.	105.31	2.6180E-01
HG-203	1379.	279.20	1.0286E-01
TL-208	1337.	277.36	1.3012E+00
BI-212	603.	727.18	1.7937E+00
PB-212	1651.	238.63	1.8768E-01
BI-214	705.	609.31	2.4748E-01
PB-214	1174.	351.92	4.5872E-01
RA-224	1688.	240.99	2.1068E+00
RA-226	1496.	186.10	1.8107E+00
AC-228	968.	911.21	6.8911E-01
TH-228	1163.	84.37	6.0195E+00
TH-229	1198.	88.47	2.8751E-01
PA-233	1273.	312.17	2.2661E-01
UTH-233	1587.	245.34	7.6575E+01
PA-234M	755.	1001.03	2.9750E-01
TH-234	1045.	63.29	3.8434E+00
U-235	1478.	185.71	1.0941E-01
NP-237	1185.	86.48	5.9257E-01
NP-239	1226.	106.12	2.5032E-01

Sample ID : WL9211-STD Acquisition date : 25-MAY-1996 10:09:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1371.	129.30	8.4357E+02
AM-241	1030.	59.54	6.7328E-01
AM-243	1112.	74.67	1.6440E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   25-MAY-1996 11:53:43.15                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9211
Sample ID:               WL9211-BLK
Sample Size:             5.00000E-04 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3522.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.44 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       25-MAY-1996 11:03:05.16
Decayed to:              25-MAY-1996 11:03:05.16
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 5-25-96

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	547.51	16	1.30	1095.23	1093	5	57.7			
0	582.61*	21	1.19	1165.41	1159	12	89.6			

Sample ID : WL9211-BLK
Acquisition date : 25-MAY-1996 11:03:05

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	2	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : WL9211-BLK
Acquisition date : 25-MAY-1996 11:03:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	39.	477.59	8.6116E+00
NA-22	12.	1274.53	1.1325E+00
NA-24	5.	1368.55	7.9525E-01
K-40	121.	1460.75	3.7793E+01
CR-51	53.	320.08	7.5704E+00
MN-54	23.	834.83	1.0950E+00
CO-56	13.	846.76	8.4858E-01
CO-57	81.	122.06	6.5222E-01
CO-58	18.	810.78	9.6309E-01
FE-59	12.	1099.25	1.8014E+00
CO-60	10.	1332.50	1.0618E+00
SE-75	72.	264.66	1.3196E+00
SR-85	46.	514.01	1.0742E+00
Y-88	4.	1836.06	8.7882E-01
NB-94	12.	871.09	8.4127E-01
ZRNB-95	20.	724.18	2.0875E+00
RU-103	17.	497.08	6.7644E-01
RURH-106	24.	621.93	1.7544E+01
AG-108m	19.	722.94	9.7430E-01
CD-109	58.	88.03	1.8366E+01
AG-110M	22.	657.76	9.1938E-01
SN-113	40.	391.69	1.2050E+00
TE-123m	85.	159.00	6.9042E-01
SB-124	29.	602.73	9.6451E-01
SB-125	38.	427.89	2.7470E+00
TE-125m	65.	109.27	1.9060E+02
I-131	32.	364.48	8.1360E-01
CS-134	26.	604.70	9.0194E-01
CS-137	135.	661.66	2.5631E+00
BA-140	24.	537.31	3.1831E+00
LA-140	6.	1596.21	9.9768E-01
CEPR-144	64.	133.51	8.7626E+00
EU-152	5.	1408.01	3.7869E+00
EU-154	12.	1274.51	3.2958E+00
EU-155	76.	105.31	2.7471E+00
HG-203	55.	279.20	8.6333E-01
TL-208	60.	277.36	1.1621E+01
BI-212	17.	727.18	1.2463E+01
PB-212	98.	238.63	1.9186E+00
BI-214	60.	609.31	3.0454E+00
PB-214	70.	351.92	4.7010E+00
RA-224	85.	240.99	1.9808E+01
RA-226	98.	186.10	1.9473E+01
AC-228	23.	911.21	4.5066E+00
TH-228	80.	84.37	6.6463E+01
TH-229	60.	88.47	2.6996E+00
PA-233	44.	312.17	1.7752E+00
UTH-233	57.	245.34	6.1202E+02
PA-234M	15.	1001.03	1.7370E+00
TH-234	66.	63.29	4.0687E+01
U-235	95.	185.71	1.1633E+00

Sample ID : WL9211-BLK Acquisition date : 25-MAY-1996 11:03:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	71.	86.48	6.1049E+00
NP-239	69.	106.12	2.4953E+00
PU-239	61.	129.30	7.4865E+03
AM-241	55.	59.54	6.5169E+00
AM-243	86.	74.67	1.9176E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   25-MAY-1996 12:52:40.21                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9211
Sample ID:               S96T001678-SAM
Sample Size:             5.00000E-04 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3523.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.60 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       25-MAY-1996 12:01:59.70
Decayed to:              25-MAY-1996 12:01:59.70
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 5-25-96

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.61	78	1.35	245.71	242		7104.6		CO-57	1.22
0	661.60*	17451	1.56	1323.37	1316	15	1.6		CS-137	828.

Sample ID : S96T001678-SAM
Acquisition date : 25-MAY-1996 12:01:59

Total number of lines in spectrum	2	WHC-SD-WM-DP-183, REV. 0
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.221E+00~~	~~1.221E+00~~	~~1.276E+00~~	~~104.56~~	BKG
CS-137	30.00Y	1.000	8.284E+02	8.284E+02	0.129E+02	1.55	
		Total Activity :	8.296E+02	8.296E+02			
		Grand Total Activity :	8.296E+02	8.296E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	562.	477.59	3.2802E+01
NA-22	30.	1274.53	1.8173E+00
NA-24	6.	1368.55	8.7116E-01
K-40	127.	1460.75	3.8712E+01
CR-51	481.	320.08	2.2848E+01
MN-54	16.	834.83	9.0989E-01
CO-56	17.	846.76	9.5455E-01
CO-58	15.	810.78	8.7078E-01
FE-59	15.	1099.25	1.9928E+00
CO-60	15.	1332.50	1.3193E+00
SE-75	552.	264.66	3.6637E+00
SR-85	313.	514.01	2.7971E+00
Y-88	6.	1836.06	1.0794E+00
NB-94	16.	871.09	9.4513E-01
ZRNB-95	34.	724.18	2.7216E+00
RU-103	378.	497.08	3.1569E+00
RURH-106	115.	621.93	3.8531E+01
AG-108m	31.	722.94	1.2428E+00
CD-109	504.	88.03	5.4055E+01
AG-110M	413.	657.76	4.0190E+00
SN-113	499.	391.69	4.2665E+00
TE-123m	552.	159.00	1.7565E+00
SB-124	139.	602.73	2.0964E+00
SB-125	565.	427.89	1.0595E+01
TE-125m	482.	109.27	5.1980E+02
I-131	466.	364.48	3.0829E+00
CS-134	134.	604.70	2.0639E+00
BA-140	197.	537.31	9.0750E+00
LA-140	5.	1596.21	8.8550E-01
CEPR-144	537.	133.51	2.5470E+01
EU-152	17.	1408.01	7.0431E+00
EU-154	30.	1274.51	5.2797E+00
EU-155	548.	105.31	7.3960E+00
HG-203	499.	279.20	2.5987E+00
TL-208	514.	277.36	3.3889E+01
BI-212	22.	727.18	1.4225E+01
PB-212	625.	238.63	4.8498E+00
BI-214	132.	609.31	4.5031E+00
PB-214	486.	351.92	1.2385E+01
RA-224	600.	240.99	5.2765E+01
RA-226	695.	186.10	5.1836E+01
AC-228	30.	911.21	5.1313E+00
TH-228	532.	84.37	1.7104E+02
TH-229	504.	88.47	7.8306E+00
PA-233	484.	312.17	5.8708E+00
UTH-233	548.	245.34	1.8904E+03
PA-234M	13.	1001.03	1.6330E+00
TH-234	454.	63.29	1.0638E+02
U-235	678.	185.71	3.1119E+00
NP-237	523.	86.48	1.6527E+01
NP-239	526.	106.12	6.8898E+00

Sample ID : S96T001678-SAM Acquisition date : 25-MAY-1996 12:01:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	527.	129.30	2.1970E+04
AM-241	423.	59.54	1.8113E+01
AM-243	448.	74.67	4.3825E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   25-MAY-1996 14:12:43.26                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9211
Sample ID:               S96T001678-DUP
Sample Size:             5.00000E-04 L
Dilution Factor:         2.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3524.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.51 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       25-MAY-1996 13:22:00.95
Decayed to:              25-MAY-1996 13:22:00.95
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 5-25-96

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.10	160	1.73	246.69	244	6	43.8		CO-57	2.50
0	661.58*	16834	1.59	1323.33	1315	17	1.6		CS-137	799.
0	910.51*	9	1.02	1821.20	1816	10	131.7			
0	1274.31	18	0.62	2548.94	2540	16	110.0			

Sample ID : S96T001678-DUP Acquisition date : 25-MAY-1996 13:22:00

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	4	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	4	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-57	271.80D	1.000	2.496E+00	2.496E+00	1.094E+00	43.82	
CS-137	30.00Y	1.000	7.991E+02	7.991E+02	0.126E+02	1.58	
		Total Activity :	8.016E+02	8.016E+02			
		Grand Total Activity :	8.016E+02	8.016E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S96T001678-DUP
Acquisition date : 25-MAY-1996 13:22:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	544.	477.59	3.2264E+01
NA-22	31.	1274.53	1.8237E+00
NA-24	10.	1368.55	1.1040E+00
K-40	137.	1460.75	4.0296E+01
CR-51	449.	320.08	2.2066E+01
MN-54	29.	834.83	1.2327E+00
CO-56	7.	846.76	6.2552E-01
CO-58	9.	810.78	6.8978E-01
FE-59	16.	1099.25	2.0825E+00
CO-60	11.	1332.50	1.1490E+00
SE-75	494.	264.66	3.4665E+00
SR-85	296.	514.01	2.7223E+00
Y-88	2.	1836.06	6.2319E-01
NB-94	22.	871.09	1.1202E+00
ZRNB-95	29.	724.18	2.5127E+00
RU-103	331.	497.08	2.9569E+00
RURH-106	113.	621.93	3.8266E+01
AG-108m	33.	722.94	1.2786E+00
CD-109	469.	88.03	5.2114E+01
AG-110M	428.	657.76	4.0914E+00
SN-113	493.	391.69	4.2393E+00
TE-123m	555.	159.00	1.7618E+00
SB-124	128.	602.73	2.0139E+00
SB-125	537.	427.89	1.0325E+01
TE-125m	473.	109.27	5.1458E+02
I-131	482.	364.48	3.1347E+00
CS-134	116.	604.70	1.9197E+00
BA-140	207.	537.31	9.2948E+00
LA-140	6.	1596.21	9.8644E-01
CEPR-144	523.	133.51	2.5152E+01
EU-152	7.	1408.01	4.4376E+00
EU-154	31.	1274.51	5.3053E+00
EU-155	576.	105.31	7.5828E+00
HG-203	470.	279.20	2.5223E+00
TL-208	476.	277.36	3.2597E+01
BI-212	25.	727.18	1.5386E+01
PB-212	568.	238.63	4.6257E+00
BI-214	136.	609.31	4.5597E+00
PB-214	447.	351.92	1.1870E+01
RA-224	579.	240.99	5.1828E+01
RA-226	654.	186.10	5.0276E+01
AC-228	29.	911.21	5.0302E+00
TH-228	508.	84.37	1.6704E+02
TH-229	466.	88.47	7.5302E+00
PA-233	483.	312.17	5.8599E+00
UTH-233	564.	245.34	1.9184E+03
PA-234M	21.	1001.03	2.0754E+00
TH-234	432.	63.29	1.0373E+02
U-235	648.	185.71	3.0421E+00
NP-237	525.	86.48	1.6561E+01
NP-239	546.	106.12	7.0175E+00

Sample ID : S96T001678-DUP Acquisition date : 25-MAY-1996 13:22:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	585.	129.30	2.3138E+04
AM-241	385.	59.54	1.7296E+01
AM-243	455.	74.67	4.4154E+00

THE FOLLOWING ANALYSES WERE RERUN AND INCLUDED IN THE DATA PACKAGE, BUT THE RESULTS HAVE NOT BEEN REPORTED IN THE FINAL SUMMARY REPORTS.

LABCORE Data Entry Template for Worklist# 7474

Analyst: KNT **Instrument:** GEA00 #1 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106, Sample size = 0.100ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T001566	0		@GEA-01	LIQUID	96000174	C-106 GRAB
	Analytes Requested:	CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S96T001566	0		@GEA-01	LIQUID		

Final page for worklist # 7474

Kim Thomas 4-9-96
Analyst Signature **Date**

M G Brown 4/10/96
Analyst Signature **Date**

DATA NOT USED IN PACKAGE

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 7474

Analyst: knt **Instrument:** GEA01 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106, Sample size = 0.100ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	0.0257	8.56e-02	333.070	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1	1.27	1.270	% Ct. Error
1	STD		0	@GEA-01	CS13702	LIQUID	0.0271	1.03e-01	380.070	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1	1.47	1.470	% Ct. Error
2	BLNK		0	@GEA-01	CO60-02	LIQUID	1	<1.82e-3		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1	<2.08e-3		uCi/mL
3	REJECT	S96T001566	0	@GEA-01	CO60-02	LIQUID	N/A	9.860e-03		uCi/mL
3	REJECT	S96T001566	0	@GEA-01	CO60-02E	LIQUID	N/A	34.6		% Ct. Error
3	REJECT	S96T001566	0	@GEA-01	CS13702	LIQUID	N/A	1.920e+02		uCi/mL
3	REJECT	S96T001566	0	@GEA-01	CS13702E	LIQUID	N/A	0.180		% Ct. Error
4	DUP	S96T001566	0	@GEA-01	CO60-02	LIQUID	9.86e-03	<7.82e-3		RPD
4	DUP	S96T001566	0	@GEA-01	CO60-02E	LIQUID	1	n/a		% Ct. Error
4	DUP	S96T001566	0	@GEA-01	CS13702	LIQUID	1.92e+02	2.02e+02	5.080	RPD
4	DUP	S96T001566	0	@GEA-01	CS13702E	LIQUID	1	0.180	0.180	% Ct. Error

Comments Section:

Comments for sample# S96T001566 **and test** @GEA-01 .
DL=0 => n/a. STD recovery high; re-run requested.

Final page for worklist# 7474

Analyst Signature **Date** **Analyst Signature** **Date**

R J Machelor 4/11/96
Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 10:38:25.60                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7474
Sample ID:               WL7474-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1705.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:28.09 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 09:47:13.70
Decayed to:              9-APR-1996 09:47:13.70
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:12:15.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 4-9-96

Verified by: 4/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.59	4082	0.94	63.83	59	10	6.0			
0	36.09	1096	1.27	72.82	69	10	17.4			
0	661.45*	23504	1.41	1323.54	1316	15	1.5		CS-137	103.
0	1172.97	15677	1.75	2346.83	2337	20	1.8		CO-60	86.5
0	1332.20	14092	1.90	2665.43	2655	20	1.8		CO-60	84.8
0	1378.10*	28	1.26	2757.28	2752	11	75.8			
0	1764.38*	25	2.04	3530.27	3524	13	99.3			

DATA NOT USED IN PACKAGE

Sample ID : WL7474-STD Acquisition date : 9-APR-1996 09:47:13

Total number of lines in spectrum	7	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	4	57.14%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	8.561E+01	8.562E+01	0.109E+01	1.27	
CS-137	30.00Y	1.000	1.026E+02	1.026E+02	0.015E+02	1.47	
		Total Activity :	1.882E+02	1.882E+02			
		Grand Total Activity :	1.882E+02	1.882E+02			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : WL7474-STD Acquisition date : 9-APR-1996 09:47:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1341.	477.59	4.6405E+00
NA-22	85.	1274.53	2.5016E-01
NA-24	39.	1368.55	1.8049E-01
K-40	593.	1460.75	6.8502E+00
CR-51	1308.	320.08	3.2609E+00
MN-54	856.	834.83	6.0033E-01
CO-56	822.	846.76	5.9416E-01
CO-57	1618.	122.06	2.4569E-01
CO-58	766.	810.78	5.5950E-01
FE-59	801.	1099.25	1.2306E+00
SE-75	1341.	264.66	4.8298E-01
SR-85	991.	514.01	4.5920E-01
Y-88	27.	1836.06	1.9800E-01
NB-94	823.	871.09	6.0620E-01
ZRNB-95	685.	724.18	1.1104E+00
RU-103	1032.	497.08	4.7991E-01
RURH-106	776.	621.93	9.2475E+00
AG-108m	649.	722.94	5.1910E-01
CD-109	1345.	88.03	5.2663E+00
AG-110M	1386.	657.76	6.7760E-01
SN-113	1258.	391.69	6.0576E-01
TE-123m	1533.	159.00	2.6223E-01
SB-124	747.	602.73	4.4858E-01
SB-125	1359.	427.89	1.4871E+00
TE-125m	1505.	109.27	7.1383E+01
I-131	1246.	364.48	4.4518E-01
CS-134	709.	604.70	4.3896E-01
BA-140	853.	537.31	1.7446E+00
LA-140	40.	1596.21	2.1676E-01
CEPR-144	1584.	133.51	3.8244E+00
EU-152	41.	1408.01	8.9048E-01
EU-154	85.	1274.51	7.2690E-01
EU-155	1436.	105.31	9.0022E-01
HG-203	1388.	279.20	3.6899E-01
TL-208	1382.	277.36	4.7245E+00
BI-212	706.	727.18	7.4289E+00
PB-212	1699.	238.63	6.7277E-01
BI-214	886.	609.31	1.0757E+00
PB-214	1402.	351.92	1.8543E+00
RA-224	1592.	240.99	7.2302E+00
RA-226	1804.	186.10	7.3478E+00
AC-228	1044.	911.21	2.6432E+00
TH-228	1403.	84.37	1.5356E+01
TH-229	1344.	88.47	7.6917E-01
PA-233	1329.	312.17	8.3946E-01
UTH-233	1418.	245.34	2.5576E+02
PA-234M	832.	1001.03	1.1312E+00
TH-234	1297.	63.29	4.1226E+00
U-235	1777.	185.71	4.4340E-01
NP-237	1394.	86.48	1.5617E+00
NP-239	1433.	106.12	8.6094E-01

DATA NOT USED IN PACKAGE

Minimum Detectable Activity Report (continued)
Sample ID : WL7474-STD Acquisition date : 9-APR-1996 09:47:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1657.	129.30	3.3644E+03
AM-241	1214.	59.54	4.9413E-01
AM-243	1464.	74.67	3.3197E-01

