

GAMMA SPECTRA ANALYSIS

TRANSFORM SPECTRUM-AT V4.2a

Lab: Pennsylvania, Harrisburg, PA

24-AUG-94 11:35:41

ANALYSIS PARAMETERS

ADC Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Linear Output.
 Analysis of Spectrum saved in Disk File SD0126
 Measured by: kc

Sample Description: 4&5 Trench
 Geometry Description: 500 ML MARINELLI
 Sample Size: $8.7490E+02$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 02-AUG-94 at 09:04:12

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 02-AUG-94
 Efficiency Calibration performed 02-JUN-94

P E A K A N A L Y S I S

PK	Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	477.40	539.90	1.2	30.	123.	14.8	PB-212
2	543.40	570.73	2.4	17.	18.	40.1	
3C	704.33	782.01	2.0	30.	41.	27.5	BI-211, PB-214
4	1144.54	782.98	1.1	4.	39.	18.0	TL-208
5	1218.67	603.95	1.4	9.	38.	19.9	XE-135, BI-214
6	1221.97	510.17	1.1	9.	19.	33.9	AC-228
7	1239.14	969.77	1.0	3.	12.	37.6	AC-228, RU-105
8	1723.10	1460.49	1.3	0.	88.	10.7	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

C - Multiplet Analysis converged normally

0.0000 hours passed the start of collect.
0. days,
collected on 02-AUG-94 at 09:01:12

RADIIONUCLEIDE ANALYSIS REPORT

activity concentration in PCI /gram

Decay Error corrected Error

SM-241	LDD<3.24E-01	LDD<3.24E-01
TH-230	LDD<3.13E+01	LDD<3.13E+01
XE-133	LDD<4.90E-01	LDD<4.90E-01
CO-109	LDD<4.44E+00	LDD<4.44E+00
CO-57	LDD<1.95E-01	LDD<1.95E-01
PO-234	LDD<7.89E-01	LDD<7.89E-01
CE-144	LDD<1.70E+00	LDD<1.70E+00
TC-99M	LDD<2.00E-01	LDD<2.00E-01
CE-141	LDD<3.74E-01	LDD<3.74E-01
KR-85M	LDD<2.72E-01	LDD<2.72E-01
XE-131M	LDD<9.45E+00	LDD<9.45E+00
BA-139	LDD<1.21E+00	LDD<1.21E+00
CE-139	LDD<2.46E-01	LDD<2.46E-01
U-235	LDD<4.05E-01	LDD<4.05E-01
RA-226	LDD<6.37E+00	LDD<6.37E+00
E-141	LDD<5.39E-01	LDD<5.39E-01
KR-89	LDD<1.99E+00	LDD<1.99E+00
TE-132	LDD<1.90E-01	LDD<1.90E-01
XE-133M	LDD<1.75E+00	LDD<1.75E+00
TH-227	LDD<2.06E+00	LDD<2.06E+00
PS-212	1.14E+00 +- 1.69E-01	1.14E+00 +- 1.69E-01
RA-224	LDD<4.16E+00	LDD<4.16E+00
XE-135	LDD<1.90E-01	LDD<1.90E-01
XE-138	LDD<6.48E-01	LDD<6.48E-01
GE-75	LDD<2.51E-01	LDD<2.51E-01
NP-239	LDD<1.23E+00	LDD<1.23E+00
HG-203	LDD<2.13E-01	LDD<2.13E-01
IR-192	LDD<1.83E-01	LDD<1.83E-01
CR-51	LDD<1.45E+00	LDD<1.45E+00
SI-211	5.81E+00 +- 1.60E+00	5.81E+00 +- 1.60E+00
PS-214	LDD<6.09E-01	LDD<6.09E-01
BA-133	LDD<3.77E-01	LDD<3.77E-01
1-131	LDD<1.87E-01	LDD<1.87E-01
SN-113	LDD<2.47E-01	LDD<2.47E-01
KR-87	LDD<3.07E-01	LDD<3.07E-01
PE-211	LDD<5.92E+00	LDD<5.92E+00
NU-199	LDD<1.32E-01	LDD<1.32E-01
SB-125	LDD<4.46E-01	LDD<4.46E-01
BI-212	LDD<4.43E+01	LDD<4.43E+01
ZE-7	LDD<1.56E+00	LDD<1.56E+00
181	LDD<1.89E-01	LDD<1.89E-01
103	LDD<1.80E-01	LDD<1.80E-01
KR-85	LDD<4.55E+01	LDD<4.55E+01
SR-85	LDD<1.99E-01	LDD<1.99E-01
1-133	LDD<2.26E-01	LDD<2.26E-01

TL-207	LLD<1.72E-01		LLD<1.72E-01
TL-209	LLD<1.72E-01		LLD<1.72E-01
TL-214	LLD<7.10E-01		LLD<7.10E-01
RU-104	LLD<2.04E+00		LLD<2.04E+00
LA-140	LLD<4.21E-01		LLD<4.21E-01
AC-1107	LLD<2.29E-01		LLD<2.29E-01
UT-97	LLD<2.37E-01		LLD<2.37E-01
CB-107	LLD<2.23E-01		LLD<2.23E-01
TL-207	LLD<1.94E+02		LLD<1.94E+02
LA-127	LLD<5.61E-01		LLD<5.61E-01
TL-97	LLD<1.89E-01		LLD<1.89E-01
TL-95	LLD<3.02E