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-APR-1996 11:35:39.20                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              7474
Sample ID:               WL7474-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1706.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:11.70 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 10:44:50.25
Decayed to:              9-APR-1996 10:44:50.25
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:12:15.61
*****************************************************************************
```

Removed by: 4-9-96

Verified by: Bachelor 4/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	15.17	91	1.45	31.00	29	7	77.6			
0	463.23*	27	1.08	927.05	925	6	113.0			
0	1764.39*	10	1.87	3530.27	3522	14	157.5			

DATA NOT USED IN PACKAGE

Sample ID : WL7474-BLK
Acquisition date : 9-APR-1996 10:44:50

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	3	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : WL7474-BLK Acquisition date : 9-APR-1996 10:44:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	121.	477.59	1.3942E+01
NA-22	40.	1274.53	1.7163E+00
NA-24	19.	1368.55	1.2740E+00
K-40	568.	1460.75	6.7060E+01
CR-51	204.	320.08	1.2868E+01
MN-54	64.	834.83	1.6409E+00
CO-56	50.	846.76	1.4660E+00
CO-57	572.	122.06	1.4608E+00
CO-58	59.	810.78	1.5521E+00
FE-59	49.	1099.25	3.0365E+00
CO-60	42.	1332.50	1.8194E+00
SE-75	301.	264.66	2.2902E+00
SR-85	141.	514.01	1.7344E+00
Y-88	6.	1836.06	9.2792E-01
NB-94	50.	871.09	1.4995E+00
ZRNB-95	78.	724.18	3.7419E+00
RU-103	127.	497.08	1.6822E+00
RURH-106	71.	621.93	2.7882E+01
AG-108m	73.	722.94	1.7463E+00
CD-109	406.	88.03	2.8919E+01
AG-110M	80.	657.76	1.6261E+00
SN-113	174.	391.69	2.2519E+00
TE-123m	531.	159.00	1.5442E+00
SB-124	86.	602.73	1.5215E+00
SB-125	146.	427.89	4.8782E+00
TE-125m	521.	109.27	4.2010E+02
I-131	188.	364.48	1.7271E+00
CS-134	80.	604.70	1.4746E+00
CS-137	105.	661.66	2.0823E+00
BA-140	101.	537.31	5.9910E+00
LA-140	12.	1596.21	1.1846E+00
CEPR-144	498.	133.51	2.1446E+01
EU-152	34.	1408.01	8.1298E+00
EU-154	40.	1274.51	4.9850E+00
EU-155	474.	105.31	5.1733E+00
HG-203	277.	279.20	1.6477E+00
TL-208	281.	277.36	2.1290E+01
BI-212	87.	727.18	2.6017E+01
PB-212	439.	238.63	3.4180E+00
BI-214	247.	609.31	5.6822E+00
PB-214	316.	351.92	8.7849E+00
RA-224	376.	240.99	3.5128E+01
RA-226	497.	186.10	3.8566E+01
AC-228	127.	911.21	9.2109E+00
TH-228	537.	84.37	9.5051E+01
TH-229	386.	88.47	4.1219E+00
PA-233	225.	312.17	3.4512E+00
UTH-233	309.	245.34	1.1940E+03
PA-234M	58.	1001.03	2.9852E+00
TH-234	440.	63.29	2.4011E+01
U-235	493.	185.71	2.3367E+00

DATA NOT USED IN PACKAGE

Sample ID : WL7474-BLK Acquisition date : 9-APR-1996 10:44:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	453.	86.48	8.8993E+00
NP-239	481.	106.12	4.9879E+00
PU-239	508.	129.30	1.8630E+04
AM-241	389.	59.54	2.7960E+00
AM-243	503.	74.67	1.9462E+00

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 13:28:14.97                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7474
Sample ID:               S96T001566-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1707.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:56:16.91 sec
Dead Time:                11%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 12:31:19.89
Decayed to:              9-APR-1996 12:31:19.89
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:13:20.37
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 4-9-96

Verified by: Bachelor 4/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	11.86	691	0.70	24.38	23	5	62.4			
0	21.47	6428	1.30	43.58	40	8	10.9			
10	29.98	39864	2.16	60.60	51	29	3.6	7.04E+02		
10	31.68	189002	1.16	64.01	51	29	0.6			
10	36.04	72539	2.15	72.72	51	29	1.6			
4	72.52*	7484	1.19	145.67	141	14	8.4	3.34E+00		
4	74.66*	12663	1.01	149.96	141	14	4.6		AM-243	806.
5	84.47*	8233	1.37	169.58	165	13	8.6	3.39E+00	TH-228	2.508E+04
5	86.91*	2341	1.15	174.46	165	13	26.6		NP-237	729.
									CD-109	2.504E+03
0	122.83	1150	1.46	246.29	244	6	49.0		CO-57	52.1
									EU-154	111.
0	661.42*	1290169	1.54	1323.47	1315	17	0.2		CS-137	1.917E+05
0	691.93	286	2.20	1384.51	1380	15	52.1		CO-57	2.323E+04
0	722.84	120	1.05	1446.34	1442	10	44.8		EU-154	81.9
0	873.06	82	1.35	1746.82	1744	10	47.2		EU-154	107.
0	996.24	83	2.33	1993.25	1988	11	41.0		EU-154	137.
0	1004.15	108	1.59	2009.08	2000	17	49.5		EU-154	103.
0	1173.14	43	1.15	2347.18	2345	8	62.4		CO-60	8.15
0	1274.19	111	1.34	2549.35	2544	14	38.4		EU-154	64.4
0	1322.81	208	2.14	2646.64	2641	11	16.7			
0	1332.64	55	1.48	2666.30	2660	12	40.9		CO-60	11.3

DATA
NOT USED
IN PACKAGE

Sample ID : S96T001566-SAM Acquisition date : 9-APR-1996 12:31:19

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	20	
Number of unidentified lines	7	
Number of lines tentatively identified by NID	13	65.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.323E+04~~	~~2.323E+04~~	~~1.210E+04~~	~~52.08~~	BKG
CO-60	5.27Y	1.000	9.859E+00	9.860E+00	3.417E+00	34.65	
~~CD-109~~	~~462.90D~~	~~1.000~~	~~2.504E+03~~	~~2.504E+03~~	~~0.666E+03~~	~~26.58~~	artifact
CS-137	30.00Y	1.000	1.917E+05	1.917E+05	0.003E+05	0.18	
EU-154	8.59Y	1.000	8.384E+01	8.384E+01	1.697E+01	20.24	
~~TH-228~~	~~1.91Y~~	~~1.000~~	~~2.508E+04~~	~~2.508E+04~~	~~0.215E+04~~	~~8.56~~	Pb x-ray
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~7.288E+02~~	~~7.288E+02~~	~~1.937E+02~~	~~26.58~~	artifact
AM-243	7380.00Y	1.000	8.065E+02	8.065E+02	0.373E+02	4.63	
		Total Activity :	2.442E+05	2.442E+05			
		Grand Total Activity :	2.442E+05	2.442E+05			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : S96T001566-SAM
Acquisition date : 9-APR-1996 12:31:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	39914.	477.59	8.4756E+02
NA-22	167.	1274.53	1.2035E+01
NA-24	26.	1368.55	5.0387E+00
K-40	566.	1460.75	2.2784E+02
CR-51	30935.	320.08	5.2481E+02
MN-54	100.	834.83	7.0532E+00
CO-56	111.	846.76	7.5198E+00
CO-58	102.	810.78	7.0261E+00
FE-59	64.	1099.25	1.1988E+01
SE-75	29981.	264.66	7.5684E+01
SR-85	20478.	514.01	7.0141E+01
Y-88	4.	1836.06	2.5043E+00
NB-94	162.	871.09	9.2679E+00
ZRNB-95	285.	724.18	2.4489E+01
RU-103	24694.	497.08	7.8755E+01
RURH-106	6433.	621.93	9.0338E+02
AG-108m	282.	722.94	1.1693E+01
AG-110M	59245.	657.76	1.5076E+02
SN-113	36538.	391.69	1.0844E+02
TE-123m	34512.	159.00	4.2257E+01
SB-124	6783.	602.73	4.5789E+01
SB-125	43524.	427.89	2.8042E+02
TE-125m	29417.	109.27	1.0940E+04
I-131	34058.	364.48	7.7178E+01
CS-134	6533.	604.70	4.5148E+01
BA-140	14735.	537.31	2.4422E+02
LA-140	23.	1596.21	5.5040E+00
CEPR-144	32094.	133.51	5.9122E+02
EU-152	32.	1408.01	2.7158E+01
EU-155	28530.	105.31	1.3924E+02
HG-203	30119.	279.20	5.6903E+01
TL-208	29971.	277.36	7.2860E+02
BI-212	156.	727.18	1.1942E+02
PB-212	34125.	238.63	1.0019E+02
BI-214	6827.	609.31	1.0122E+02
PB-214	33090.	351.92	3.1642E+02
RA-224	33116.	240.99	1.0957E+03
RA-226	53060.	186.10	1.3399E+03
AC-228	153.	911.21	3.4908E+01
TH-229	28728.	88.47	1.2320E+02
PA-233	30796.	312.17	1.3371E+02
UTH-233	32422.	245.34	4.0600E+04
PA-234M	85.	1001.03	1.2493E+01
TH-234	25820.	63.29	6.0795E+02
U-235	52329.	185.71	8.0913E+01
NP-239	28820.	106.12	1.3401E+02
PU-239	32093.	129.30	5.0942E+05
AM-241	25776.	59.54	7.3901E+01

DATA
NOT USED
IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 14:41:33.93                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              7474
Sample ID:               S96T001566-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01
```

Removed by: 4-9-96

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA1
File Number:             dka300:[spec.GEA1]1g1708.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:56:37.57 sec
Dead Time:                12%
```

Verified by: Bmachelor 4/10/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 13:44:11.39
Decayed to:              9-APR-1996 13:44:11.39
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:13:20.37
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
8	8.25	6118	0.96	17.16	15	8	4.4	9.56E+01		
8	9.30	4295	1.24	19.26	15	8	10.6			
0	12.17	804	0.58	24.99	23	6	63.2			
0	21.49	5781	1.23	43.63	41	7	11.3			
10	27.30	12901	1.94	55.24	51	29	6.1	1.30E+03		
10	28.56	21242	1.22	57.77	51	29	3.6			
10	31.67	204540	1.14	63.98	51	29	0.6			
10	36.03	75253	2.13	72.70	51	29	1.6			
4	72.49*	7737	1.25	145.62	141	14	9.4	4.00E+00		
4	74.67*	13530	1.06	149.97	141	14	4.5		AM-243	862.
5	84.46*	8546	1.41	169.55	165	14	8.4	1.74E+00	TH-228	2.604E+04
5	86.87*	3424	1.27	174.38	165	14	20.7		NP-237	1.066E+03
									CD-109	3.662E+03
0	122.78	1075	1.08	246.18	244	6	54.3		CO-57	48.7
									EU-154	104.
0	661.42*	1361353	1.55	1323.48	1315	17	0.2		CS-137	2.023E+05
0	723.06	121	1.48	1446.76	1442	11	45.4		EU-154	82.6
0	872.64	86	2.17	1745.98	1741	11	51.3		EU-154	112.
0	996.15	83	2.17	1993.08	1987	13	47.4		EU-154	137.
0	1004.37	147	1.74	2009.52	2001	19	37.3		EU-154	141.
0	1173.25	39	1.83	2347.39	2342	9	71.4		CO-60	7.39
0	1274.17	155	1.57	2549.31	2542	15	26.4		EU-154	90.5

DATA NOT USED IN PACKAGE

Sample ID : S96T001566-DUP Acquisition date : 9-APR-1996 13:44:11

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	1322.70	286	2.15	2646.41	2636	18	15.0			
0	1332.15	42	1.91	2665.33	2657	15	85.8		CO-60	8.70

DATA NOT USED IN PACKAGE

DATA NOT USED IN PACKAGE

Sample ID : S96T001566-DUP
Acquisition date : 9-APR-1996 13:44:11

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	22	
Number of unidentified lines	10	
Number of lines tentatively identified by NID	12	54.55%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~4.873E+01~~	~~4.873E+01~~	~~2.647E+01~~	~~54.32~~	30 KS
~~CO-60~~	~~5.27Y~~	~~1.000~~	~~7.822E+00~~	~~7.822E+00~~	~~4.306E+00~~	~~55.05~~	
~~CD-109~~	~~462.90D~~	~~1.000~~	~~3.662E+03~~	~~3.662E+03~~	~~0.757E+03~~	~~20.67~~	artifact
CS-137	30.00Y	1.000	2.023E+05	2.023E+05	0.004E+05	0.18	
EU-154	8.59Y	1.000	9.948E+01	9.948E+01	1.725E+01	17.34	
TH-228	1.91Y	1.000	2.604E+04	2.604E+04	0.219E+04	8.41	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.066E+03~~	~~1.066E+03~~	~~0.220E+03~~	~~20.67~~	artifact
AM-243	7380.00Y	1.000	8.617E+02	8.617E+02	0.384E+02	4.46	
	Total Activity :		2.341E+05	2.341E+05			

Grand Total Activity : 2.341E+05 2.341E+05

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA
NOT USED
IN PACKAGE

Sample ID : S96T001566-DUP Acquisition date : 9-APR-1996 13:44:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	41589.	477.59	8.6516E+02
NA-22	194.	1274.53	1.2975E+01
NA-24	15.	1368.55	3.8016E+00
K-40	607.	1460.75	2.3595E+02
CR-51	32821.	320.08	5.4057E+02
MN-54	123.	834.83	7.8353E+00
CO-56	122.	846.76	7.8783E+00
CO-58	99.	810.78	6.9046E+00
FE-59	68.	1099.25	1.2422E+01
SE-75	32251.	264.66	7.8498E+01
SR-85	21375.	514.01	7.1661E+01
Y-88	10.	1836.06	3.9647E+00
NB-94	167.	871.09	9.3993E+00
ZRNB-95	267.	724.18	2.3708E+01
RU-103	26243.	497.08	8.1188E+01
RURH-106	6759.	621.93	9.2601E+02
AG-108m	268.	722.94	1.1409E+01
AG-110M	63234.	657.76	1.5576E+02
SN-113	38954.	391.69	1.1197E+02
TE-123m	36368.	159.00	4.3379E+01
SB-124	7042.	602.73	4.6655E+01
SB-125	45797.	427.89	2.8765E+02
TE-125m	31361.	109.27	1.1295E+04
I-131	35734.	364.48	7.9055E+01
CS-134	6952.	604.70	4.6574E+01
BA-140	15195.	537.31	2.4801E+02
LA-140	12.	1596.21	4.0019E+00
CEPR-144	34177.	133.51	6.1012E+02
EU-152	35.	1408.01	2.8078E+01
EU-155	30349.	105.31	1.4361E+02
HG-203	31933.	279.20	5.8591E+01
TL-208	31857.	277.36	7.5117E+02
BI-212	163.	727.18	1.2215E+02
PB-212	35845.	238.63	1.0268E+02
BI-214	6960.	609.31	1.0220E+02
PB-214	34884.	351.92	3.2599E+02
RA-224	35012.	240.99	1.1266E+03
RA-226	56156.	186.10	1.3784E+03
AC-228	168.	911.21	3.6586E+01
TH-229	30336.	88.47	1.2660E+02
PA-233	32620.	312.17	1.3761E+02
UTH-233	34253.	245.34	4.1731E+04
PA-234M	89.	1001.03	1.2800E+01
TH-234	26853.	63.29	6.2000E+02
U-235	55526.	185.71	8.3347E+01
NP-239	30529.	106.12	1.3793E+02
PU-239	33836.	129.30	5.2307E+05
AM-241	26953.	59.54	7.5569E+01

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 8878

Analyst: SMF **Instrument:** GEA00 #2 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106. RUSH! Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T001036	0	F	@GEA-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001036	0	F	@GEA-01	SOLID		
5	SAMPLE	S96T001563	0	F	@GEA-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T001563	0	F	@GEA-01	SOLID		

Final page for worklist # 8878

Analyst Signature: [illegible] Date: 5-18-96 1700

Analyst Signature: Sue E. Hogan Date: 5/20/96

Data Entry Comments:

DATA NOT USED IN PACKAGE

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrad Version 0.0 04/18/96
05/21/96 10:11

LABCORE Completed RadChem Report for Worklist#: 8878

Analyst: smf **Instrument:** GEA02 **Book#** 12 B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106. RUSH! Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	2.537e-02		2.08e-02	81.987	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1		1.50	1.500	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.705e-02		2.14e-02	79.113	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		1.84	1.840	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1		<1.28e0		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<2.95e0		uCi/g
3	SAMPLE	S96T001036	0	F	@GEA-01	CO60-02	SOLID	N/A	<	1.692e+00	169.2e-002	uCi/g
3	SAMPLE	S96T001036	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001036	0	F	@GEA-01	CS13702	SOLID	N/A		7.822e+02	0.0e+000	uCi/g
3	SAMPLE	S96T001036	0	F	@GEA-01	CS13702E	SOLID	N/A		1.85	0.0e+000	% Ct. Error
4	DUP	S96T001036	0	F	@GEA-01	CO60-02	SOLID	<1.69e0		<1.60e0		RPD
4	DUP	S96T001036	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T001036	0	F	@GEA-01	CS13702	SOLID	7.82e+02		6.37e+02	20.437	RPD
4	DUP	S96T001036	0	F	@GEA-01	CS13702E	SOLID	1.00		2.03	2.030	% Ct Error
5	SAMPLE	S96T001563	0	F	@GEA-01	CO60-02	SOLID	N/A	<	1.399e+00	139.9e-002	uCi/g
5	SAMPLE	S96T001563	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T001563	0	F	@GEA-01	CS13702	SOLID	N/A		7.868e+02	0.0e+000	uCi/g
5	SAMPLE	S96T001563	0	F	@GEA-01	CS13702E	SOLID	N/A		1.85	0.0e+000	% Ct. Error
6	DUP	S96T001563	0	F	@GEA-01	CO60-02	SOLID	<1.40e0		<1.53e0		RPD
6	DUP	S96T001563	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
6	DUP	S96T001563	0	F	@GEA-01	CS13702	SOLID	7.87e+02		7.62e+02	3.228	RPD
6	DUP	S96T001563	0	F	@GEA-01	CS13702E	SOLID	1.00		1.88	1.880	% Ct Error

Comments Section:

Comments for sample# S96T001036 **and test** @GEA-01 .
DL=0 => n/a. Low std recovery and high RPD. Rerun

Comments for sample# S96T001563 **and test** @GEA-01 .
DL=0 => n/a. Low std recovery. Rerun

Final page for worklist# 8878

Analyst Signature **Date** **Analyst Signature** **Date**

R T Jones 5/21/96
Reviewer Signature Date

DATA NOT USED IN PACKAGE

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-MAY-1996 20:50:36.58                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-183, REV. 0

```
Worklist #:              8878
Sample ID:               WL8878-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: 5-18-96

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2748.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:07.14 sec
Dead Time:               0.2%
```

Verified by:

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-MAY-1996 19:59:51.79
Decayed to:              18-MAY-1996 19:59:51.79
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.79*	15437	1.56	1323.60	1315	16	1.8		CS-137	21.4
0	1173.38	10758	1.83	2346.81	2337	18	2.1		CO-60	21.1
0	1332.67	9380	1.95	2665.49	2656	18	2.1		CO-60	20.4

DATA NOT USED IN PACKAGE

Summary of Nuclide Activity
Sample ID : WL8878-STD

Acquisition date : 18-MAY-1996 19:59:51

Total number of lines in spectrum	3	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	3	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.077E+01	2.077E+01	0.031E+01	1.50	
CS-137	30.00Y	1.000	2.142E+01	2.142E+01	0.039E+01	1.84	
		Total Activity :	4.219E+01	4.219E+01			
		Grand Total Activity :	4.219E+01	4.219E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : WL8878-STD Acquisition date : 18-MAY-1996 19:59:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	863.	477.59	1.1914E+00
NA-22	71.	1274.53	8.2042E-02
NA-24	31.	1368.55	5.8187E-02
K-40	126.	1460.75	1.1446E+00
CR-51	957.	320.08	9.3631E-01
MN-54	553.	834.83	1.5758E-01
CO-56	589.	846.76	1.6463E-01
CO-57	1027.	122.06	7.1644E-02
CO-58	491.	810.78	1.4556E-01
FE-59	516.	1099.25	3.4538E-01
SE-75	1096.	264.66	1.5125E-01
SR-85	661.	514.01	1.1980E-01
Y-88	5.	1836.06	2.9456E-02
NB-94	641.	871.09	1.7586E-01
ZRNB-95	419.	724.18	2.7807E-01
RU-103	685.	497.08	1.2506E-01
RURH-106	498.	621.93	2.3501E+00
AG-108m	438.	722.94	1.3657E-01
CD-109	863.	88.03	2.2552E+00
AG-110M	694.	657.76	1.5233E-01
SN-113	869.	391.69	1.6226E-01
TE-123m	1062.	159.00	7.2910E-02
SB-124	533.	602.73	1.2026E-01
SB-125	902.	427.89	3.8787E-01
TE-125m	954.	109.27	2.2891E+01
I-131	869.	364.48	1.2149E-01
CS-134	531.	604.70	1.2059E-01
BA-140	575.	537.31	4.5643E-01
LA-140	11.	1596.21	4.0395E-02
CEPR-144	1055.	133.51	1.0856E+00
EU-152	26.	1408.01	2.5693E-01
EU-154	71.	1274.51	2.3863E-01
EU-155	925.	105.31	3.0269E-01
HG-203	1016.	279.20	1.0833E-01
TL-208	1054.	277.36	1.4177E+00
BI-212	436.	727.18	1.8696E+00
PB-212	1181.	238.63	1.9611E-01
BI-214	475.	609.31	2.4993E-01
PB-214	858.	351.92	4.7634E-01
RA-224	1139.	240.99	2.1375E+00
RA-226	1167.	186.10	1.9930E+00
AC-228	652.	911.21	6.9293E-01
TH-228	926.	84.37	7.1754E+00
TH-229	868.	88.47	3.2791E-01
PA-233	957.	312.17	2.4010E-01
UTH-233	1189.	245.34	8.1805E+01
PA-234M	516.	1001.03	3.0349E-01
TH-234	797.	63.29	3.8765E+00
U-235	1162.	185.71	1.2085E-01
NP-237	852.	86.48	6.7251E-01
NP-239	911.	106.12	2.8507E-01

DATA NOT USED IN PACKAGE

Sample ID : WL8878-STD Acquisition date : 18-MAY-1996 19:59:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1048.	129.30	9.4512E+02
AM-241	878.	59.54	6.4791E-01
AM-243	961.	74.67	1.9865E-01

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-MAY-1996 21:51:15.91                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8878
Sample ID:               WL8878-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         8.40000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2749.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.50 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-MAY-1996 21:00:37.20
Decayed to:              18-MAY-1996 21:00:37.20
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: 5-18-96

Verified by: RAJones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.87*	47	1.53	1323.77	1317	14	71.3		CS-137	5.53

DATA NOT USED IN PACKAGE

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~5.534E+00~~	~~5.534E+00~~	~~3.946E+00~~	~~71.31~~	750%
Total Activity :			5.534E+00	5.534E+00			
Grand Total Activity :			5.534E+00	5.534E+00			

7/23/96 Blag

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : WL8878-BLK Acquisition date : 18-MAY-1996 21:00:37

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	31.	477.59	1.8897E+01
NA-22	9.	1274.53	2.4538E+00
NA-24	5.	1368.55	1.9929E+00
K-40	110.	1460.75	9.0024E+01
CR-51	55.	320.08	1.8839E+01
MN-54	16.	834.83	2.2770E+00
CO-56	15.	846.76	2.2068E+00
CO-57	71.	122.06	1.5881E+00
CO-58	10.	810.78	1.7352E+00
FE-59	12.	1099.25	4.3840E+00
CO-60	8.	1332.50	2.4110E+00
SE-75	58.	264.66	2.9156E+00
SR-85	44.	514.01	2.6058E+00
Y-88	2.	1836.06	1.5649E+00
NB-94	21.	871.09	2.6922E+00
ZRNB-95	17.	724.18	4.6963E+00
RU-103	27.	497.08	2.0834E+00
RURH-106	19.	621.93	3.9003E+01
AG-108m	18.	722.94	2.3104E+00
CD-109	66.	88.03	5.2544E+01
AG-110M	22.	657.76	2.2769E+00
SN-113	43.	391.69	3.0305E+00
TE-123m	84.	159.00	1.7191E+00
SB-124	19.	602.73	1.9283E+00
SB-125	53.	427.89	7.8989E+00
TE-125m	62.	109.27	4.9179E+02
I-131	41.	364.48	2.2206E+00
CS-134	19.	604.70	1.9307E+00
BA-140	30.	537.31	8.7997E+00
LA-140	5.	1596.21	2.3322E+00
CEPR-144	85.	133.51	2.5818E+01
EU-152	7.	1408.01	1.1308E+01
EU-154	9.	1274.51	7.1450E+00
EU-155	67.	105.31	6.8372E+00
HG-203	66.	279.20	2.3118E+00
TL-208	59.	277.36	2.8067E+01
BI-212	14.	727.18	2.8295E+01
PB-212	71.	238.63	4.0410E+00
BI-214	43.	609.31	6.3045E+00
PB-214	72.	351.92	1.1560E+01
RA-224	72.	240.99	4.5233E+01
RA-226	96.	186.10	4.7992E+01
AC-228	25.	911.21	1.1491E+01
TH-228	78.	84.37	1.7460E+02
TH-229	71.	88.47	7.8609E+00
PA-233	40.	312.17	4.1167E+00
UTH-233	78.	245.34	1.7609E+03
PA-234M	19.	1001.03	4.9519E+00
TH-234	54.	63.29	8.4511E+01
U-235	97.	185.71	2.9260E+00
NP-237	66.	86.48	1.5736E+01

DATA NOT USED IN PACKAGE

Sample ID : WL8878-BLK Acquisition date : 18-MAY-1996 21:00:37

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	65.	106.12	6.3877E+00
PU-239	61.	129.30	1.9220E+04
AM-241	56.	59.54	1.3730E+01
AM-243	75.	74.67	4.6511E+00

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-MAY-1996 23:19:10.74                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8878
Sample ID:               S96T001036-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         8.40000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2750.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.16 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-MAY-1996 22:28:27.87
Decayed to:              18-MAY-1996 22:28:27.87
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: 5-18-96

Verified by: RA Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.79*	12573	1.55	1323.60	1316	16	1.8		CS-137	1.466E+03

DATA NOT USED IN PACKAGE

Summary of Nuclide Activity
Sample ID : S96T001036-SAM

Acquisition date : 18-MAY-1996 22:28:27

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.466E+03	1.466E+03	0.027E+03	1.85	
		Total Activity :	1.466E+03	1.466E+03			
		Grand Total Activity :	1.466E+03	1.466E+03			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

DATA
NOT USED
IN PACKAGE

Sample ID : S96T001036-SAM
Acquisition date : 18-MAY-1996 22:28:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	397.	477.59	6.7916E+01
NA-22	13.	1274.53	2.9763E+00
NA-24	7.	1368.55	2.3360E+00
K-40	100.	1460.75	8.5791E+01
CR-51	374.	320.08	4.9131E+01
MN-54	16.	834.83	2.2396E+00
CO-56	15.	846.76	2.2061E+00
CO-57	462.	122.06	4.0376E+00
CO-58	13.	810.78	1.9883E+00
FE-59	11.	1099.25	4.1937E+00
CO-60	14.	1332.50	3.1801E+00
SE-75	410.	264.66	7.7682E+00
SR-85	245.	514.01	6.1270E+00
Y-88	4.	1836.06	2.2131E+00
NB-94	17.	871.09	2.4001E+00
ZRNB-95	26.	724.18	5.8464E+00
RU-103	278.	497.08	6.6925E+00
RURH-106	117.	621.93	9.5628E+01
AG-108m	21.	722.94	2.4933E+00
CD-109	393.	88.03	1.2784E+02
AG-110M	247.	657.76	7.6340E+00
SN-113	423.	391.69	9.5033E+00
TE-123m	475.	159.00	4.0951E+00
SB-124	119.	602.73	4.7810E+00
SB-125	458.	427.89	2.3225E+01
TE-125m	420.	109.27	1.2760E+03
I-131	384.	364.48	6.7825E+00
CS-134	119.	604.70	4.7949E+00
BA-140	158.	537.31	2.0088E+01
LA-140	6.	1596.21	2.6234E+00
CEPR-144	419.	133.51	5.7450E+01
EU-152	10.	1408.01	1.3142E+01
EU-154	13.	1274.51	8.6075E+00
EU-155	441.	105.31	1.7566E+01
HG-203	373.	279.20	5.5115E+00
TL-208	370.	277.36	7.0546E+01
BI-212	25.	727.18	3.7773E+01
PB-212	465.	238.63	1.0332E+01
BI-214	113.	609.31	1.0228E+01
PB-214	394.	351.92	2.7084E+01
RA-224	486.	240.99	1.1722E+02
RA-226	536.	186.10	1.1340E+02
AC-228	29.	911.21	1.2317E+01
TH-228	396.	84.37	3.9411E+02
TH-229	376.	88.47	1.8135E+01
PA-233	380.	312.17	1.2701E+01
UTH-233	449.	245.34	4.2207E+03
PA-234M	17.	1001.03	4.6642E+00
TH-234	381.	63.29	2.2509E+02
U-235	529.	185.71	6.8507E+00
NP-237	390.	86.48	3.8228E+01

DATA
NOT USED
IN PACKAGE

Minimum Detectable Activity Report (continued)
Sample ID : S96T001036-SAM Acquisition date : 18-MAY-1996 22:28:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	441.	106.12	1.6673E+01
PU-239	452.	129.30	5.2136E+04
AM-241	422.	59.54	3.7747E+01
AM-243	367.	74.67	1.0308E+01

DATA NOT USED IN PACKAGE

```
*************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 00:19:08.17              *
*************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8878
Sample ID:               S96T001036-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         8.40000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2751.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:01.89 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-MAY-1996 23:28:27.04
Decayed to:              18-MAY-1996 23:28:27.04
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*************************************************************************
```

Removed by: ALJ 5-19-96

Verified by: RA Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.80*	10353	1.53	1323.62	1315	17	2.0		CS-137	1.207E+03

DATA NOT USED IN PACKAGE

Summary of Nuclide Activity
Sample ID : S96T001036-DUP

Acquisition date : 18-MAY-1996 23:28:27

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.207E+03	1.207E+03	0.025E+03	2.03	
		Total Activity :	1.207E+03	1.207E+03			
		Grand Total Activity :	1.207E+03	1.207E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA
NOT USED
IN PACKAGE

Sample ID : S96T001036-DUP Acquisition date : 18-MAY-1996 23:28:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	359.	477.59	6.4575E+01
NA-22	13.	1274.53	2.9568E+00
NA-24	8.	1368.55	2.4293E+00
K-40	106.	1460.75	8.8236E+01
CR-51	329.	320.08	4.6139E+01
MN-54	17.	834.83	2.3257E+00
CO-56	20.	846.76	2.5507E+00
CO-57	434.	122.06	3.9109E+00
CO-58	18.	810.78	2.3340E+00
FE-59	10.	1099.25	4.1121E+00
CO-60	13.	1332.50	3.0377E+00
SE-75	372.	264.66	7.4047E+00
SR-85	192.	514.01	5.4282E+00
Y-88	4.	1836.06	2.2131E+00
NB-94	24.	871.09	2.8289E+00
ZRNB-95	25.	724.18	5.6871E+00
RU-103	227.	497.08	6.0472E+00
RURH-106	100.	621.93	8.8647E+01
AG-108m	27.	722.94	2.8582E+00
CD-109	400.	88.03	1.2900E+02
AG-110M	246.	657.76	7.6249E+00
SN-113	349.	391.69	8.6403E+00
TE-123m	423.	159.00	3.8637E+00
SB-124	112.	602.73	4.6299E+00
SB-125	378.	427.89	2.1086E+01
TE-125m	388.	109.27	1.2272E+03
I-131	306.	364.48	6.0550E+00
CS-134	98.	604.70	4.3461E+00
BA-140	187.	537.31	2.1853E+01
LA-140	2.	1596.21	1.5922E+00
CEPR-144	382.	133.51	5.4870E+01
EU-152	11.	1408.01	1.4112E+01
EU-154	13.	1274.51	8.5902E+00
EU-155	380.	105.31	1.6294E+01
HG-203	361.	279.20	5.4276E+00
TL-208	333.	277.36	6.6921E+01
BI-212	22.	727.18	3.5406E+01
PB-212	419.	238.63	9.8086E+00
BI-214	113.	609.31	1.0242E+01
PB-214	296.	351.92	2.3480E+01
RA-224	404.	240.99	1.0690E+02
RA-226	456.	186.10	1.0461E+02
AC-228	31.	911.21	1.2775E+01
TH-228	347.	84.37	3.6909E+02
TH-229	399.	88.47	1.8679E+01
PA-233	325.	312.17	1.1752E+01
UTH-233	424.	245.34	4.1034E+03
PA-234M	9.	1001.03	3.3061E+00
TH-234	330.	63.29	2.0946E+02
U-235	447.	185.71	6.2946E+00
NP-237	396.	86.48	3.8521E+01

DATA NOT USED IN PACKAGE

Minimum Detectable Activity Report (continued)
Sample ID : S96T001036-DUP Acquisition date : 18-MAY-1996 23:28:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	377.	106.12	1.5412E+01
PU-239	374.	129.30	4.7424E+04
AM-241	322.	59.54	3.2936E+01
AM-243	346.	74.67	1.0018E+01

DATA
NOT USED
IN PACKAGE

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*****************************************************************************
* 222-S Laboratory Counting Room    19-MAY-1996 01:55:55.06                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8878
Sample ID:               S96T001563-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         8.40000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2752.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.18 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 01:05:13.98
Decayed to:              19-MAY-1996 01:05:13.98
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: 5-19-96

Verified by: R A Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.81*	12621	1.52	1323.64	1315	17	1.9		CS-137	1.471E+03

DATA NOT USED IN PACKAGE

Summary of Nuclide Activity
Sample ID : S96T001563-SAM

Acquisition date : 19-MAY-1996 01:05:13

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.471E+03	1.471E+03	0.027E+03	1.85	
		Total Activity :	1.471E+03	1.471E+03			
		Grand Total Activity :	1.471E+03	1.471E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA
NOT USED
IN PACKAGE

Sample ID : S96T001563-SAM Acquisition date : 19-MAY-1996 01:05:13

WHC-SD-WM-DP-183, REV. (

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	438.	477.59	7.1312E+01
NA-22	12.	1274.53	2.8712E+00
NA-24	10.	1368.55	2.8040E+00
K-40	106.	1460.75	8.8236E+01
CR-51	379.	320.08	4.9497E+01
MN-54	18.	834.83	2.3618E+00
CO-56	18.	846.76	2.4173E+00
CO-57	489.	122.06	4.1531E+00
CO-58	17.	810.78	2.2588E+00
FE-59	14.	1099.25	4.8127E+00
CO-60	9.	1332.50	2.6138E+00
SE-75	423.	264.66	7.8907E+00
SR-85	238.	514.01	6.0408E+00
Y-88	2.	1836.06	1.5649E+00
NB-94	13.	871.09	2.1340E+00
ZRNB-95	18.	724.18	4.7951E+00
RU-103	270.	497.08	6.5900E+00
RURH-106	89.	621.93	8.3648E+01
AG-108m	18.	722.94	2.3156E+00
CD-109	380.	88.03	1.2568E+02
AG-110M	290.	657.76	8.2723E+00
SN-113	385.	391.69	9.0720E+00
TE-123m	439.	159.00	3.9367E+00
SB-124	112.	602.73	4.6211E+00
SB-125	432.	427.89	2.2545E+01
TE-125m	417.	109.27	1.2719E+03
I-131	368.	364.48	6.6404E+00
CS-134	115.	604.70	4.7232E+00
BA-140	189.	537.31	2.1987E+01
LA-140	7.	1596.21	2.8207E+00
CEPR-144	457.	133.51	5.9994E+01
EU-152	7.	1408.01	1.1257E+01
EU-154	12.	1274.51	8.3416E+00
EU-155	426.	105.31	1.7263E+01
HG-203	379.	279.20	5.5604E+00
TL-208	380.	277.36	7.1517E+01
BI-212	14.	727.18	2.8154E+01
PB-212	516.	238.63	1.0883E+01
BI-214	126.	609.31	1.0822E+01
PB-214	393.	351.92	2.7044E+01
RA-224	528.	240.99	1.2219E+02
RA-226	504.	186.10	1.1000E+02
AC-228	32.	911.21	1.2977E+01
TH-228	412.	84.37	4.0212E+02
TH-229	371.	88.47	1.8011E+01
PA-233	378.	312.17	1.2675E+01
UTH-233	474.	245.34	4.3373E+03
PA-234M	14.	1001.03	4.2232E+00
TH-234	374.	63.29	2.2295E+02
U-235	500.	185.71	6.6623E+00
NP-237	428.	86.48	4.0028E+01

DATA
NOT USED
IN PACKAGE

Sample ID : S96T001563-SAM Acquisition date : 19-MAY-1996 01:05:13

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	441.	106.12	1.6655E+01
PU-239	481.	129.30	5.3777E+04
AM-241	346.	59.54	3.4156E+01
AM-243	359.	74.67	1.0199E+01

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 02:49:48.89                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8878
Sample ID:               S96T001563-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         8.40000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2753.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.11 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 01:59:04.94
Decayed to:              19-MAY-1996 01:59:04.94
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 5-19-96

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.81*	12081	1.52	1323.64	1315	18	1.9		CS-137	1.408E+03

DATA NOT USED IN PACKAGE

Sample ID : S96T001563-DUP
Acquisition date : 19-MAY-1996 01:59:04

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.408E+03	1.408E+03	0.026E+03	1.88	
		Total Activity :	1.408E+03	1.408E+03			
		Grand Total Activity :	1.408E+03	1.408E+03			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : S96T001563-DUP
Acquisition date : 19-MAY-1996 01:59:04

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	402.	477.59	6.8346E+01
NA-22	17.	1274.53	3.3719E+00
NA-24	8.	1368.55	2.5030E+00
K-40	114.	1460.75	9.1558E+01
CR-51	363.	320.08	4.8461E+01
MN-54	22.	834.83	2.6162E+00
CO-56	19.	846.76	2.4835E+00
CO-57	485.	122.06	4.1358E+00
CO-58	8.	810.78	1.5498E+00
FE-59	9.	1099.25	3.9202E+00
CO-60	11.	1332.50	2.8249E+00
SE-75	377.	264.66	7.4548E+00
SR-85	248.	514.01	6.1594E+00
Y-88	0.	1836.06	0.0000E+00
NB-94	19.	871.09	2.5576E+00
ZRNB-95	25.	724.18	5.7582E+00
RU-103	280.	497.08	6.7117E+00
RURH-106	90.	621.93	8.3778E+01
AG-108m	26.	722.94	2.8142E+00
CD-109	374.	88.03	1.2470E+02
AG-110M	242.	657.76	7.5599E+00
SN-113	407.	391.69	9.3294E+00
TE-123m	462.	159.00	4.0395E+00
SB-124	109.	602.73	4.5675E+00
SB-125	457.	427.89	2.3194E+01
TE-125m	421.	109.27	1.2779E+03
I-131	325.	364.48	6.2445E+00
CS-134	112.	604.70	4.6450E+00
BA-140	154.	537.31	1.9829E+01
LA-140	1.	1596.21	1.2088E+00
CEPR-144	441.	133.51	5.8943E+01
EU-152	12.	1408.01	1.4454E+01
EU-154	17.	1274.51	9.8196E+00
EU-155	401.	105.31	1.6750E+01
HG-203	377.	279.20	5.5440E+00
TL-208	425.	277.36	7.5666E+01
BI-212	19.	727.18	3.2432E+01
PB-212	510.	238.63	1.0820E+01
BI-214	137.	609.31	1.1266E+01
PB-214	369.	351.92	2.6226E+01
RA-224	457.	240.99	1.1372E+02
RA-226	543.	186.10	1.1420E+02
AC-228	28.	911.21	1.2150E+01
TH-228	390.	84.37	3.9088E+02
TH-229	381.	88.47	1.8237E+01
PA-233	369.	312.17	1.2517E+01
UTH-233	469.	245.34	4.3158E+03
PA-234M	22.	1001.03	5.2208E+00
TH-234	396.	63.29	2.2943E+02
U-235	534.	185.71	6.8824E+00
NP-237	389.	86.48	3.8179E+01

DATA NOT USED IN PACKAGE

Sample ID : S96T001563-DUP Acquisition date : 19-MAY-1996 01:59:04

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	411.	106.12	1.6081E+01
PU-239	458.	129.30	5.2465E+04
AM-241	365.	59.54	3.5108E+01
AM-243	396.	74.67	1.0716E+01

DATA
NOT USED
IN PACKAGE

LABCORE Data Entry Template for Worklist# 8879

Analyst: SMF **Instrument:** GEA00 #3 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106. RUSH! Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T001531	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001531	0	F	@GEA-01	SOLID		
5	SAMPLE	S96T001541	0	F	@GEA-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T001541	0	F	@GEA-01	SOLID		

Final page for worklist # 8879

Smalton 5-18-96 1700
Analyst Signature **Date**

[illegible] 5/20/96
Analyst Signature **Date**

DATA
NOT USED
IN PACKAGE

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8879

Analyst: smf **Instrument:** GEA03 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: C-106. RUSH! Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	SOLID	2.537e-02		2.16e-02	85.140	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1		1.31	1.310	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.705e-02		2.28e-02	84.288	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1		1.61	1.610	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1		<4.27e-1		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1		<1.25e0		uCi/g
3	SAMPLE	S96T001531	0	F	@GEA-01	CO60-02	SOLID	N/A	<	1.158e+00	115.8e-002	uCi/g
3	SAMPLE	S96T001531	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001531	0	F	@GEA-01	CS13702	SOLID	N/A		6.563e+02	0.0e+000	uCi/g
3	SAMPLE	S96T001531	0	F	@GEA-01	CS13702E	SOLID	N/A		1.70	0.0e+000	% Ct. Error
4	DUP	S96T001531	0	F	@GEA-01	CO60-02	SOLID	<1.16e0		<1.35e0		RPD
4	DUP	S96T001531	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T001531	0	F	@GEA-01	CS13702	SOLID	6.56e+02		6.39e+02	2.625	RPD
4	DUP	S96T001531	0	F	@GEA-01	CS13702E	SOLID	1.00		1.69	1.690	% Ct Error
5	SAMPLE	S96T001541	0	F	@GEA-01	CO60-02	SOLID	N/A	<	6.436e-01	644.0e-003	uCi/g
5	SAMPLE	S96T001541	0	F	@GEA-01	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T001541	0	F	@GEA-01	CS13702	SOLID	N/A		6.006e+02	0.0e+000	uCi/g
5	SAMPLE	S96T001541	0	F	@GEA-01	CS13702E	SOLID	N/A		1.32	0.0e+000	% Ct. Error
6	DUP	S96T001541	0	F	@GEA-01	CO60-02	SOLID	<6.44e-1		<7.87e-1		RPD
6	DUP	S96T001541	0	F	@GEA-01	CO60-02E	SOLID	1		n/a		% Ct Error
6	DUP	S96T001541	0	F	@GEA-01	CS13702	SOLID	6.01e+02		6.81e+02	12.480	RPD
6	DUP	S96T001541	0	F	@GEA-01	CS13702E	SOLID	1.00		1.22	1.220	% Ct Error

Comments Section:

Comments for sample# S96T001531 **and test** @GEA-01 .
DL=0 => n/a. Low std recovery. Rerun

Comments for sample# S96T001541 **and test** @GEA-01 .
DL=0 => n/a. Low std recovery. Rerun

DATA NOT USED IN PACKAGE

Final page for worklist# 8879

Analyst Signature **Date** **Analyst Signature** **Date**

RAJones 5/21/96
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-MAY-1996 20:52:43.13                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8879
Sample ID:               WL8879-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3452.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.18 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-MAY-1996 20:01:55.72
Decayed to:              18-MAY-1996 20:01:55.72
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: ALJ 5-18-96

Verified by: RA Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.70*	20144	1.59	1323.57	1315	18	1.6		CS-137	22.8
0	1173.34	13633	1.89	2346.94	2337	18	1.9		CO-60	21.5
0	1332.66	12356	1.98	2665.69	2656	19	1.8		CO-60	21.6
0	1460.84*	19	1.97	2922.16	2914	16	45.4		K-40	0.335

DATA NOT USED IN PACKAGE

Total number of lines in spectrum	4	WHC-SD-WM-DP-183, REV. 0
Number of unidentified lines	0	
Number of lines tentatively identified by NID	4	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~3.347E-01~~	~~3.347E-01~~	~~4.868E-01~~	~~145.43~~	[illegible]
CO-60	5.27Y	1.000	2.156E+01	2.156E+01	0.028E+01	1.31	
CS-137	30.00Y	1.000	2.277E+01	2.277E+01	0.037E+01	1.61	7/23/96
			---	---			
Total Activity :			4.467E+01	4.467E+01			
Grand Total Activity :			4.467E+01	4.467E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Minimum Detectable Activity Report
Sample ID : WL8879-STD Acquisition date : 18-MAY-1996 20:01:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1028.	477.59	1.0563E+00
NA-22	70.	1274.53	6.5641E-02
NA-24	19.	1368.55	3.6564E-02
CR-51	986.	320.08	7.7857E-01
MN-54	666.	834.83	1.4111E-01
CO-56	629.	846.76	1.3884E-01
CO-57	1106.	122.06	5.7554E-02
CO-58	648.	810.78	1.3645E-01
FE-59	658.	1099.25	3.1449E-01
SE-75	1212.	264.66	1.2932E-01
SR-85	744.	514.01	1.0276E-01
Y-88	12.	1836.06	3.6345E-02
NB-94	657.	871.09	1.4550E-01
ZRNB-95	513.	724.18	2.5077E-01
RU-103	770.	497.08	1.0734E-01
RURH-106	528.	621.93	1.9694E+00
AG-108m	490.	722.94	1.1782E-01
CD-109	952.	88.03	1.7685E+00
AG-110M	784.	657.76	1.3193E-01
SN-113	971.	391.69	1.4164E-01
TE-123m	1191.	159.00	6.1444E-02
SB-124	562.	602.73	1.0036E-01
SB-125	1063.	427.89	3.4608E-01
TE-125m	1055.	109.27	1.8298E+01
I-131	914.	364.48	1.0278E-01
CS-134	577.	604.70	1.0214E-01
BA-140	628.	537.31	3.8583E-01
LA-140	18.	1596.21	4.1475E-02
CEPR-144	1173.	133.51	8.9634E-01
EU-152	28.	1408.01	2.1358E-01
EU-154	70.	1274.51	1.9070E-01
EU-155	1052.	105.31	2.4402E-01
HG-203	1152.	279.20	9.3996E-02
TL-208	1135.	277.36	1.1986E+00
BI-212	539.	727.18	1.6958E+00
PB-212	1382.	238.63	1.7174E-01
BI-214	548.	609.31	2.1833E-01
PB-214	969.	351.92	4.1661E-01
RA-224	1402.	240.99	1.9202E+00
RA-226	1366.	186.10	1.7306E+00
AC-228	785.	911.21	6.2047E-01
TH-228	974.	84.37	5.5068E+00
TH-229	986.	88.47	2.6082E-01
PA-233	1076.	312.17	2.0832E-01
UTH-233	1335.	245.34	7.0232E+01
PA-234M	638.	1001.03	2.7348E-01
TH-234	946.	63.29	3.6555E+00
U-235	1359.	185.71	1.0490E-01
NP-237	923.	86.48	5.2303E-01
NP-239	1024.	106.12	2.2882E-01
PU-239	1139.	129.30	7.6888E+02

DATA NOT USED IN PACKAGE

Sample ID : WL8879-STD Acquisition date : 18-MAY-1996 20:01:55

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	944.	59.54	6.4464E-01
AM-243	931.	74.67	1.5044E-01

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-MAY-1996 21:52:44.42                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8879
Sample ID:               WL8879-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         4.20000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3453.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.45 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-MAY-1996 21:02:03.32
Decayed to:              18-MAY-1996 21:02:03.32
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************

Post-NID Peak Search Report
***** No peaks found *****
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 5-18-96

Verified by:

DATA NOT USED IN PACKAGE

**** There are no nuclides meeting summary criteria ****

WHC-SD-WM-DP-183, REV. 0

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

DATA
NOT USED
IN PACKAGE

Sample ID : WL8879-BLK Acquisition date : 18-MAY-1996 21:02:03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	28.	477.59	7.3103E+00
NA-22	9.	1274.53	9.9839E-01
NA-24	6.	1368.55	8.7115E-01
K-40	109.	1460.75	3.5869E+01
CR-51	44.	320.08	6.9133E+00
MN-54	20.	834.83	1.0206E+00
CO-56	21.	846.76	1.0717E+00
CO-57	64.	122.06	5.8250E-01
CO-58	14.	810.78	8.3980E-01
FE-59	22.	1099.25	2.3912E+00
CO-60	7.	1332.50	8.9763E-01
SE-75	70.	264.66	1.3075E+00
SR-85	41.	514.01	1.0094E+00
Y-88	3.	1836.06	7.4090E-01
NB-94	12.	871.09	8.2088E-01
ZRNB-95	16.	724.18	1.8519E+00
RU-103	35.	497.08	9.5653E-01
RURH-106	17.	621.93	1.4985E+01
AG-108m	17.	722.94	9.1935E-01
CD-109	75.	88.03	2.0846E+01
AG-110M	19.	657.76	8.5983E-01
SN-113	37.	391.69	1.1606E+00
TE-123m	67.	159.00	6.1154E-01
SB-124	19.	602.73	7.7237E-01
SB-125	40.	427.89	2.8158E+00
TE-125m	71.	109.27	1.9945E+02
I-131	41.	364.48	9.1619E-01
CS-134	19.	604.70	7.6907E-01
CS-137	141.	661.66	2.6221E+00
BA-140	25.	537.31	3.2085E+00
LA-140	5.	1596.21	9.4780E-01
CEPR-144	77.	133.51	9.6678E+00
EU-152	8.	1408.01	4.8315E+00
EU-154	9.	1274.51	2.8879E+00
EU-155	56.	105.31	2.3599E+00
HG-203	55.	279.20	8.6494E-01
TL-208	53.	277.36	1.0838E+01
BI-212	17.	727.18	1.2517E+01
PB-212	90.	238.63	1.8445E+00
BI-214	48.	609.31	2.6995E+00
PB-214	81.	351.92	5.0485E+00
RA-224	77.	240.99	1.8923E+01
RA-226	93.	186.10	1.8915E+01
AC-228	26.	911.21	4.7390E+00
TH-228	64.	84.37	5.9078E+01
TH-229	66.	88.47	2.8239E+00
PA-233	50.	312.17	1.8798E+00
UTH-233	60.	245.34	6.2755E+02
PA-234M	13.	1001.03	1.6430E+00
TH-234	56.	63.29	3.7277E+01
U-235	89.	185.71	1.1267E+00

DATA NOT USED IN PACKAGE

Sample ID : WL8879-BLK Acquisition date : 18-MAY-1996 21:02:03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	74.	86.48	6.2232E+00
NP-239	59.	106.12	2.3015E+00
PU-239	71.	129.30	8.0573E+03
AM-241	45.	59.54	5.9005E+00
AM-243	81.	74.67	1.8638E+00

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-MAY-1996 23:20:27.77                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                8879
Sample ID:                 S96T001531-SAM
Sample Size:               1.00000E-03 L
Dilution Factor:           8.40000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA3]3g3454.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:02.21 sec
Dead Time:                 0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         18-MAY-1996 22:29:47.46
Decayed to:                18-MAY-1996 22:29:47.46
Standard Deviations:       2
Analysis Library:          ENVGEA
Analyst:                   ALJ
Background Subtract:       DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: ALJ 5-18-96

Verified by: RAJones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.75*	14478	1.59	1323.67	1316	16	1.7		CS-137	1.375E+03
0	872.60	13	1.46	1745.37	1742	10	84.6			

DATA NOT USED IN PACKAGE

Sample ID : S96T001531-SAM
Acquisition date : 18-MAY-1996 22:29:47

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.375E+03	1.375E+03	0.023E+03	1.70	
		Total Activity :	1.375E+03	1.375E+03			
		Grand Total Activity :	1.375E+03	1.375E+03			

Flags: "K" = Keyline not found
"E" = Manually edited
"M" = Manually accepted
"A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : S96T001531-SAM Acquisition date : 18-MAY-1996 22:29:47

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	476.	477.59	6.0388E+01
NA-22	18.	1274.53	2.7973E+00
NA-24	7.	1368.55	1.8583E+00
K-40	133.	1460.75	7.9275E+01
CR-51	403.	320.08	4.1819E+01
MN-54	23.	834.83	2.2081E+00
CO-56	22.	846.76	2.1780E+00
CO-57	483.	122.06	3.1949E+00
CO-58	12.	810.78	1.5601E+00
FE-59	18.	1099.25	4.3557E+00
CO-60	13.	1332.50	2.4352E+00
SE-75	432.	264.66	6.4850E+00
SR-85	254.	514.01	5.0393E+00
Y-88	3.	1836.06	1.4818E+00
NB-94	16.	871.09	1.9095E+00
ZRNB-95	27.	724.18	4.8732E+00
RU-103	302.	497.08	5.6460E+00
RURH-106	111.	621.93	7.5668E+01
AG-108m	27.	722.94	2.3191E+00
CD-109	429.	88.03	9.9692E+01
AG-110M	235.	657.76	6.0721E+00
SN-113	385.	391.69	7.4975E+00
TE-123m	445.	159.00	3.1535E+00
SB-124	110.	602.73	3.7275E+00
SB-125	490.	427.89	1.9744E+01
TE-125m	404.	109.27	9.5080E+02
I-131	379.	364.48	5.5593E+00
CS-134	98.	604.70	3.5273E+00
BA-140	175.	537.31	1.7119E+01
LA-140	4.	1596.21	1.6578E+00
CEPR-144	468.	133.51	4.7547E+01
EU-152	7.	1408.01	9.0390E+00
EU-154	18.	1274.51	8.1269E+00
EU-155	464.	105.31	1.3620E+01
HG-203	401.	279.20	4.6590E+00
TL-208	417.	277.36	6.1040E+01
BI-212	19.	727.18	2.6457E+01
PB-212	521.	238.63	8.8563E+00
BI-214	133.	609.31	9.0373E+00
PB-214	428.	351.92	2.3233E+01
RA-224	537.	240.99	9.9830E+01
RA-226	567.	186.10	9.3692E+01
AC-228	28.	911.21	9.9087E+00
TH-228	406.	84.37	2.9889E+02
TH-229	415.	88.47	1.4208E+01
PA-233	425.	312.17	1.0993E+01
UTH-233	459.	245.34	3.4609E+03
PA-234M	13.	1001.03	3.2949E+00
TH-234	356.	63.29	1.8841E+02
U-235	555.	185.71	5.6317E+00
NP-237	420.	86.48	2.9628E+01

DATA NOT USED IN PACKAGE

Sample ID : S96T001531-SAM Acquisition date : 18-MAY-1996 22:29:47

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	449.	106.12	1.2730E+01
PU-239	476.	129.30	4.1747E+04
AM-241	355.	59.54	3.3200E+01
AM-243	411.	74.67	8.3928E+00

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 00:20:47.86                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8879
Sample ID:               S96T001531-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         8.40000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3455.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.27 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-MAY-1996 23:30:06.71
Decayed to:              18-MAY-1996 23:30:06.71
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0
Removed by:
ALJ 5-19-96

Verified by:
R Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.74*	14740	1.54	1323.65	1316	16	1.7		CS-137	1.399E+03

DATA NOT USED IN PACKAGE

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.399E+03	1.399E+03	0.024E+03	1.69	
		Total Activity :	1.399E+03	1.399E+03			
		Grand Total Activity :	1.399E+03	1.399E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : S96T001531-DUP
Acquisition date : 18-MAY-1996 23:30:06

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	499.	477.59	6.1787E+01
NA-22	15.	1274.53	2.5366E+00
NA-24	6.	1368.55	1.7423E+00
K-40	133.	1460.75	7.9241E+01
CR-51	440.	320.08	4.3666E+01
MN-54	26.	834.83	2.3632E+00
CO-56	16.	846.76	1.8471E+00
CO-57	510.	122.06	3.2828E+00
CO-58	21.	810.78	2.0665E+00
FE-59	11.	1099.25	3.4703E+00
CO-60	19.	1332.50	2.9596E+00
SE-75	462.	264.66	6.7039E+00
SR-85	256.	514.01	5.0602E+00
Y-88	3.	1836.06	1.5265E+00
NB-94	27.	871.09	2.4594E+00
ZRNB-95	32.	724.18	5.2494E+00
RU-103	267.	497.08	5.3088E+00
RURH-106	111.	621.93	7.5846E+01
AG-108m	28.	722.94	2.3691E+00
CD-109	461.	88.03	1.0340E+02
AG-110M	269.	657.76	6.4939E+00
SN-113	414.	391.69	7.7670E+00
TE-123m	468.	159.00	3.2351E+00
SB-124	115.	602.73	3.8073E+00
SB-125	481.	427.89	1.9562E+01
TE-125m	470.	109.27	1.0263E+03
I-131	397.	364.48	5.6878E+00
CS-134	112.	604.70	3.7870E+00
BA-140	191.	537.31	1.7860E+01
LA-140	3.	1596.21	1.3532E+00
CEPR-144	464.	133.51	4.7360E+01
EU-152	5.	1408.01	7.6393E+00
EU-154	15.	1274.51	7.3795E+00
EU-155	498.	105.31	1.4110E+01
HG-203	476.	279.20	5.0738E+00
TL-208	466.	277.36	6.4495E+01
BI-212	23.	727.18	2.9617E+01
PB-212	487.	238.63	8.5620E+00
BI-214	124.	609.31	8.7163E+00
PB-214	429.	351.92	2.3252E+01
RA-224	522.	240.99	9.8447E+01
RA-226	608.	186.10	9.6998E+01
AC-228	38.	911.21	1.1399E+01
TH-228	454.	84.37	3.1575E+02
TH-229	431.	88.47	1.4483E+01
PA-233	385.	312.17	1.0471E+01
UTH-233	529.	245.34	3.7144E+03
PA-234M	23.	1001.03	4.3807E+00
TH-234	382.	63.29	1.9522E+02
U-235	610.	185.71	5.9050E+00
NP-237	480.	86.48	3.1676E+01

DATA NOT USED IN PACKAGE

Sample ID : S96T001531-DUP Acquisition date : 18-MAY-1996 23:30:06

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	469.	106.12	1.3001E+01
PU-239	489.	129.30	4.2295E+04
AM-241	359.	59.54	3.3374E+01
AM-243	388.	74.67	8.1627E+00

WHC-SD-WM-DP-183, REV. 0

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 01:57:08.35                  *
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #: 8879
Sample ID: S96T001541-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 4.20000E+01

Removed by: ALJ 5-19-96

>>>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID:
File Number: dka300:[spec.GEA3]3g3456.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:03.44 sec
Dead Time: 0.1%

Verified by: RA Jones

>>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time: 19-MAY-1996 01:06:26.12
Decayed to: 19-MAY-1996 01:06:26.12
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: ALJ
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

*****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.04	134	1.29	246.57	243	9	87.4		~~CO-57~~	2.10
									EU-154	4.44
0	661.74*	24198	1.61	1323.66	1316	17	1.3		CS-137	1.149E+03
0	723.29	38	1.23	1446.74	1441	12	55.5		EU-154	8.20
0	964.25	17	0.70	1928.69	1924	9	65.8			
0	1004.77	25	1.63	2009.74	2003	14	60.1		EU-154	8.09
0	1121.41	23	1.55	2243.07	2238	12	67.6			
0	1274.78	32	1.61	2549.90	2543	12	47.2		EU-154	6.54
0	1461.04*	16	1.55	2922.58	2916	15	155.1		K-40	11.6

DATA NOT USED IN PACKAGE

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	8	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	8	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.160E+01~~	~~1.160E+01~~	~~1.800E+01~~	~~155.12~~	Blgr
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.096E+00~~	~~2.096E+00~~	~~1.832E+00~~	~~87.38~~	Eu-154
CS-137	30.00Y	1.000	1.149E+03	1.149E+03	0.015E+03	1.32	
EU-154	8.59Y	1.000	7.281E+00	7.281E+00	2.260E+00	31.04	7/23/96
			---	---			
	Total Activity :		1.170E+03	1.170E+03			
	Grand Total Activity :		1.170E+03	1.170E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : S96T001541-SAM
Acquisition date : 19-MAY-1996 01:06:26

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	790.	477.59	3.8880E+01
NA-22	37.	1274.53	1.9999E+00
NA-24	9.	1368.55	1.0566E+00
CR-51	618.	320.08	2.5887E+01
MN-54	17.	834.83	9.5726E-01
CO-56	18.	846.76	9.8464E-01
CO-58	17.	810.78	9.1943E-01
FE-59	15.	1099.25	2.0178E+00
CO-60	13.	1332.50	1.2324E+00
SE-75	686.	264.66	4.0843E+00
SR-85	409.	514.01	3.1998E+00
Y-88	3.	1836.06	7.6036E-01
NB-94	17.	871.09	9.8801E-01
ZRNB-95	47.	724.18	3.1900E+00
RU-103	481.	497.08	3.5637E+00
RURH-106	160.	621.93	4.5591E+01
AG-108m	51.	722.94	1.5891E+00
CD-109	711.	88.03	6.4187E+01
AG-110M	423.	657.76	4.0701E+00
SN-113	676.	391.69	4.9630E+00
TE-123m	711.	159.00	1.9937E+00
SB-124	159.	602.73	2.2385E+00
SB-125	803.	427.89	1.2635E+01
TE-125m	713.	109.27	6.3204E+02
I-131	684.	364.48	3.7331E+00
CS-134	164.	604.70	2.2852E+00
BA-140	270.	537.31	1.0631E+01
LA-140	4.	1596.21	8.2890E-01
CEPR-144	711.	133.51	2.9310E+01
EU-152	10.	1408.01	5.3555E+00
EU-155	733.	105.31	8.5560E+00
HG-203	694.	279.20	3.0648E+00
TL-208	691.	277.36	3.9287E+01
BI-212	24.	727.18	1.4924E+01
PB-212	759.	238.63	5.3464E+00
BI-214	197.	609.31	5.4955E+00
PB-214	643.	351.92	1.4247E+01
RA-224	784.	240.99	6.0311E+01
RA-226	871.	186.10	5.8035E+01
AC-228	35.	911.21	5.5272E+00
TH-228	655.	84.37	1.8974E+02
TH-229	676.	88.47	9.0709E+00
PA-233	660.	312.17	6.8530E+00
UTH-233	754.	245.34	2.2167E+03
PA-234M	16.	1001.03	1.7955E+00
TH-234	548.	63.29	1.1688E+02
U-235	842.	185.71	3.4690E+00
NP-237	726.	86.48	1.9483E+01
NP-239	717.	106.12	8.0391E+00
PU-239	762.	129.30	2.6416E+04
AM-241	557.	59.54	2.0795E+01

DATA NOT USED IN PACKAGE

Sample ID : S96T001541-SAM Acquisition date : 19-MAY-1996 01:06:26

WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-243	619.	74.67	5.1508E+00

DATA NOT USED IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   19-MAY-1996 02:51:11.31                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8879
Sample ID:               S96T001541-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.20000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3457.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:03.92 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       19-MAY-1996 02:00:28.20
Decayed to:              19-MAY-1996 02:00:28.20
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
*****************************************************************************
```

WHC-SD-WM-DP-183, REV. 0

Removed by: 5-19-96

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.82	143	1.09	246.13	244	7	69.8		CO-57	2.24
0	661.74*	28175	1.56	1323.66	1315	17	1.2		CS-137	1.337E+03
0	911.76*	19	0.60	1823.69	1818	14	98.0			
0	1005.27	25	0.84	2010.73	2007	8	48.9			

DATA NOT USED IN PACKAGE

Summary of Nuclide Activity
Sample ID : S96T001541-DUP

Acquisition date : 19-MAY-1996 02:00:28

WHC-SD-WM-DP-183, REV. 0

Total number of lines in spectrum	4	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	4	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.242E+00~~	~~2.242E+00~~	~~1.565E+00~~	~~69.80~~	>50% 7/23/96
CS-137	30.00Y	1.000	1.337E+03	1.337E+03	0.016E+03	1.22	
			---	---			
Total Activity :			1.340E+03	1.340E+03			
Grand Total Activity :			1.340E+03	1.340E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

DATA NOT USED IN PACKAGE

Sample ID : S96T001541-DUP
Acquisition date : 19-MAY-1996 02:00:28
WHC-SD-WM-DP-183, REV. 0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	866.	477.59	4.0718E+01
NA-22	30.	1274.53	1.8108E+00
NA-24	7.	1368.55	9.2865E-01
K-40	109.	1460.75	3.5860E+01
CR-51	759.	320.08	2.8682E+01
MN-54	17.	834.83	9.5726E-01
CO-56	20.	846.76	1.0320E+00
CO-58	15.	810.78	8.7229E-01
FE-59	17.	1099.25	2.1452E+00
CO-60	21.	1332.50	1.5494E+00
SE-75	783.	264.66	4.3656E+00
SR-85	498.	514.01	3.5316E+00
Y-88	1.	1836.06	4.4066E-01
NB-94	23.	871.09	1.1362E+00
ZRNB-95	50.	724.18	3.2919E+00
RU-103	568.	497.08	3.8730E+00
RURH-106	158.	621.93	4.5180E+01
AG-108m	46.	722.94	1.5099E+00
CD-109	792.	88.03	6.7721E+01
AG-110M	477.	657.76	4.3203E+00
SN-113	777.	391.69	5.3212E+00
TE-123m	817.	159.00	2.1375E+00
SB-124	166.	602.73	2.2897E+00
SB-125	858.	427.89	1.3060E+01
TE-125m	717.	109.27	6.3357E+02
I-131	737.	364.48	3.8766E+00
CS-134	187.	604.70	2.4402E+00
BA-140	313.	537.31	1.1437E+01
LA-140	9.	1596.21	1.2523E+00
CEPR-144	820.	133.51	3.1475E+01
EU-152	5.	1408.01	3.7869E+00
EU-154	30.	1274.51	5.2539E+00
EU-155	863.	105.31	9.2836E+00
HG-203	744.	279.20	3.1738E+00
TL-208	788.	277.36	4.1947E+01
BI-212	27.	727.18	1.5970E+01
PB-212	917.	238.63	5.8757E+00
BI-214	192.	609.31	5.4240E+00
PB-214	728.	351.92	1.5161E+01
RA-224	905.	240.99	6.4818E+01
RA-226	1041.	186.10	6.3453E+01
AC-228	37.	911.21	5.6817E+00
TH-228	738.	84.37	2.0132E+02
TH-229	771.	88.47	9.6872E+00
PA-233	703.	312.17	7.0740E+00
UTH-233	859.	245.34	2.3665E+03
PA-234M	16.	1001.03	1.7983E+00
TH-234	736.	63.29	1.3546E+02
U-235	1033.	185.71	3.8413E+00
NP-237	809.	86.48	2.0563E+01
NP-239	832.	106.12	8.6636E+00

DATA NOT USED IN PACKAGE

Sample ID : S96T001541-DUP Acquisition date : 19-MAY-1996 02:00:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	882.	129.30	2.8410E+04
AM-241	651.	59.54	2.2475E+01
AM-243	789.	74.67	5.8171E+00

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 6282

Analyst: JBS **Instrument:** AB00 12 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: Determine Sample Size using Ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK-PREP				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T000539	0		@SR90-01	LIQUID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T000539	0		@SR90-01	LIQUID		
6	SAMPLE	S96T001024	0		@SR90-01	LIQUID	96000174	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001024	0		@SR90-01	LIQUID		

Final page for worklist # 6282

J B Suffer 3-10-96
Analyst Signature **Date**

Sharon L Hahle 3.11.96
Analyst Signature **Date**

M G[illegible] 3-11-96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6282

Analyst: dgg **Instrument:** AB12 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: Determine Sample Size using Ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.17E-3	95.120	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	9.13E+01	91.300	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.94E+00	1.940	% Ct. Error
2	BLNK-PREP		0	@SR90-01	SR90-01	LIQUID	1	8.35E-3	1.000e-002	uCi/mL
2	BLNK-PREP		0	@SR90-01	SR90-01C	LIQUID	100	9.08E+01	90.800	% Recovery
2	BLNK-PREP		0	@SR90-01	SR90-01E	LIQUID	1.00	3.07E+01	30.700	% Ct. Error
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	3.52E+00	3.520	uCi/mL
4	SAMPLE	S96T000539	0	@SR90-01	SR90-01	LIQUID	N/A	3.69E-01	2.420e-003	uCi/mL
4	SAMPLE	S96T000539	0	@SR90-01	SR90-01C	LIQUID	N/A	9.14E+01	1.000e-004	% Recovery
4	SAMPLE	S96T000539	0	@SR90-01	SR90-01E	LIQUID	N/A	3.46E+00	0.000	% Ct. Error
5	DUP	S96T000539	0	@SR90-01	SR90-01	LIQUID	3.69E-1	3.62E-1	1.920	RPD
5	DUP	S96T000539	0	@SR90-01	SR90-01C	LIQUID	100	9.12E+01	91.200	% Recovery
5	DUP	S96T000539	0	@SR90-01	SR90-01E	LIQUID	1.00	3.49E+00	3.490	% Ct. Error
6	SAMPLE	S96T001024	0	@SR90-01	SR90-01	LIQUID	N/A	4.84E-01	2.410e-003	uCi/mL
6	SAMPLE	S96T001024	0	@SR90-01	SR90-01C	LIQUID	N/A	9.15E+01	1.000e-004	% Recovery
6	SAMPLE	S96T001024	0	@SR90-01	SR90-01E	LIQUID	N/A	3.01E+00	0.000	% Ct. Error
7	DUP	S96T001024	0	@SR90-01	SR90-01	LIQUID	4.84E-1	4.82E-1	0.410	RPD
7	DUP	S96T001024	0	@SR90-01	SR90-01C	LIQUID	100	9.07E+01	90.700	% Recovery
7	DUP	S96T001024	0	@SR90-01	SR90-01E	LIQUID	1.00	3.02E+00	3.020	% Ct. Error

Final page for worklist# 6282

Analyst Signature **Date** **Analyst Signature** **Date**

John Relyea 12 Mar 96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10305	GROSS WEIGHT	(W2)		7.2896
Work Unit	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1983
6282	BACKGROUND in cpm	(BKG)	2.9	NET WEIGHT	(W3)		0.0913
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		3.33
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1027.60	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Sample Number	CRITICAL LEVEL	(Lc)	1.03	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96001929	TIME OF SEPARATION	(ST)	01:40	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/10/96	DETECTION LIMIT	(Ld)		2.14
0	TIME OF COUNT	(TOC)	05:00	Sr-89/90 CONC. in µCi/L			1.1669E+00
Sample Group	DATE OF COUNT	(DOC)	03/10/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2322E-03				
6282							
Instrument Code							
WB27811							
Prepared by							
SLH							
Chemist							
SLF							
Analyst							
DGG							
Date Counted							
03/11/96							
Analysis Date							
03/10/96							
Analysis Time							
01:40 AM							
Sample Point							
C-106 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.17E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		2.43E-06 µCi/L
PERCENT CARRIER RECOVERY	91.3%		

Analyst:	DGG	Date:	11-Mar-96
Signature of Chemist:	SLF	Date:	3/12/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							BLNK-PREP
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
BLNK-PREP	TOTAL COUNTS	(TC)	102	GROSS WEIGHT	(W2)		7.2667
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1759
6282	BACKGROUND in cpm	(BKG)	2.9	NET WEIGHT	(W3)		0.0908
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		4.12
@SR90-01	DILUTION FACTOR	(DF)	101				
	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	7.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
	CRITICAL LEVEL	(Lc)	1.03	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96001929	TIME OF SEPARATION	(ST)	01:40	Rmax			N/A
	DATE OF SEPARATION	(SD)	03/10/96	DETECTION LIMIT	(Ld)		2.14
0	TIME OF COUNT	(TOC)	05:47	Sr-89/90 CONC in µCi/L			8.3459E+00
	DATE OF COUNT	(DOC)	03/10/96				

N/A

6282

WB27811

SLH

SLF

DGG

03/11/96

03/10/96

01:40 AM

C-106 GRAB

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

				DETECTION LEVEL
Sr-89/90 CONCENTRATION	8.35E-03	µCi/m		
RELATIVE COUNTING ERROR	30.7%			2.45E-03 µCi/mL
PERCENT CARRIER RECOVERY	90.8%			

Analyst:	DGG	Date:	11-Mar-96
Signature of Chemist:	SLF	Date:	3/12/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	3296	GROSS WEIGHT	(W2)	7.3418
Work Unit	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2504
6282	BACKGROUND in cpm	(BKG)	2.9	NET WEIGHT	(W3)	0.0914
Matrix	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	4.58
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	326.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96001929	TIME OF SEPARATION	(ST)	01:40	Rmax		N/A
Batch	DATE OF SEPARATION	(SD)	03/10/96	DETECTION LIMIT	(Ld)	2.14
0	TIME OF COUNT	(TOC)	06:15	Sr-89/90 CONC in µCi/L		3.6917E+02
Sample Prep	DATE OF COUNT	(DOC)	03/10/96			
N/A						
Sample#						
S96T000539						

Instrument Code

WB27811

Procedure

SLH

Chemist

SLF

Analyst

DGG

Date Completed

03/11/96

Analysis Date

03/10/96

Analysis Time

01:40 AM

Sample Point

C-106 GRAB

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	3.69E-01	µCi/mL	2.42E-03 µCi/mL
RELATIVE COUNTING ERROR	3.5%		
PERCENT CARRIER RECOVERY	91.4%		

Analyst:	DGG	Date:	11-Mar-96
Signature of Chemist:	SLF	Date:	3/12/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	3236	GROSS WEIGHT	(W2)		7.3009
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2097
6282	BACKGROUND in cpm	(BKG)	2.9	NET WEIGHT	(W3)		0.0912
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		4.88
@SR90-01	DILUTION FACTOR	(DF)	101				
	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	320.70	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
	CRITICAL LEVEL	(Lc)	1.03	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96001929	TIME OF SEPARATION	(ST)	01:40	Rmax			N/A
	DATE OF SEPARATION	(SD)	03/10/96	DETECTION LIMIT	(Ld)		2.14
0	TIME OF COUNT	(TOC)	06:33	Sr-89/90 CONC in µCi/L			3.6201E+02
	DATE OF COUNT	(DOC)	03/10/96				
N/A							
S96T000539							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

WB27811 Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

SLH NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

SLF Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

DGG Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

03/11/96

03/10/96

01:40 AM

C-106 GRAB

Sr-89/90 CONCENTRATION	3.62E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	3.5%		2.42E-03 µCi/mL
PERCENT CARRIER RECOVERY	91.2%		

Analyst:	DGG	Date:	11-Mar-96
Signature of Chemist:	SLF	Date:	3/12/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	4339	GROSS WEIGHT	(W2)	7.3254
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2339
6282	BACKGROUND in cpm	(BKG)	2.9	NET WEIGHT	(W3)	0.0915
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.08
@SR90-01	DILUTION FACTOR	(DF)	101			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	431.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96001929	TIME OF SEPARATION	(ST)	01:40	Rmax		N/A
	DATE OF SEPARATION	(SD)	03/10/96	DETECTION LIMIT	(Ld)	2.14
0	TIME OF COUNT	(TOC)	06:45	Sr-89/90 CONC in µCi/L		4.8387E+02
	DATE OF COUNT	(DOC)	03/10/96			

N/A

S96T001024

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

WB27811 Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

SLH NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

SLF Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

DGG Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

03/11/96

03/10/96

01:40 AM

C-106 GRAB

Sr-89/90 CONCENTRATION	4.84E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	3.0%		2.41E-03 µCi/mL
PERCENT CARRIER RECOVERY	91.5%		

Analyst:	DGG	Date:	11-Mar-96
Signature of Chemist:	SLF	Date:	3/12/96

SAMPLE.WB1 REV 1.2 22010NM

WORKBOOK PAGE: DUP7

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	4293	GROSS WEIGHT	(W2)	7.2722
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1815
6282	BACKGROUND in cpm	(BKG)	2.9	NET WEIGHT	(W3)	0.0907
Lab Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.27
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	426.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.03	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96001929	TIME OF SEPARATION	(ST)	01:40	Rmax		N/A
Aliquot	DATE OF SEPARATION	(SD)	03/10/96	DETECTION LIMIT	(Ld)	2.14
0	TIME OF COUNT	(TOC)	06:56	Sr-89/90 CONC in µCi/L		4.8198E+02
Sample Prep	DATE OF COUNT	(DOC)	03/10/96			
N/A						
Sample #						
S96T001024						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
SLH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
DGG	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Completed	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
03/11/96						
Analysis Date						DETECTION LEVEL
03/10/96	Sr-89/90 CONCENTRATION		4.82E-01		µCi/mL	
Analysis Time						
01:40 AM	RELATIVE COUNTING ERROR		3.0%			2.42E-03 µCi/mL
Sample Type						
C-106 GRAB	PERCENT CARRIER RECOVERY		90.7%			

Analyst:		DGG	Date:	11-Mar-96
Signature of Chemist:		SLF	Date:	3/12/96

SAMPLE.WB1 REV 1.2 22010NML

1709

LABCORE Data Entry Template for Worklist# 6887

Analyst: RG **Instrument:** AB00 #10 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: C-106 Field Blank.Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T000855	0		@SR90-01	LIQUID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T000855	0		@SR90-01	LIQUID		

Final page for worklist # 6887

Rae Ann Green 3-23-96
Analyst Signature **Date**

Sharon L Wahl 3-25-96
Analyst Signature **Date**

M S Brown 3/25/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 6887

Analyst: rag **Instrument:** AB10 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: C-106 Field Blank.Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.28E-3	104.070	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	8.67E+01	86.700	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.95E+00	1.950	% Ct. Error
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	8.78E-7	0.000	uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	8.54E+01	85.400	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	8.58E+01	85.800	% Ct. Error
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	1.35E+00	1.350	uCi/mL
4	SAMPLE	S96T000855	0	@SR90-01	SR90-01	LIQUID	N/A	1.79E-02	9.320e-007	uCi/mL
4	SAMPLE	S96T000855	0	@SR90-01	SR90-01C	LIQUID	N/A	8.93E+01	1.000e-004	% Recovery
4	SAMPLE	S96T000855	0	@SR90-01	SR90-01E	LIQUID	N/A	2.26E-01	0.000	% Ct. Error
5	DUP	S96T000855	0	@SR90-01	SR90-01	LIQUID	1.79E-2	1.79E-2	0.000	RPD
5	DUP	S96T000855	0	@SR90-01	SR90-01C	LIQUID	100	8.68E+01	86.800	% Recovery
5	DUP	S96T000855	0	@SR90-01	SR90-01E	LIQUID	1.00	2.30E-01	0.230	% Ct. Error

Final page for worklist# 6887

Analyst Signature Date

Analyst Signature Date

3/25/96

Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

						STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	10436	GROSS WEIGHT	(W2)	7.3192
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2325
6887	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0867
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	3.00
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1033.60	SR-90 EFFICIENCY FACTO	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96002595	TIME OF SEPARATION	(ST)	10:10	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/23/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	13:10	Sr-89/90 CONC. in µCi/L		1.2803E+00
Sample Prep	DATE OF COUNT	(DOC)	03/23/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2312E-03			
WL6887						
Instrument Code						
WB26870						
Prepared By						
SLH						
Chemist						
SLF						
Analyst						
RAG						
Date Complete						
03/25/96						
Analysis Date						
03/23/96						
Analysis Time						
10:10 AM						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.28E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		4.83E-06 µCi/L
PERCENT CARRIER RECOVERY	86.7%		

Analyst:	RAG	Date:	25-Mar-96
Signature of Chemist:	SLF	Date:	3/25/96

STANDARD.WB1 REV 1.2 22010NML

1712

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	135	GROSS WEIGHT	(W2)	7.2904
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2050
6887	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0854
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)	3.25
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	3.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96002595	TIME OF SEPARATION	(ST)	10:10	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/23/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	13:25	Sr-89/90 CONC in µCi/L		8.7779E-04
Sample Prep	DATE OF COUNT	(DOC)	03/23/96			
N/A						
Sample #						
WL6887						
Instrument Code						
WB26870						
Prepared By						
SLH						
Chemist						
SLF						
Analyst						
RAG						
Date Complete						
03/25/96						
Analysis Date						
03/23/96						
Analysis Time						
10:10 AM						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	8.78E-07	µCi/m	DETECTION LEVEL
RELATIVE COUNTING ERROR	85.8%		9.78E-07 µCi/mL
PERCENT CARRIER RECOVERY	85.4%		

Analyst:	RAG	Date:	25-Mar-96
Signature of Chemist:	SLF	Date:	

BLANK.WB1 REV 1.2 22010NML

1713

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	751215	GROSS WEIGHT	(W2)		7.2933
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2040
6887	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0893
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)		3.58
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	75111.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96002595	TIME OF SEPARATION	(ST)	10:10	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/23/96	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	13:45	Sr-89/90 CONC in µCi/L			1.7948E+01
Sample Prep	DATE OF COUNT	(DOC)	03/23/96				
N/A							
Sample #							
S96T000855							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SLH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
RAG	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
03/25/96							
Analysis Date							DETECTION LEVEL
03/23/96	Sr-89/90 CONCENTRATION			1.79E-02		µCi/mL	
Analysis Time							
10:10 AM	RELATIVE COUNTING ERROR			0.2%			9.32E-07 µCi/mL
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			89.3%			

Analyst:	RAG	Date:	25-Mar-96
Signature of Chemist:	SLF	Date:	3/25/96

SAMPLE.WB1 REV 1.2 22010NML

1714

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	728205	GROSS WEIGHT	(W2)		7.3085
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2217
6887	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0868
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)		3.83
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	72810.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96002595	TIME OF SEPARATION	(ST)	10:10	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/23/96	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	14:00	Sr-89/90 CONC in µCi/L			1.7850E+01
Sample Prep	DATE OF COUNT	(DOC)	03/23/96				
N/A							
Sample #							
S96T000855							
Instrument Code							
WB26870							
Prepared By							
SLH							
Chemist							
SLF							
Analyst							
RAG							
Date Complete							
03/25/96							
Analysis Date							
03/23/96							
Analysis Time							
10:10 AM							
Sample Point							
C-106 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.79E-02	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.2%		9.56E-07 µCi/mL
PERCENT CARRIER RECOVERY	86.8%		

Analyst:	RAG	Date:	25-Mar-96
Signature of Chemist:	SLF	Date:	3/25/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 7088

Analyst: JDS **Instrument:** AB00 12 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-21 SLF 4/10/96

Worklist Comment: AY-101 GRAB & C-106 GRAB: DET. SAMP. SIZE USING LUDLUM. lc
LAD 5-21-96

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001361	0		@SR90-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001361	0		@SR90-01	LIQUID		
6	SAMPLE	S96T001566	0		@SR90-01	LIQUID	96000174	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001566	0		@SR90-01	LIQUID		

Final page for worklist # 7088

Analyst Signature **Date**

Analyst Signature **Date** 4/10/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 7088

Analyst: jds **Instrument:** AB12 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: AY-101 GRAB & C-101 GRAB: DET. SAMP. SIZE USING LUDLUM. lc

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@SR90-01 SR90-01	LIQUID	1.23E-03	1.19E-3	96.750	% Recovery
1	STD			0	@SR90-01 SR90-01C	LIQUID	100	8.84E+01	88.400	% Recovery
1	STD			0	@SR90-01 SR90-01E	LIQUID	1.00	1.84E+00	1.840	% Ct. Error
2	BLNK			0	@SR90-01 SR90-01	LIQUID	1	1.16E-2	1.000e-002	uCi/mL
2	BLNK			0	@SR90-01 SR90-01C	LIQUID	100	9.30E+01	93.000	% Recovery
2	BLNK			0	@SR90-01 SR90-01E	LIQUID	1.00	3.85E+01	38.500	% Ct. Error
3	BLNK/BKG			0	@SR90-01 SR90-01	LIQUID	1	2.77E+00	2.770	uCi/mL
4	SAMPLE	S96T001361		0	@SR90-01 SR90-01	LIQUID	N/A	5.63E-01	4.730e-003	uCi/mL
4	SAMPLE	S96T001361		0	@SR90-01 SR90-01C	LIQUID	N/A	9.11E+01	1.000e-004	% Recovery
4	SAMPLE	S96T001361		0	@SR90-01 SR90-01E	LIQUID	N/A	3.86E+00	0.000	% Ct. Error
5	DUP	S96T001361		0	@SR90-01 SR90-01	LIQUID	5.63E-1	5.48E-1	2.700	RPD
5	DUP	S96T001361		0	@SR90-01 SR90-01C	LIQUID	100	9.21E+01	92.100	% Recovery
5	DUP	S96T001361		0	@SR90-01 SR90-01E	LIQUID	1.00	3.89E+00	3.890	% Ct. Error
6	SAMPLE	S96T001566		0	@SR90-01 SR90-01	LIQUID	N/A	6.39E-02	2.400e-002	uCi/mL
6	SAMPLE	S96T001566		0	@SR90-01 SR90-01C	LIQUID	N/A	8.59E+01	1.000e-004	% Recovery
6	SAMPLE	S96T001566		0	@SR90-01 SR90-01E	LIQUID	N/A	3.65E+01	0.000	% Ct. Error
7	DUP	S96T001566		0	@SR90-01 SR90-01	LIQUID	6.39E-2	8.86E-2	32.390	RPD
7	DUP	S96T001566		0	@SR90-01 SR90-01C	LIQUID	100	8.69E+01	86.900	% Recovery
7	DUP	S96T001566		0	@SR90-01 SR90-01E	LIQUID	1.00	2.84E+01	28.400	% Ct. Error

Final page for worklist# 7088

Analyst Signature **Date** **Analyst Signature** **Date**

4/10/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11388	GROSS WEIGHT	(W2)		7.3239
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2355
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)		0.0884
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		14.87
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1135.70	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002801	TIME OF SEPARATION	(ST)	14:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)		2.21
0	TIME OF COUNT	(TOC)	05:12	Sr-89/90 CONC. in µCi/L			1.1881E+00
Sample Prep	DATE OF COUNT	(DOC)	04/10/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2298E-03				
WL7088							
Instrument Code							
WB27811							
Prepared By							
MCB							
Chemist							
SLF							
Analyst							
JDS							
Date Complete							
04/10/96							
Analysis Date							
04/09/96							
Analysis Time							
02:20 PM							
Sample Point							
~~AY-101 GRAB~~							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.19E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.8%		2.31E-06 µCi/L
PERCENT CARRIER RECOVERY	88.4%		

SLF 4/10/96

C-106

Analyst:	JDS	Date:	10-Apr-96
Signature of Chemist:	SLF	Date:	4/10/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	86	GROSS WEIGHT	(W2)	7.3315
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2385
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)	0.0930
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	15.17
@SR90-01	DILUTION FACTOR	(DF)	2121			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	5.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002801	TIME OF SEPARATION	(ST)	14:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)	2.21
0	TIME OF COUNT	(TOC)	05:30	Sr-89/90 CONC in µCi/L		1.1569E+01
Sample Prep	DATE OF COUNT	(DOC)	04/10/96			
N/A						
Sample #						
WL7088						
Instrument Code						
WB27811						
Prepared By						
MCB						
Chemist						
SLF						
Analyst						
JDS						
Date Complete						
04/10/96						
Analysis Date						
04/09/96						
Analysis Time						
02:20 PM						
Sample Point						
~~AY-101 GRAB~~						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.16E-02	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	38.5%		4.65E-03 µCi/mL
PERCENT CARRIER RECOVERY	93.0%		

LF 4/10/96

C-106

Analyst:	JDS	Date:	10-Apr-96
Signature of Chemist:	SLF	Date:	4/10/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	SAMPLE 1.000
SAMPLE	TOTAL COUNTS	(TC)	90	GROSS WEIGHT	(W2)	7.2733
Worklist	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1874
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)	0.0859
TestCode	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	16.50
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	5.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
BatchNumber	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003252	TIME OF SEPARATION	(ST)	14:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)	2.21
0	TIME OF COUNT	(TOC)	06:50	Sr-89/90 CONC in µCi/L		6.3883E+01
SamplePrep	DATE OF COUNT	(DOC)	04/10/96			
N/A						
Sample#						
S96T001566						
InstrumentCode	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
PreparedBy	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
JDS	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
DateComplete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
04/10/96						
AnalysisDate						DETECTION LEVEL
04/09/96	Sr-89/90 CONCENTRATION		6.39E-02		µCi/mL	
AnalysisTime						
02:20 PM	RELATIVE COUNTING ERROR		36.5%			2.40E-02 µCi/mL
SamplePoint						
C-106	PERCENT CARRIER RECOVERY		85.9%			

Analyst:		JDS	Date:	10-Apr-96
Signature of Chemist:		SLF	Date:	4/10/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	114	GROSS WEIGHT	(W2)	7.2504
Worklist	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1635
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)	0.0869
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	16.75
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	8.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003252	TIME OF SEPARATION	(ST)	14:20	Rmax		N/A
Recount	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)	2.21
0	TIME OF COUNT	(TOC)	07:05	Sr-89/90 CONC in µCi/L		8.8647E+01
Sample Prep	DATE OF COUNT	(DOC)	04/10/96			
N/A						
Sample						
S96T001566						
Instrument Code						
WB27811						
Prepared By						
MCB						
Chemist						
SLF						
Analyst						
JDS						
Date Completed						
04/10/96						
Analysis Date						
04/09/96						
Analysis Time						
02:20 PM						
Sample Point						
C-106						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

				DETECTION LEVEL
Sr-89/90 CONCENTRATION	8.86E-02	µCi/mL		
RELATIVE COUNTING ERROR	28.4%			2.36E-02 µCi/mL
PERCENT CARRIER RECOVERY	86.9%			

Analyst:		JDS	Date:	10-Apr-96
Signature of Chemist:		SLF	Date:	4/10/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	90	GROSS WEIGHT	(W2)	7.2733
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1874
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)	0.0859
	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	16.50
@SR90-01	DILUTION FACTOR	(DF)	10201			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	5.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003252	TIME OF SEPARATION	(ST)	14:20	Rmax		N/A
	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)	2.21
0	TIME OF COUNT	(TOC)	06:50	Sr-89/90 CONC in µCi/L		6.3883E+01
	DATE OF COUNT	(DOC)	04/10/96			

N/A

S96T001566

WB27811

MCB

SLF

JDS

04/10/96

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

				DETECTION LEVEL
04/09/96	Sr-89/90 CONCENTRATION	6.39E-02	µCi/mL	
02:20 PM	RELATIVE COUNTING ERROR	36.5%		2.40E-02 µCi/mL
C-106	PERCENT CARRIER RECOVERY	85.9%		

Analyst:		JDS	Date:	10-Apr-96
Signature of Chemist:		SLF	Date:	4/10/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	114	GROSS WEIGHT	(W2)	7.2504
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1635
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)	0.0869
	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	16.75
@SR90-01	DILUTION FACTOR	(DF)	10201			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	8.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003252	TIME OF SEPARATION	(ST)	14:20	Rmax		N/A
	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)	2.21
0	TIME OF COUNT	(TOC)	07:05	Sr-89/90 CONC in µCi/L		8.8647E+01
	DATE OF COUNT	(DOC)	04/10/96			

N/A

S96T001566

WB27811

MCB

SLF

JDS

04/10/96

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

				DETECTION LEVEL
04/09/96	Sr-89/90 CONCENTRATION	8.86E-02	µCi/mL	2.36E-02 µCi/mL
02:20 PM	RELATIVE COUNTING ERROR	28.4%		
C-106	PERCENT CARRIER RECOVERY	86.9%		

Analyst:		JDS	Date:	10-Apr-96
Signature of Chemist:		SLF	Date:	4/10/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Completed RadChem Report for Worklist#: 7897

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 7897

Analyst: KNT **Instrument:** AB00 12 **Book#** 9856

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S96T000546	0	F	@SR90-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T000546	0	F	@SR90-01	SOLID		
6	SAMPLE	S96T000555	0	F	@SR90-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T000555	0	F	@SR90-01	SOLID		
8	SAMPLE	S96T000561	0	F	@SR90-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
9	DUP	S96T000561	0	F	@SR90-01	SOLID		
10	SAMPLE	S96T000571	0	F	@SR90-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
11	DUP	S96T000571	0	F	@SR90-01	SOLID		

Final page for worklist # 7897

Kim Thomas 4-26-96
Analyst Signature **Date**

Sharon L Uhl 5-2-96
Analyst Signature **Date**

Sue E. Hogan 5/3/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 7897

Analyst: cjo **Instrument:** AB12 **Book#** 9856

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01	SR90-01	SOLID	1.23E-03	1.14E-3	92.683	% Recovery
1	STD		0		@SR90-01	SR90-01C	SOLID	100	9.06E+01	90.600	% Recovery
1	STD		0		@SR90-01	SR90-01E	SOLID	1.00	1.94E+00	1.940	% Ct. Error
2	BLNK-PREP		0		@SR90-01	SR90-01	SOLID	1	6.21E-2	0.062	uCi/g
2	BLNK-PREP		0		@SR90-01	SR90-01C	SOLID	100	9.23E+01	92.300	% Recovery
2	BLNK-PREP		0		@SR90-01	SR90-01E	SOLID	1.00	7.00E+01	70.000	% Ct. Error
3	BLNK/BKG		0		@SR90-01	SR90-01	SOLID	1	1.82E+00	1.820	uCi/g
4	SAMPLE	S96T000546	0	F	@SR90-01	SR90-01	SOLID	N/A	3.32E+02	531.0e-004	uCi/g
4	SAMPLE	S96T000546	0	F	@SR90-01	SR90-01C	SOLID	N/A	9.10E+01	0.0e+000	% Recovery
4	SAMPLE	S96T000546	0	F	@SR90-01	SR90-01E	SOLID	N/A	5.19E-01	0.0e+000	% Ct. Error
5	DUP	S96T000546	0	F	@SR90-01	SR90-01	SOLID	3.32E+2	3.42E+2	2.967	RPD
5	DUP	S96T000546	0	F	@SR90-01	SR90-01C	SOLID	100	9.15E+01	91.500	% Recovery
5	DUP	S96T000546	0	F	@SR90-01	SR90-01E	SOLID	1.00	4.82E-01	0.482	% Ct. Error
6	SAMPLE	S96T000555	0	F	@SR90-01	SR90-01	SOLID	N/A	5.19E+02	114.0e-003	uCi/g
6	SAMPLE	S96T000555	0	F	@SR90-01	SR90-01C	SOLID	N/A	9.19E+01	0.0e+000	% Recovery
6	SAMPLE	S96T000555	0	F	@SR90-01	SR90-01E	SOLID	N/A	6.08E-01	0.0e+000	% Ct. Error
7	DUP	S96T000555	0	F	@SR90-01	SR90-01	SOLID	5.19E+2	5.23E+2	0.768	RPD
7	DUP	S96T000555	0	F	@SR90-01	SR90-01C	SOLID	100	9.14E+01	91.400	% Recovery
7	DUP	S96T000555	0	F	@SR90-01	SR90-01E	SOLID	1.00	5.80E-01	0.580	% Ct. Error
8	SAMPLE	S96T000561	0	F	@SR90-01	SR90-01	SOLID	N/A	1.74E+02	476.0e-004	uCi/g
8	SAMPLE	S96T000561	0	F	@SR90-01	SR90-01C	SOLID	N/A	9.11E+01	0.0e+000	% Recovery
8	SAMPLE	S96T000561	0	F	@SR90-01	SR90-01E	SOLID	N/A	6.80E-01	0.0e+000	% Ct. Error
9	DUP	S96T000561	0	F	@SR90-01	SR90-01	SOLID	1.74E+2	1.52E+2	13.497	RPD
9	DUP	S96T000561	0	F	@SR90-01	SR90-01C	SOLID	100	9.10E+01	91.000	% Recovery
9	DUP	S96T000561	0	F	@SR90-01	SR90-01E	SOLID	1.00	6.67E-01	0.667	% Ct. Error
10	SAMPLE	S96T000571	0	F	@SR90-01	SR90-01	SOLID	N/A	1.73E+02	318.0e-004	uCi/g
10	SAMPLE	S96T000571	0	F	@SR90-01	SR90-01C	SOLID	N/A	9.27E+01	0.0e+000	% Recovery
10	SAMPLE	S96T000571	0	F	@SR90-01	SR90-01E	SOLID	N/A	5.56E-01	0.0e+000	% Ct. Error
11	DUP	S96T000571	0	F	@SR90-01	SR90-01	SOLID	1.73E+2	4.80E+2	94.028	RPD
11	DUP	S96T000571	0	F	@SR90-01	SR90-01C	SOLID	100	8.85E+01	88.500	% Recovery
11	DUP	S96T000571	0	F	@SR90-01	SR90-01E	SOLID	1.00	3.83E-01	0.383	% Ct. Error

Final page for worklist# 7897

Analyst Signature **Date** **Analyst Signature** **Date**

[signature] 5/7/96
Reviewer Signature **Date**

Sample S96T000571 will be rerun. High RPD between sample and duplicate.

Units shown for QC (BLK/BKG) may not reflect the actual units.

1725.1

Sr-90 Worklist Traveler

Sample Mounting Data

Worklist # 7897 Matrix Solid Analyst KNT Separation Date 4-26-96

Sample # or Type	STD/SPK Book #	Sample Volume (mL)	Sample Dilution	Digest Factor	Sep. Time	mL Carrier	Gross Weight	Tare Weight	Spike Volume	SPK Dilution
STD	9856	1		[illegible]	1310	1	7.4802	7.3956		
BLNK-Prep		.100 SLU	.05	.9436	1310	1	7.1047	7.0124		
596T000546		.050 ml		.9436	1310	1	7.3508	7.2598		
Dup/546		.050 ml		1.0540	1310	1	7.1246	7.0331		
596T000555		1000 ml	.250-10	.8844	1310	1	7.0844	6.9925		
Dup/555		100 ml	.250-10	.9700	1310	1	7.1191	7.0277		
596T000561		.100		.5160	1310	1	7.1685	7.0784		
Dup/561		.100		.6120	1310	1	7.0894	6.9984		
596T000571		.050		1.5148	1310	1	7.1492	7.0565		
Dup/571		.050		1.2024	1310	1	7.0802	6.9917		

Counting Room Data

Detector # 12 Background 3.3

Total Counts	Count Time (Minutes)	Date of Count	Time of Count
10340	10	4-26-96	1930
60			1945
142589			1955
165513			2015
103866			2040
114395			2055
83209			2140
86509			2150
124248			2200
261543			2215

Comments:

1726

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

						STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	10340	GROSS WEIGHT	(W2)	7.4862
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.3956
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)	0.0906
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	6.33
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1030.70	SR-90 EFFICIENCY FACTO	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)	2.28
0	TIME OF COUNT	(TOC)	19:30	Sr-89/90 CONC. in µCi/L		1.1418E+00
Sample Prep	DATE OF COUNT	(DOC)	04/26/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2284E-03			
WL7897						
Instrument Code						
WB27811						
Prepared By						
SLH2						
Chemist						
SLF						
Analyst						
KNT						
Date Complete						
05/02/96						
Analysis Date						
04/26/96						
Analysis Time						
01:10 PM						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.14E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		2.53E-06 µCi/L
PERCENT CARRIER RECOVERY	90.6%		

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

STANDARD.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK-PREP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	60	GROSS WEIGHT	(W2)	7.1047
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0124
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)	0.0923
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	6.58
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	0.9436			
SOLID	SAMPLE COUNT RATE	(Rs)	2.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)	2.28
0	TIME OF COUNT	(TOC)	19:45	Sr-89/90 CONC in µCi/g		6.2068E-02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96			
N/A						
Sample #						
WL7897						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
05/02/96	

Analysis Date				DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION	6.21E-02	µCi/g	
Analysis Time				
01:10 PM	RELATIVE COUNTING ERROR	70.0%		5.24E-02 µCi/g
Sample Point				
C-106 GRAB	PERCENT CARRIER RECOVERY	92.3%		

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	142589	GROSS WEIGHT	(W2)	7.3508
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2598
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)	0.0910
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	6.75
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	0.9436			
SOLID	SAMPLE COUNT RATE	(Rs)	14255.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)	2.28
0	TIME OF COUNT	(TOC)	19:55	Sr-89/90 CONC in µCi/g		3.3181E+02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96			
FUSION01						
Sample #						
S96T000546						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/02/96						
Analysis Date						DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION		3.32E+02		µCi/g	
Analysis Time						
01:10 PM	RELATIVE COUNTING ERROR		0.5%			5.31E-02 µCi/g
Sample Point						
C-106 GRAB	PERCENT CARRIER RECOVERY		91.0%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	165513	GROSS WEIGHT	(W2)		7.1246
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0331
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)		0.0915
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)		7.08
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.054				
SOLID	SAMPLE COUNT RATE	(Rs)	16548.00	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)		2.28
0	TIME OF COUNT	(TOC)	20:15	Sr-89/90 CONC in µCi/g			3.4176E+02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96				
FUSION01							
Sample #							
S96T000546							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/02/96							
Analysis Date							DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION			3.42E+02	µCi/g		
Analysis Time							
01:10 PM	RELATIVE COUNTING ERROR			0.5%			4.71E-02 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			91.5%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

1730

WORKBOOK PAGE: SAM6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	103866	GROSS WEIGHT	(W2)		7.0844
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		6.9925
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)		0.0919
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		7.50
@SR90-01	DILUTION FACTOR	(DF)	41				
Matrix	DIGEST FACTOR (g/L)	(D g/L	0.8844				
SOLID	SAMPLE COUNT RATE	(Rs)	10383.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)		2.28
0	TIME OF COUNT	(TOC)	20:40	Sr-89/90 CONC in µCi/g			5.1941E+02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96				
FUSION01							
Sample #							
S96T000555							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/02/96							
Analysis Date							DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION			5.19E+02	µCi/g		
Analysis Time							
01:10 PM	RELATIVE COUNTING ERROR			0.6%			1.14E-01 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			91.9%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

1731

WORKBOOK PAGE: DUP7

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	114395	GROSS WEIGHT	(W2)		7.1191
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0277
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)		0.0914
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		7.75
@SR90-01	DILUTION FACTOR	(DF)	41				
Matrix	DIGEST FACTOR (g/L)	(D g/L	0.97				
SOLID	SAMPLE COUNT RATE	(Rs)	11436.20	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)		2.28
0	TIME OF COUNT	(TOC)	20:55	Sr-89/90 CONC in µCi/g			5.2311E+02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96				
FUSION01							
Sample #							
S96T000555							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/02/96							
Analysis Date							DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION			5.23E+02	µCi/g		
Analysis Time							
01:10 PM	RELATIVE COUNTING ERROR			0.6%			1.04E-01 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			91.4%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

1732

WORKBOOK PAGE: SAM8

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	83209	GROSS WEIGHT	(W2)		7.1695
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0784
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)		0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		8.50
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	0.516				
SOLID	SAMPLE COUNT RATE	(Rs)	8317.60	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)		2.28
0	TIME OF COUNT	(TOC)	21:40	Sr-89/90 CONC in µCi/g			1.7370E+02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96				
FUSION01							
Sample #							
S96T000561							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/02/96							
Analysis Date							DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION			1.74E+02	µCi/g		
Analysis Time							
01:10 PM	RELATIVE COUNTING ERROR			0.7%			4.76E-02 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			91.1%			

Analyst:		KNT	Date:	02-May-96
Signature of Chemist:		SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP9

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	86509	GROSS WEIGHT	(W2)		7.0894
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		6.9984
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)		0.0910
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		8.67
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	0.612				
SOLID	SAMPLE COUNT RATE	(Rs)	8647.60	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)		2.28
0	TIME OF COUNT	(TOC)	21:50	Sr-89/90 CONC in µCi/g			1.5218E+02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96				
FUSION01							
Sample #							
S96T000561							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/02/96							
Analysis Date							DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION			1.52E+02	µCi/g		
Analysis Time							
01:10 PM	RELATIVE COUNTING ERROR			0.7%			4.01E-02 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			91.0%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM10

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	124248	GROSS WEIGHT	(W2)		7.1492
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0565
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)		0.0927
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)		8.83
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.5148				
SOLID	SAMPLE COUNT RATE	(Rs)	12421.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)		2.28
0	TIME OF COUNT	(TOC)	22:00	Sr-89/90 CONC in µCi/g			1.7310E+02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96				
FUSION01							
Sample #							
S96T000571							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/02/96							
Analysis Date							DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION			1.73E+02		µCi/g	
Analysis Time							
01:10 PM	RELATIVE COUNTING ERROR			0.6%			3.18E-02 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			92.7%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: DUP11

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	261543	GROSS WEIGHT	(W2)	7.0802
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9917
7897	BACKGROUND in cpm	(BKG)	3.3	NET WEIGHT	(W3)	0.0885
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	9.08
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.2024			
SOLID	SAMPLE COUNT RATE	(Rs)	26151.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.09	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003729	TIME OF SEPARATION	(ST)	13:10	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/26/96	DETECTION LIMIT	(Ld)	2.28
0	TIME OF COUNT	(TOC)	22:15	Sr-89/90 CONC in µCi/g		4.7970E+02
Sample Prep	DATE OF COUNT	(DOC)	04/26/96			
FUSION01						
Sample #						
S96T000571						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/02/96						
Analysis Date						DETECTION LEVEL
04/26/96	Sr-89/90 CONCENTRATION		4.80E+02	µCi/g		
Analysis Time						
01:10 PM	RELATIVE COUNTING ERROR		0.4%			4.18E-02 µCi/g
Sample Point						
C-106 GRAB	PERCENT CARRIER RECOVERY		88.5%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

1736

LABCORE Completed RadChem Report for Worklist#: 8061

Analyst: seh **Instrument:** AB12 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: C-106. Determine sample size using ludlum. lc

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@SR90-01 SR90-01	LIQUID	1.23E-03	1.22E-3	99.187	% Recovery
1	STD			0	@SR90-01 SR90-01C	LIQUID	100	8.94E+01	89.400	% Recovery
1	STD			0	@SR90-01 SR90-01E	LIQUID	1.00	1.91E+00	1.910	% Ct. Error
2	BLNK			0	@SR90-01 SR90-01	LIQUID	1	4.17E-3	0.004	uCi/mL
2	BLNK			0	@SR90-01 SR90-01C	LIQUID	100	8.77E+01	87.700	% Recovery
2	BLNK			0	@SR90-01 SR90-01E	LIQUID	1.00	1.40E+02	140.000	% Ct. Error
3	BLNK/BKG			0	@SR90-01 SR90-01	LIQUID	1	1.24E+00	1.240	uCi/mL
4	SAMPLE	S96T000563		0	@SR90-01 SR90-01	LIQUID	N/A	1.23E+00	797.0e-005	uCi/mL
4	SAMPLE	S96T000563		0	@SR90-01 SR90-01C	LIQUID	N/A	8.56E+01	0.0e+000	% Recovery
4	SAMPLE	S96T000563		0	@SR90-01 SR90-01E	LIQUID	N/A	2.76E+00	0.0e+000	% Ct. Error
5	DUP	S96T000563		0	@SR90-01 SR90-01	LIQUID	1.23E+0	6.35E-1	63.807	RPD
5	DUP	S96T000563		0	@SR90-01 SR90-01C	LIQUID	100	8.37E+01	83.700	% Recovery
5	DUP	S96T000563		0	@SR90-01 SR90-01E	LIQUID	1.00	2.74E+00	2.740	% Ct. Error
6	SAMPLE	S96T001681		0	@SR90-01 SR90-01	LIQUID	N/A	6.71E-01	788.0e-005	uCi/mL
6	SAMPLE	S96T001681		0	@SR90-01 SR90-01C	LIQUID	N/A	8.60E+01	0.0e+000	% Recovery
6	SAMPLE	S96T001681		0	@SR90-01 SR90-01E	LIQUID	N/A	3.75E+00	0.0e+000	% Ct. Error
7	DUP	S96T001681		0	@SR90-01 SR90-01	LIQUID	6.71E-1	6.68E-1	0.448	RPD
7	DUP	S96T001681		0	@SR90-01 SR90-01C	LIQUID	100	8.59E+01	85.900	% Recovery
7	DUP	S96T001681		0	@SR90-01 SR90-01E	LIQUID	1.00	3.76E+00	3.760	% Ct. Error

Final page for worklist# 8061

Analyst Signature **Date** **Analyst Signature** **Date**

5/2/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 8061

Analyst: Jds **Instrument:** AB00 #12 **Book#** 9B56

Method: LA-220-101 Rev/Mod _____

Worklist Comment: C-106. Determine sample size using ludlum. lc

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T000563	0		@SR90-01	LIQUID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T000563	0		@SR90-01	LIQUID		
6	SAMPLE	S96T001681	0		@SR90-01	LIQUID	96000174	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001681	0		@SR90-01	LIQUID		

Final page for worklist # 8061

Jah Spe 5/1/96
Analyst Signature **Date**
5/1/96
RMM

Sue E. Hogan 5/1/96
Analyst Signature **Date**
C.J. Ojanen 5/1/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10723	GROSS WEIGHT	(W2)		7.0595
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		6.9701
8061	BACKGROUND in cpm	(BKG)	7.4	NET WEIGHT	(W3)		0.0894
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		4.75
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1064.90	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.64	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003922	TIME OF SEPARATION	(ST)	04:30	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)		3.37
0	TIME OF COUNT	(TOC)	09:15	Sr-89/90 CONC. in µCi/L			1.2159E+00
Sample Prep	DATE OF COUNT	(DOC)	05/01/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2280E-03				
WL8061							
Instrument Code							
WB27811							
Prepared By							
SEH							
Chemist							
SLF							
Analyst							
JDS							
Date Complete							
05/01/96							
Analysis Date							
05/01/96							
Analysis Time							
04:30 AM							
Sample Point							
C-106 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.22E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		3.85E-06 µCi/L
PERCENT CARRIER RECOVERY	89.4%		

Analyst:	JDS	Date:	01-May-96
Signature of Chemist:	SLF	Date:	5/2/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	92	GROSS WEIGHT	(W2)	7.0789
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9912
8061	BACKGROUND in cpm	(BKG)	7.4	NET WEIGHT	(W3)	0.0877
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.67
@SR90-01	DILUTION FACTOR	(DF)	201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.64	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003922	TIME OF SEPARATION	(ST)	04:30	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)	3.37
0	TIME OF COUNT	(TOC)	10:10	Sr-89/90 CONC in µCi/L		4.1698E+00
Sample Prep	DATE OF COUNT	(DOC)	05/01/96			
N/A						
Sample #						
WL8061						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
JDS	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/01/96						
Analysis Date						
05/01/96	Sr-89/90 CONCENTRATION		4.17E-03	µCi/mL		
Analysis Time						
04:30 AM	RELATIVE COUNTING ERROR		140.3%			
Sample Point						
C-106 GRAB	PERCENT CARRIER RECOVERY		87.7%			

DETECTION LEVEL

7.80E-03 µCi/mL

Analyst:	JDS	Date:	01-May-96
Signature of Chemist:	SLF	Date:	5/2/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	5279	GROSS WEIGHT	(W2)		7.2822
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1966
8061	BACKGROUND in cpm	(BKG)	7.4	NET WEIGHT	(W3)		0.0856
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		6.00
@SR90-01	DILUTION FACTOR	(DF)	201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	520.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.64	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003922	TIME OF SEPARATION	(ST)	04:30	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)		3.37
0	TIME OF COUNT	(TOC)	10:30	Sr-89/90 CONC in µCi/L			1.2310E+03
Sample Prep	DATE OF COUNT	(DOC)	05/01/96				
N/A							
Sample #							
S96T000563							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
JDS	Detection Levels and Less Than Values are determined from Procedure LA-508-002						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/01/96							
Analysis Date							DETECTION LEVEL
05/01/96	Sr-89/90 CONCENTRATION			1.23E+00		µCi/mL	
Analysis Time							
04:30 AM	RELATIVE COUNTING ERROR			2.8%			7.97E-03 µCi/mL
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			85.6%			

Analyst:		JDS	Date:	01-May-96
Signature of Chemist:		SLF	Date:	5/2/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	5317	GROSS WEIGHT	(W2)		7.0235
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		6.9398
8061	BACKGROUND in cpm	(BKG)	7.4	NET WEIGHT	(W3)		0.0837
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		6.33
@SR90-01	DILUTION FACTOR	(DF)	201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	524.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.64	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003922	TIME OF SEPARATION	(ST)	04:30	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)		3.37
0	TIME OF COUNT	(TOC)	10:50	Sr-89/90 CONC in µCi/L			1.2637E+03
Sample Prep	DATE OF COUNT	(DOC)	05/01/96				
N/A							
Sample #							
S96T000563							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
JDS	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/01/96							
Analysis Date							DETECTION LEVEL
05/01/96	Sr-89/90 CONCENTRATION			1.26E+00	µCi/mL		
Analysis Time							
04:30 AM	RELATIVE COUNTING ERROR			2.7%			8.12E-03 µCi/mL
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			83.7%			

Analyst:		JDS	Date:	01-May-96
Signature of Chemist:		SLF	Date:	5/2/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	2944	GROSS WEIGHT	(W2)	7.1351
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0491
8061	BACKGROUND in cpm	(BKG)	7.4	NET WEIGHT	(W3)	0.0860
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.58
@SR90-01	DILUTION FACTOR	(DF)	201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	287.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.64	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003337	TIME OF SEPARATION	(ST)	04:30	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)	3.37
0	TIME OF COUNT	(TOC)	11:05	Sr-89/90 CONC in µCi/L		6.7149E+02
Sample Prep	DATE OF COUNT	(DOC)	05/01/96			
N/A						
Sample #						
S96T001681						
Instrument Code						
WB27811						
Prepared By						
SEH						
Chemist						
SLF						
Analyst						
JDS						
Date Complete						
05/01/96						
Analysis Date						
05/01/96						
Analysis Time						
04:30 AM						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	6.71E-01	µCi/mL	7.88E-03 µCi/mL
RELATIVE COUNTING ERROR	3.8%		
PERCENT CARRIER RECOVERY	86.0%		

Analyst:		JDS	Date:	01-May-96
Signature of Chemist:		SLF	Date:	5/2/96

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: DUP7

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	2929	GROSS WEIGHT	(W2)		7.3297
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2438
8061	BACKGROUND in cpm	(BKG)	7.4	NET WEIGHT	(W3)		0.0859
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		6.75
@SR90-01	DILUTION FACTOR	(DF)	201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	285.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.64	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003337	TIME OF SEPARATION	(ST)	04:30	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)		3.37
0	TIME OF COUNT	(TOC)	11:15	Sr-89/90 CONC in µCi/L			6.6760E+02
Sample Prep	DATE OF COUNT	(DOC)	05/01/96				
N/A							
Sample #							
S96T001681							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
JDS	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/01/96							
Analysis Date							DETECTION LEVEL
05/01/96	Sr-89/90 CONCENTRATION			6.68E-01	µCi/mL		
Analysis Time							
04:30 AM	RELATIVE COUNTING ERROR			3.8%			7.88E-03 µCi/mL
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			85.9%			

Analyst:	JDS	Date:	01-May-96
Signature of Chemist:	SLF	Date:	5/2/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 8101

Analyst: S.C.L **Instrument:** AB00 12 **Book#** 9836

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: C-106.Determine sample size using ludlum.TAKE CARE. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001544	0		@SR90-01	LIQUID	96000082	C-106 GRAB
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T001544	0		@SR90-01	LIQUID		

Final page for worklist # 8101

Sue C Lai 5-7-96
Analyst Signature **Date**

Shawn L Udell 5-8-96
Analyst Signature **Date**
C.J. Opinen 5/8/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8101

Analyst: scl **Instrument:** AB12 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: C-106.Determine sample size using ludlum.TAKE CARE. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.20E-3	97.561	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	9.02E+01	90.200	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.90E+00	1.900	% Ct. Erro
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	1.24E-2	12.400e-003	uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	9.04E+01	90.400	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	1.05E+02	105.000	uCi/mL
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	1.38	1.380	BLNK/BKG
4	SAMPLE	S96T001544	0	@SR90-01	SR90-01	LIQUID	N/A	8.40E-01	174.0e-004	uCi/mL
4	SAMPLE	S96T001544	0	@SR90-01	SR90-01C	LIQUID	N/A	8.72E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001544	0	@SR90-01	SR90-01E	LIQUID	N/A	5.37E+00	0.0e+000	% Ct. Error
5	DUP	S96T001544	0	@SR90-01	SR90-01	LIQUID	8.40E-1	7.82E-1	7.152	RPD
5	DUP	S96T001544	0	@SR90-01	SR90-01C	LIQUID	100	8.99E+01	89.900	% Recovery
5	DUP	S96T001544	0	@SR90-01	SR90-01E	LIQUID	1.00	5.48E+00	5.480	% Cnt Err

Final page for worklist# 8101

Analyst Signature **Date**

Analyst Signature **Date**

5/13/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10835	GROSS WEIGHT	(W2)		7.2822
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1920
8101	BACKGROUND in cpm	(BKG)	5.8	NET WEIGHT	(W3)		0.0902
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		6.58
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1077.70	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.45	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003959	TIME OF SEPARATION	(ST)	11:15	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/07/96	DETECTION LIMIT	(Ld)		2.99
0	TIME OF COUNT	(TOC)	17:50	Sr-89/90 CONC. in µCi/L			1.1961E+00
Sample Prep	DATE OF COUNT	(DOC)	05/07/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2276E-03				
WL8101							
Instrument Code							
WB27811							
Prepared By							
SLH2							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
05/08/96							
Analysis Date							
05/07/96							
Analysis Time							
11:15 AM							
Sample Point							
C-106 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

				DETECTION LEVEL
Sr-89/90 CONCENTRATION	1.20E-03	µCi/mL		
RELATIVE COUNTING ERROR	1.9%			3.32E-06 µCi/L
PERCENT CARRIER RECOVERY	90.2%			

Analyst:	SCL	Date:	08-May-96
Signature of Chemist:	SLF	Date:	5/13/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	80	GROSS WEIGHT	(W2)	7.2822
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1918
8101	BACKGROUND in cpm	(BKG)	5.8	NET WEIGHT	(W3)	0.0904
Test Code	SAMPLE VOLUME in mL	(SS)	2.000	DELTA TIME (HOURS)	(DT)	6.75
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2.20	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.45	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003959	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/07/96	DETECTION LIMIT	(Ld)	2.99
0	TIME OF COUNT	(TOC)	18:00	Sr-89/90 CONC in µCi/L		1.2404E+01
Sample Prep	DATE OF COUNT	(DOC)	05/07/96			
N/A						
Sample #						
WL8101						
Instrument Code						
WB27811						
Prepared By						
SLH2						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
05/08/96						
Analysis Date						
05/07/96						
Analysis Time						
11:15 AM						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.24E-02	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	104.7%		1.69E-02 µCi/mL
PERCENT CARRIER RECOVERY	90.4%		

Analyst:	SCL	Date:	08-May-96
Signature of Chemist:	SLF	Date:	5/13/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	1499	GROSS WEIGHT	(W2)	7.3043
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2171
8101	BACKGROUND in cpm	(BKG)	5.8	NET WEIGHT	(W3)	0.0872
Test Code	SAMPLE VOLUME in mL	(SS)	2.000	DELTA TIME (HOURS)	(DT)	7.00
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	144.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.45	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003959	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/07/96	DETECTION LIMIT	(Ld)	2.99
0	TIME OF COUNT	(TOC)	18:15	Sr-89/90 CONC in µCi/L		8.4013E+02
Sample Prep	DATE OF COUNT	(DOC)	05/07/96			
N/A						
Sample #						
S96T001544						
Instrument Code						
WB27811						
Prepared By						
SLH2						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
05/08/96						
Analysis Date						
05/07/96						
Analysis Time						
11:15 AM						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	8.40E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	5.4%		1.74E-02 µCi/mL
PERCENT CARRIER RECOVERY	87.2%		

Analyst:		SCL	Date:	08-May-96
Signature of Chemist:		SLF	Date:	5/13/96

SAMPLE.WB1 REV 1.2 22010NML

1749

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	1444	GROSS WEIGHT	(W2)	7.2802
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1903
8101	BACKGROUND in cpm	(BKG)	5.8	NET WEIGHT	(W3)	0.0899
Test Code	SAMPLE VOLUME in mL	(SS)	2.000	DELTA TIME (HOURS)	(DT)	7.20
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	138.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.45	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003959	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/07/96	DETECTION LIMIT	(Ld)	2.99
0	TIME OF COUNT	(TOC)	18:27	Sr-89/90 CONC in µCi/L		7.8218E+02
Sample Prep	DATE OF COUNT	(DOC)	05/07/96			
N/A						
Sample #						
S96T001544						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/08/96						
Analysis Date						DETECTION LEVEL
05/07/96	Sr-89/90 CONCENTRATION		7.82E-01		µCi/mL	
Analysis Time						
11:15 AM	RELATIVE COUNTING ERROR		5.5%			1.69E-02 µCi/mL
Sample Point						
C-106 GRAB	PERCENT CARRIER RECOVERY		89.9%			

Analyst:		SCL	Date:	08-May-96
Signature of Chemist:		SLF	Date:	5/13/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 8331

Analyst: SLH **Instrument:** AB00 10 **Book#** 9856

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: Use .100-10-.100 mL sample size. Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T000544	0		@SR90-01	LIQUID	96000082	C-106 GRAB
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T000544	0		@SR90-01	LIQUID		

Final page for worklist # 8331

Sandra Hood Boatright
Analyst Signature **Date** 5-4-96

Analyst Signature **Date** 5/7/96

Lee E. Hogan 5/8/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed RadChem Report for Worklist#: 8331

Analyst: seh **Instrument:** AB10 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .100-10-.100 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.25E-3	101.626	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	9.89E+01	98.900	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.79E+00	1.790	% Ct. Error
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	<2.06E-3		uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	9.93E+01	99.300	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	4.09E+02	409.000	% Ct. Error
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	9.36E-01	0.936	uCi/mL
4	SAMPLE	S96T000544	0	@SR90-01	SR90-01	LIQUID	N/A	9.68E-01	435.0e-005	uCi/mL
4	SAMPLE	S96T000544	0	@SR90-01	SR90-01C	LIQUID	N/A	9.59E+01	0.0e+000	% Recovery
4	SAMPLE	S96T000544	0	@SR90-01	SR90-01E	LIQUID	N/A	2.08E+00	0.0e+000	% Ct. Error
5	DUP	S96T000544	0	@SR90-01	SR90-01	LIQUID	9.68E-1	8.93E-1	8.060	RPD
5	DUP	S96T000544	0	@SR90-01	SR90-01C	LIQUID	100	9.95E+01	99.500	% Recovery
5	DUP	S96T000544	0	@SR90-01	SR90-01E	LIQUID	1.00	2.12E+00	2.120	% Ct. Error

Final page for worklist# 8331

Analyst Signature **Date** **Analyst Signature** **Date**

5/13/96

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	12288	GROSS WEIGHT	(W2)		7.1517
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0528
8331	BACKGROUND in cpm	(BKG)	11.0	NET WEIGHT	(W3)		0.0989
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.13
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1217.80	SR-90 EFFICIENCY FACTO	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.00	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004238	TIME OF SEPARATION	(ST)	22:52	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/03/96	DETECTION LIMIT	(Ld)		4.09
0	TIME OF COUNT	(TOC)	07:00	Sr-89/90 CONC. in µCi/L			1.2522E+00
Sample Prep	DATE OF COUNT	(DOC)	05/04/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2279E-03				
WL8331							
Instrument Code							
WB26870							
Prepared By							
MCB							
Chemist							
JLS							
Analyst							
SLH							
Date Complete							
05/07/96							
Analysis Date							
05/03/96							
Analysis Time							
10:52 PM							
Sample Point							
C-106 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.25E-03	µCi/mL
RELATIVE COUNTING ERROR	1.8%	
PERCENT CARRIER RECOVERY	98.9%	

DETECTION LEVEL

4.20E-06 µCi/L

Analyst:	SLH	Date:	07-May-96
Signature of Chemist:	JLS	Date:	5/13/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	103	GROSS WEIGHT	(W2)	7.1172
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0179
8331	BACKGROUND in cpm	(BKG)	11.0	NET WEIGHT	(W3)	0.0993
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	8.58
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	-0.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.00	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004238	TIME OF SEPARATION	(ST)	22:52	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/03/96	DETECTION LIMIT	(Ld)	4.09
0	TIME OF COUNT	(TOC)	07:27	Sr-89/90 CONC in µCi/L	<	2.0576E+00
Sample Prep	DATE OF COUNT	(DOC)	05/04/96			
N/A						
Sample #						
WL8331						

Instrument Code: WB26870

Prepared By: MCB

Chemist: JLS

Analyst: SLH

Date Complete: 05/07/96

Analysis Date: 05/03/96

Analysis Time: 10:52 PM

Sample Point: C-106 GRAB

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	< 2.06E-03	µCi/mL	DETECTION LEVEL
LESS THAN Value was Determined from Lc.			
RELATIVE COUNTING ERROR	408.6%		4.21E-03 µCi/mL
PERCENT CARRIER RECOVERY	99.3%		

Analyst:	SLH	Date:	07-May-96
Signature of Chemist:	JLS	Date:	5/13/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	9208	GROSS WEIGHT	(W2)	7.1528
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0569
8331	BACKGROUND in cpm	(BKG)	11.0	NET WEIGHT	(W3)	0.0959
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	8.80
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	909.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.00	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004238	TIME OF SEPARATION	(ST)	22:52	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/03/96	DETECTION LIMIT	(Ld)	4.09
0	TIME OF COUNT	(TOC)	07:40	Sr-89/90 CONC in µCi/L		9.6793E+02
Sample Prep	DATE OF COUNT	(DOC)	05/04/96			
N/A						
Sample #						
S96T000544						
Instrument Code						
WB26870						
Prepared By						
MCB						
Chemist						
JLS						
Analyst						
SLH						
Date Complete						
05/07/96						
Analysis Date						
05/03/96						
Analysis Time						
10:52 PM						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	9.68E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	2.1%		4.35E-03 µCi/mL
PERCENT CARRIER RECOVERY	95.9%		

Analyst:	SLH	Date:	07-May-96
Signature of Chemist:	JLS	Date:	5/13/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	8832	GROSS WEIGHT	(W2)	7.2437
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1442
8331	BACKGROUND in cpm	(BKG)	11.0	NET WEIGHT	(W3)	0.0995
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	8.97
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	872.20	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.00	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004238	TIME OF SEPARATION	(ST)	22:52	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/03/96	DETECTION LIMIT	(Ld)	4.09
0	TIME OF COUNT	(TOC)	07:50	Sr-89/90 CONC in µCi/L		8.9288E+02
Sample Prep	DATE OF COUNT	(DOC)	05/04/96			
N/A						
Sample #						
S96T000544						
Instrument Code						
WB26870						
Prepared By						
MCB						
Chemist						
JLS						
Analyst						
SLH						
Date Complete						
05/07/96						
Analysis Date						
05/03/96						
Analysis Time						
10:52 PM						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	8.93E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	2.1%		4.18E-03 µCi/mL
PERCENT CARRIER RECOVERY	99.5%		

Analyst:	SLH	Date:	07-May-96
Signature of Chemist:	JLS	Date:	5/13/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Completed RadChem Report for Worklist#: 8425

Analyst: dpb **Instrument:** AB12 **Book#** 9854

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: 0.050 mL sample size / rerun / jls

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	SOLID	1.23E-03	1.25E-3	101.626	% Recovery
1	STD		0	@SR90-01	SR90-01C	SOLID	100	8.80E+01	88.000	% Recovery
1	STD		0	@SR90-01	SR90-01E	SOLID	1.00	1.88E+00	1.880	% Ct. Erro
2	BLNK-PREP		0	@SR90-01	SR90-01	SOLID	1	1.17E-1	0.117	uCi/g
2	BLNK-PREP		0	@SR90-01	SR90-01C	SOLID	100	8.62E+01	86.200	% Recovery
2	BLNK-PREP		0	@SR90-01	SR90-01E	SOLID	1.00	3.54E+01	35.400	uCi/g
3	SAMPLE	S96T000571	0 F	@SR90-01	SR90-01	SOLID	N/A	1.86E+02	438.0e-004	uCi/g
3	SAMPLE	S96T000571	0 F	@SR90-01	SR90-01C	SOLID	N/A	8.96E+01	0.0e+000	% Recovery
3	SAMPLE	S96T000571	0 F	@SR90-01	SR90-01E	SOLID	N/A	5.50E-01	0.0e+000	% Ct. Error
4	DUP	S96T000571	0 F	@SR90-01	SR90-01	SOLID	1.86E+2	5.17E+2	94.168	RPD
4	DUP	S96T000571	0 F	@SR90-01	SR90-01C	SOLID	100	7.85E+01	78.500	% Recovery
4	DUP	S96T000571	0 F	@SR90-01	SR90-01E	SOLID	1.00	3.95E-01	0.395	% Cnt Err

Final page for worklist# 8425

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 5/14/96

Rerun results support original results. Sample and duplicate appear non-homogeneous.

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 8425

Analyst: DPB **Instrument:** AB00 12 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: 0.050 mL sample size / rerun / jls

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	SAMPLE	S96T000571	0	F	@SR90-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
4	DUP	S96T000571	0	F	@SR90-01	SOLID		

Final page for worklist # 8425

Daniel P. Bromley 5/9/96 0430
Analyst Signature **Date**

Sylvia Z Cochran 5/4/96
Analyst Signature **Date**

Sue E. Hogan 5-10-96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11044	GROSS WEIGHT	(W2)		7.2862
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1982
8425	BACKGROUND in cpm	(BKG)	5.8	NET WEIGHT	(W3)		0.0880
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		6.83
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1098.60	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.45	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004359	TIME OF SEPARATION	(ST)	23:40	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/08/96	DETECTION LIMIT	(Ld)		2.99
0	TIME OF COUNT	(TOC)	06:30	Sr-89/90 CONC. in µCi/L			1.2465E+00
Sample Prep	DATE OF COUNT	(DOC)	05/09/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2275E-03				
WL8425							
Instrument Code							
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0						
SZC	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
DPB	NOTE: Expected weight = CVA * 0.1						
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
05/09/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
Analysis Date							DETECTION LEVEL
05/08/96	Sr-89/90 CONCENTRATION			1.25E-03		µCi/mL	
Analysis Time							
11:40 PM	RELATIVE COUNTING ERROR			1.9%			3.40E-06 µCi/L
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			88.0%			

Analyst:	DPB	Date:	09-May-96
Signature of Chemist:	SLF	Date:	5/14/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK-PREP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	135	GROSS WEIGHT	(W2)	7.3000
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2138
8425	BACKGROUND in cpm	(BKG)	5.8	NET WEIGHT	(W3)	0.0862
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	7.08
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.5148			
SOLID	SAMPLE COUNT RATE	(Rs)	7.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.45	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004359	TIME OF SEPARATION	(ST)	23:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/08/96	DETECTION LIMIT	(Ld)	2.99
0	TIME OF COUNT	(TOC)	06:45	Sr-89/90 CONC in µCi/g		1.1745E-01
Sample Prep	DATE OF COUNT	(DOC)	05/09/96			
N/A						
Sample #						
WL8425						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
DPB	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
05/09/96	
Analysis Date	
05/08/96	Sr-89/90 CONCENTRATION 1.17E-01 µCi/g
Analysis Time	
11:40 PM	RELATIVE COUNTING ERROR 35.4%
Sample Point	
C-106 GRAB	PERCENT CARRIER RECOVERY 86.2%

DETECTION LEVEL

4.56E-02 µCi/g

Analyst:	DPB	Date:	09-May-96
Signature of Chemist:	SLF	Date:	5/14/96

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WORKBOOK PAGE: SAM3

LA-220-101 / D-1 **Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)**

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	127251	GROSS WEIGHT	(W2)	7.3091
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2195
8425	BACKGROUND in cpm	(BKG)	5.8	NET WEIGHT	(W3)	0.0896
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	7.33
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.5148			
SOLID	SAMPLE COUNT RATE	(Rs)	12719.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.45	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004359	TIME OF SEPARATION	(ST)	23:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/08/96	DETECTION LIMIT	(Ld)	2.99
1	TIME OF COUNT	(TOC)	07:00	Sr-89/90 CONC in µCi/g		1.8618E+02
Sample Prep	DATE OF COUNT	(DOC)	05/09/96			
FUSION01						
Sample #						
S96T000571						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
DPB	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/09/96						
Analysis Date						DETECTION LEVEL
05/08/96	Sr-89/90 CONCENTRATION		1.86E+02		µCi/g	
Analysis Time						
11:40 PM	RELATIVE COUNTING ERROR		0.5%			4.38E-02 µCi/g
Sample Point						
C-106 GRAB	PERCENT CARRIER RECOVERY		89.6%			

Analyst:		DPB	Date:	09-May-96
Signature of Chemist:		SLF	Date:	5/14/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	246351	GROSS WEIGHT	(W2)	7.2528
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1743
8425	BACKGROUND in cpm	(BKG)	5.8	NET WEIGHT	(W3)	0.0785
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	7.67
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.2024			
SOLID	SAMPLE COUNT RATE	(Rs)	24629.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.45	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004359	TIME OF SEPARATION	(ST)	23:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/08/96	DETECTION LIMIT	(Ld)	2.99
1	TIME OF COUNT	(TOC)	07:20	Sr-89/90 CONC in µCi/g		5.1663E+02
Sample Prep	DATE OF COUNT	(DOC)	05/09/96			
FUSION01						
Sample #						
S96T000571						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
DPB	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/09/96						
Analysis Date						DETECTION LEVEL
05/08/96	Sr-89/90 CONCENTRATION		5.17E+02		µCi/g	
Analysis Time						
11:40 PM	RELATIVE COUNTING ERROR		0.4%			6.28E-02 µCi/g
Sample Point						
C-106 GRAB	PERCENT CARRIER RECOVERY		78.5%			

Analyst:		DPB	Date:	09-May-96
Signature of Chemist:		SLF	Date:	5/14/96

SAMPLE.WB1 REV 1.2 22010NML

1762

LABCORE Completed RadChem Report for Worklist#: 8871

Analyst: knt **Instrument:** AB12 **Book#** 9856

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: C-106. RUSH! Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	SOLID	1.23E-03	1.22E-3	99.187	% Recovery
1	STD		0		@SR90-01 SR90-01C	SOLID	100	9.43E+01	94.300	% Recovery
1	STD		0		@SR90-01 SR90-01E	SOLID	1.00	1.83E+00	1.830	% Ct. Erro
2	BLNK-PREP		0		@SR90-01 SR90-01	SOLID	1	6.97E-1	0.697	uCi/g
2	BLNK-PREP		0		@SR90-01 SR90-01C	SOLID	100	9.20E+01	92.000	% Recovery
2	BLNK-PREP		0		@SR90-01 SR90-01E	SOLID	1.00	2.60E+01	26.000	uCi/g
3	BLNK/BKG		0		@SR90-01 SR90-01	SOLID	1	2.79E+00	2.790	BLNK/BKG
4	SAMPLE	S96T001036	0	F	@SR90-01 SR90-01	SOLID	N/A	1.24E+03	187.0e-003	uCi/g
4	SAMPLE	S96T001036	0	F	@SR90-01 SR90-01C	SOLID	N/A	9.16E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001036	0	F	@SR90-01 SR90-01E	SOLID	N/A	4.24E-01	0.0e+000	% Ct. Error
5	DUP	S96T001036	0	F	@SR90-01 SR90-01	SOLID	1.24E+3	4.83E+2	87.870	RPD
5	DUP	S96T001036	0	F	@SR90-01 SR90-01C	SOLID	100	9.26E+01	92.600	% Recovery
5	DUP	S96T001036	0	F	@SR90-01 SR90-01E	SOLID	1.00	6.73E-01	0.673	% Cnt Err
6	SAMPLE	S96T001563	0	F	@SR90-01 SR90-01	SOLID	N/A	6.38E+02	186.0e-003	uCi/g
6	SAMPLE	S96T001563	0	F	@SR90-01 SR90-01C	SOLID	N/A	9.21E+01	0.0e+000	% Recovery
6	SAMPLE	S96T001563	0	F	@SR90-01 SR90-01E	SOLID	N/A	5.91E-01	0.0e+000	% Ct. Error
7	DUP	S96T001563	0	F	@SR90-01 SR90-01	SOLID	6.38E+2	6.83E+2	6.813	RPD
7	DUP	S96T001563	0	F	@SR90-01 SR90-01C	SOLID	100	9.17E+01	91.700	% Recovery
7	DUP	S96T001563	0	F	@SR90-01 SR90-01E	SOLID	1.00	5.75E-01	0.575	% Cnt Err

Final page for worklist# 8871

Analyst Signature Date

Analyst Signature Date

[signature] 5/20/96
Reviewer Signature Date

S96T001036 shows high RPD between sample and duplicate. No rerun per project coordinator.

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 8871

Analyst: KNT **Instrument:** AB00 #12 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: C-106. RUSH! Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S96T001036	0	F	@SR90-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001036	0	F	@SR90-01	SOLID		
6	SAMPLE	S96T001563	0	F	@SR90-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001563	0	F	@SR90-01	SOLID		

Final page for worklist # 8871

Kim Thomas 5-17-96
Analyst Signature **Date**

C Raymond 5.18.96
Analyst Signature **Date**

M C Brown 5/20/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11651	GROSS WEIGHT	(W2)		7.3013
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2070
8871	BACKGROUND in cpm	(BKG)	6.7	NET WEIGHT	(W3)		0.0943
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		7.00
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1158.40	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.56	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004882	TIME OF SEPARATION	(ST)	23:50	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)		3.21
0	TIME OF COUNT	(TOC)	06:50	Sr-89/90 CONC. in µCi/L			1.2244E+00
Sample Prep	DATE OF COUNT	(DOC)	05/18/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2268E-03				
WL8871							
Instrument Code							
WB27811							
Prepared By							
VAR							
Chemist							
SLF							
Analyst							
KNT							
Date Complete							
05/18/96							
Analysis Date							
05/17/96							
Analysis Time							
12:00 AM							
Sample Point							
C-106 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.22E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.8%		3.39E-06 µCi/L
PERCENT CARRIER RECOVERY	94.3%		

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK-PREP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	187	GROSS WEIGHT	(W2)	7.2738
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1818
8871	BACKGROUND in cpm	(BKG)	6.7	NET WEIGHT	(W3)	0.0920
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.25
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.8792			
SOLID	SAMPLE COUNT RATE	(Rs)	12.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.56	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004882	TIME OF SEPARATION	(ST)	23:50	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)	3.21
0	TIME OF COUNT	(TOC)	07:05	Sr-89/90 CONC in µCi/g		6.9696E-01
Sample Prep	DATE OF COUNT	(DOC)	05/18/96			
N/A						
Sample #						
WL8871						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
05/18/96	
Analysis Date	
05/17/96	
Analysis Time	
Sample Point	
C-106 GRAB	

Sr-89/90 CONCENTRATION	6.97E-01	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	26.0%		1.86E-01 µCi/g
PERCENT CARRIER RECOVERY	92.0%		

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	SAMPLE 1.000
SAMPLE	TOTAL COUNTS	(TC)	213393	GROSS WEIGHT	(W2)	7.0836
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9920
8871	BACKGROUND in cpm	(BKG)	6.7	NET WEIGHT	(W3)	0.0916
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.58
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.8792			
SOLID	SAMPLE COUNT RATE	(Rs)	21332.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.56	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004882	TIME OF SEPARATION	(ST)	23:50	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)	3.21
0	TIME OF COUNT	(TOC)	07:25	Sr-89/90 CONC in µCi/g		1.2402E+03
Sample Prep	DATE OF COUNT	(DOC)	05/18/96			
FUSION01						
Sample #						
S96T001036						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/18/96						
Analysis Date						DETECTION LEVEL
05/17/96	Sr-89/90 CONCENTRATION		1.24E+03		µCi/g	
Analysis Time						
	RELATIVE COUNTING ERROR		0.4%			1.87E-01 µCi/g
Sample Point						
C-106 GRAB	PERCENT CARRIER RECOVERY		91.6%			

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	85064	GROSS WEIGHT	(W2)		7.2625
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1699
8871	BACKGROUND in cpm	(BKG)	6.7	NET WEIGHT	(W3)		0.0926
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		7.75
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.8996				
SOLID	SAMPLE COUNT RATE	(Rs)	8499.70	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.56	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004882	TIME OF SEPARATION	(ST)	23:50	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)		3.21
0	TIME OF COUNT	(TOC)	07:35	Sr-89/90 CONC in µCi/g			4.8273E+02
Sample Prep	DATE OF COUNT	(DOC)	05/18/96				
FUSION01							
Sample #							
S96T001036							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/18/96							
Analysis Date							DETECTION LEVEL
05/17/96	Sr-89/90 CONCENTRATION			4.83E+02	µCi/g		
Analysis Time							
	RELATIVE COUNTING ERROR			0.7%			1.82E-01 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			92.6%			

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	110194	GROSS WEIGHT	(W2)		7.3332
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2411
8871	BACKGROUND in cpm	(BKG)	6.7	NET WEIGHT	(W3)		0.0921
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.00
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.8684				
SOLID	SAMPLE COUNT RATE	(Rs)	11012.70	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.56	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004882	TIME OF SEPARATION	(ST)	23:50	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)		3.21
0	TIME OF COUNT	(TOC)	07:50	Sr-89/90 CONC in µCi/g			6.3773E+02
Sample Prep	DATE OF COUNT	(DOC)	05/18/96				
FUSION01							
Sample #							
S96T001563							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/18/96							
Analysis Date							DETECTION LEVEL
05/17/96	Sr-89/90 CONCENTRATION			6.38E+02	µCi/g		
Analysis Time							
	RELATIVE COUNTING ERROR			0.6%			1.86E-01 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			92.1%			

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

1769

WORKBOOK PAGE: DUP7

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	116451	GROSS WEIGHT	(W2)		7.1224
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0307
8871	BACKGROUND in cpm	(BKG)	6.7	NET WEIGHT	(W3)		0.0917
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.17
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.8492				
SOLID	SAMPLE COUNT RATE	(Rs)	11638.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.56	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004882	TIME OF SEPARATION	(ST)	23:50	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)		3.21
0	TIME OF COUNT	(TOC)	08:00	Sr-89/90 CONC in µCi/g			6.8278E+02
Sample Prep	DATE OF COUNT	(DOC)	05/18/96				
FUSION01							
Sample #							
S96T001563							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/18/96							
Analysis Date							DETECTION LEVEL
05/17/96	Sr-89/90 CONCENTRATION			6.83E+02	µCi/g		
Analysis Time							
	RELATIVE COUNTING ERROR			0.6%			1.88E-01 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			91.7%			

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Completed RadChem Report for Worklist#: 8873

Analyst: knt **Instrument:** AB10 **Book#** 9856

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: C-106. RUSH! Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	SOLID	1.23E-03	1.26E-3	102.439	% Recovery
1	STD		0		@SR90-01 SR90-01C	SOLID	100	9.05E+01	90.500	% Recovery
1	STD		0		@SR90-01 SR90-01E	SOLID	1.00	1.88E+00	1.880	% Ct. Erro
2	BLNK-PREP		0		@SR90-01 SR90-01	SOLID	1	7.55E-1	0.755	uCi/g
2	BLNK-PREP		0		@SR90-01 SR90-01C	SOLID	100	8.96E+01	89.600	% Recovery
2	BLNK-PREP		0		@SR90-01 SR90-01E	SOLID	1.00	2.88E+01	28.800	uCi/g
3	BLNK/BKG		0		@SR90-01 SR90-01	SOLID	1	2.26E+00	2.260	BLNK/BKG
4	SAMPLE	S96T001678	0	F	@SR90-01 SR90-01	SOLID	N/A	3.83E+02	236.0e-003	uCi/g
4	SAMPLE	S96T001678	0	F	@SR90-01 SR90-01C	SOLID	N/A	9.07E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001678	0	F	@SR90-01 SR90-01E	SOLID	N/A	7.89E-01	0.0e+000	% Ct. Error
5	DUP	S96T001678	0	F	@SR90-01 SR90-01	SOLID	3.83E+2	3.81E+2	0.524	RPD
5	DUP	S96T001678	0	F	@SR90-01 SR90-01C	SOLID	100	8.84E+01	88.400	% Recovery
5	DUP	S96T001678	0	F	@SR90-01 SR90-01E	SOLID	1.00	7.76E-01	0.776	% Cnt Err
6	SAMPLE	S96T001689	0	F	@SR90-01 SR90-01	SOLID	N/A	4.87E+02	436.0e-003	uCi/g
6	SAMPLE	S96T001689	0	F	@SR90-01 SR90-01C	SOLID	N/A	9.04E+01	0.0e+000	% Recovery
6	SAMPLE	S96T001689	0	F	@SR90-01 SR90-01E	SOLID	N/A	9.54E-01	0.0e+000	% Ct. Error
7	DUP	S96T001689	0	F	@SR90-01 SR90-01	SOLID	4.87E+2	5.23E+2	7.129	RPD
7	DUP	S96T001689	0	F	@SR90-01 SR90-01C	SOLID	100	8.98E+01	89.800	% Recovery
7	DUP	S96T001689	0	F	@SR90-01 SR90-01E	SOLID	1.00	9.20E-01	0.920	% Cnt Err

Final page for worklist# 8873

Analyst Signature **Date** **Analyst Signature** **Date**

5/20/96
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

05/17/96 17:10
A-0004-1

RUSH

LABCORE Data Entry Template for Worklist# 8873

Analyst: KNT **Instrument:** AB00 #10 **Book#** 9856

Method: LA-220-101 Rev/Mod 0-1

Worklist Comment: C-106. RUSH! Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S96T001678	0	F	@SR90-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001678	0	F	@SR90-01	SOLID		
6	SAMPLE	S96T001689	0	F	@SR90-01	SOLID	96000174	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001689	0	F	@SR90-01	SOLID		

Final page for worklist # 8873

Kim Thomas 5-17-96
Analyst Signature **Date**

CRaymond 5-18-96
Analyst Signature **Date**

5/20/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11153	GROSS WEIGHT	(W2)		7.2227
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1322
8873	BACKGROUND in cpm	(BKG)	9.5	NET WEIGHT	(W3)		0.0905
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		7.00
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1105.80	SR-90 EFFICIENCY FACTO	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.86	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004886	TIME OF SEPARATION	(ST)	23:50	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)		3.80
0	TIME OF COUNT	(TOC)	06:50	Sr-89/90 CONC. in µCi/L			1.2570E+00
Sample Prep	DATE OF COUNT	(DOC)	05/18/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2268E-03				
WL8873							
Instrument Code							
WB26870	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0						
VAR	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
KNT	NOTE: Expected weight = CVA * 0.1						
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
05/18/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
Analysis Date							DETECTION LEVEL
05/17/96	Sr-89/90 CONCENTRATION			1.26E-03		µCi/mL	
Analysis Time							
12:00 AM	RELATIVE COUNTING ERROR			1.9%			4.32E-06 µCi/L
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			90.5%			

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK-PREP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	215	GROSS WEIGHT	(W2)	7.2635
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1739
8873	BACKGROUND in cpm	(BKG)	9.5	NET WEIGHT	(W3)	0.0896
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.25
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.8392			
SOLID	SAMPLE COUNT RATE	(Rs)	12.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.86	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004886	TIME OF SEPARATION	(ST)	23:50	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)	3.80
0	TIME OF COUNT	(TOC)	07:05	Sr-89/90 CONC in µCi/g		7.5465E-01
Sample Prep	DATE OF COUNT	(DOC)	05/18/96			
N/A						
Sample #						
S96T001678						
Instrument Code						
WB26870						
Prepared By						
VAR						
Chemist						
SLF						
Analyst						
KNT						
Date Complete						
05/18/96						
Analysis Date						
05/17/96						
Analysis Time						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	7.55E-01	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	28.8%		2.39E-01 µCi/g
PERCENT CARRIER RECOVERY	89.6%		

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	61992	GROSS WEIGHT	(W2)	7.1112
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0205
8873	BACKGROUND in cpm	(BKG)	9.5	NET WEIGHT	(W3)	0.0907
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.58
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.8392			
SOLID	SAMPLE COUNT RATE	(Rs)	6189.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.86	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004886	TIME OF SEPARATION	(ST)	23:50	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)	3.80
0	TIME OF COUNT	(TOC)	07:25	Sr-89/90 CONC in µCi/g		3.8323E+02
Sample Prep	DATE OF COUNT	(DOC)	05/18/96			
FUSION01						
Sample #						
S96T001678						

Instrument Code: WB26870

Prepared By: VAR

Chemist: SLF

Analyst: KNT

Date Complete: 05/18/96

Analysis Date: 05/17/96

Analysis Time:

Sample Point: C-106 GRAB

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	3.83E+02	µCi/g
RELATIVE COUNTING ERROR	0.8%	
PERCENT CARRIER RECOVERY	90.7%	

DETECTION LEVEL 2.36E-01 µCi/g

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	64125	GROSS WEIGHT	(W2)	7.3091
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2207
8873	BACKGROUND in cpm	(BKG)	9.5	NET WEIGHT	(W3)	0.0884
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.75
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST FACTOR (g/L)	(D g/L	1.9588			
SOLID	SAMPLE COUNT RATE	(Rs)	6403.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.86	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004886	TIME OF SEPARATION	(ST)	23:50	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)	3.80
0	TIME OF COUNT	(TOC)	07:35	Sr-89/90 CONC in µCi/g		3.8127E+02
Sample Prep	DATE OF COUNT	(DOC)	05/18/96			
FUSION01						
Sample #						
S96T001678						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/18/96						
Analysis Date						DETECTION LEVEL
05/17/96	Sr-89/90 CONCENTRATION		3.81E+02	µCi/g		
Analysis Time						
	RELATIVE COUNTING ERROR		0.8%			2.27E-01 µCi/g
Sample Point						
C-106 GRAB	PERCENT CARRIER RECOVERY		88.4%			

Analyst:	KNT	Date:	18-May-96
Signature of Chemist: J L Slippen	SLF	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	42534	GROSS WEIGHT	(W2)	7.3240
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2336
8873	BACKGROUND in cpm	(BKG)	9.5	NET WEIGHT	(W3)	0.0904
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	8.00
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST FACTOR (g/L)	(D g/L	0.9924			
SOLID	SAMPLE COUNT RATE	(Rs)	4243.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.86	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004886	TIME OF SEPARATION	(ST)	23:50	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)	3.80
0	TIME OF COUNT	(TOC)	07:50	Sr-89/90 CONC in µCi/g		4.8652E+02
Sample Prep	DATE OF COUNT	(DOC)	05/18/96			
FUSION01						
Sample #						
S96T001689						
Instrument Code						
WB26870						
Prepared By						
VAR						
Chemist						
SLF						
Analyst						
KNT						
Date Complete						
05/18/96						
Analysis Date						
05/17/96						
Analysis Time						
Sample Point						
C-106 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	4.87E+02	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.0%		4.36E-01 µCi/g
PERCENT CARRIER RECOVERY	90.4%		

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	45671	GROSS WEIGHT	(W2)		7.2702
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1804
8873	BACKGROUND in cpm	(BKG)	9.5	NET WEIGHT	(W3)		0.0898
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.17
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	0.9972				
SOLID	SAMPLE COUNT RATE	(Rs)	4557.60	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.86	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004886	TIME OF SEPARATION	(ST)	23:50	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/17/96	DETECTION LIMIT	(Ld)		3.80
0	TIME OF COUNT	(TOC)	08:00	Sr-89/90 CONC in µCi/g			5.2256E+02
Sample Prep	DATE OF COUNT	(DOC)	05/18/96				
FUSION01							
Sample #							
S96T001689							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB26870	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/18/96							
Analysis Date							DETECTION LEVEL
05/17/96	Sr-89/90 CONCENTRATION			5.23E+02	µCi/g		
Analysis Time							
	RELATIVE COUNTING ERROR			0.9%			4.36E-01 µCi/g
Sample Point							
C-106 GRAB	PERCENT CARRIER RECOVERY			89.8%			

Analyst:	KNT	Date:	18-May-96
Signature of Chemist:	SLF	Date:	5/20/96

SAMPLE.WB1 REV 1.2 2201ONML

LABCORE Completed RadChem Report for Worklist#: 8874

Analyst: smf **Instrument:** AB10 **Book#** 9856

Method: LA-320-101 Rev/Mod D-1

Worklist Comment: C-106. RUSH! Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01	SR90-01	SOLID	1.23E-03	1.28E-3	104.065	% Recovery
1	STD		0		@SR90-01	SR90-01C	SOLID	100	8.43E+01	84.300	% Recovery
1	STD		0		@SR90-01	SR90-01E	SOLID	1.00	1.92E+00	1.920	% Ct. Erro
2	BLNK-PREP		0		@SR90-01	SR90-01	SOLID	1	<1.20E-1		uCi/g
2	BLNK-PREP		0		@SR90-01	SR90-01C	SOLID	100	8.47E+01	84.700	% Recovery
2	BLNK-PREP		0		@SR90-01	SR90-01E	SOLID	1.00	9.70E+01	97.000	uCi/g
3	BLNK/BKG		0		@SR90-01	SR90-01	SOLID	1	7.45E-01	0.745	BLNK/BKG
4	SAMPLE	S96T001531	0	F	@SR90-01	SR90-01	SOLID	N/A	6.03E+02	283.0e-003	uCi/g
4	SAMPLE	S96T001531	0	F	@SR90-01	SR90-01C	SOLID	N/A	7.30E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001531	0	F	@SR90-01	SR90-01E	SOLID	N/A	6.65E-01	0.0e+000	% Ct. Error
5	DUP	S96T001531	0	F	@SR90-01	SR90-01	SOLID	6.03e+2	5.89E+2	2.349	RPD
5	DUP	S96T001531	0	F	@SR90-01	SR90-01C	SOLID	100	8.19E+01	81.900	% Recovery
5	DUP	S96T001531	0	F	@SR90-01	SR90-01E	SOLID	1.00	6.21E-01	0.621	% Cnt Err
6	SAMPLE	S96T001541	0	F	@SR90-01	SR90-01	SOLID	N/A	6.65E+02	286.0e-003	uCi/g
6	SAMPLE	S96T001541	0	F	@SR90-01	SR90-01C	SOLID	N/A	7.90E+01	0.0e+000	% Recovery
6	SAMPLE	S96T001541	0	F	@SR90-01	SR90-01E	SOLID	N/A	6.36E-01	0.0e+000	% Ct. Error
7	DUP	S96T001541	0	F	@SR90-01	SR90-01	SOLID	6.65E+2	7.21E+2	8.081	RPD
7	DUP	S96T001541	0	F	@SR90-01	SR90-01C	SOLID	100	7.78E+01	77.800	% Recovery
7	DUP	S96T001541	0	F	@SR90-01	SR90-01E	SOLID	1.00	6.06E-01	0.606	% Cnt Err

Final page for worklist# 8874

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature **Date** 5/22/96

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 8874

Analyst: SMF **Instrument:** AB00 10 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: C-106. RUSH! Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S96T001531	0	F	@SR90-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001531	0	F	@SR90-01	SOLID		
6	SAMPLE	S96T001541	0	F	@SR90-01	SOLID	96000082	C-106 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001541	0	F	@SR90-01	SOLID		

Final page for worklist # 8874

SMFulton 5-18-96
Analyst Signature **Date**

WRaymond 5.19.96
Analyst Signature **Date**

[illegible] 5/20/96

Data Entry Comments: Sr. Carrier # 117N16-D

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10749	GROSS WEIGHT	(W2)		7.2967
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2124
8874	BACKGROUND in cpm	(BKG)	11.0	NET WEIGHT	(W3)		0.0843
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.17
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1063.90	SR-90 EFFICIENCY FACTO	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.00	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004884	TIME OF SEPARATION	(ST)	15:05	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/18/96	DETECTION LIMIT	(Ld)		4.09
0	TIME OF COUNT	(TOC)	23:15	Sr-89/90 CONC. in µCi/L			1.2830E+00
Sample Prep	DATE OF COUNT	(DOC)	05/18/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2267E-03				
WL8874							
Instrument Code							
WB26870							
Prepared By							
VAR							
Chemist							
SLF							
Analyst							
SMF							
Date Complete							
05/19/96							
Analysis Date							
05/18/96							
Analysis Time							
08:00 PM							
Sample Point							
C-106 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.28E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		4.93E-06 µCi/L
PERCENT CARRIER RECOVERY	84.3%		

Analyst:	SMF	Date:	19-May-96
Signature of Chemist:	SLF	Date:	5/22/96

STANDARD.WB1 REV 1.2 22010N

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						BLNK-PREP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	82	GROSS WEIGHT	(W2)	7.3251
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2404
8874	BACKGROUND in cpm	(BKG)	11.0	NET WEIGHT	(W3)	0.0847
Test Code	SAMPLE VOLUME in mL	(SS)	0.200	DELTA TIME (HOURS)	(DT)	8.33
@SR90-01	DILUTION FACTOR	(DF)	21			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1028			
SOLID	SAMPLE COUNT RATE	(Rs)	-2.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	2.00	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004884	TIME OF SEPARATION	(ST)	15:05	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/18/96	DETECTION LIMIT	(Ld)	4.09
0	TIME OF COUNT	(TOC)	23:25	Sr-89/90 CONC in µCi/g	<	1.1956E-01
Sample Prep	DATE OF COUNT	(DOC)	05/18/96			
N/A						
Sample #						
S96T1531						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB26870	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)
VAR	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SMF	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
05/19/96	
Analysis Date	
05/18/96	Sr-89/90 CONCENTRATION < 1.20E-01 µCi/g
Analysis Time	LESS THAN Value was Determined from Lc.
08:00 PM	RELATIVE COUNTING ERROR 97.0%
Sample Point	
C-106 GRAB	PERCENT CARRIER RECOVERY 84.7%

DETECTION LEVEL

2.45E-01 µCi/g

Analyst:	SMF	Date:	19-May-96
Signature of Chemist:	SLF	Date:	5/22/96

BLANK.WB1 REV 1.2 22010NML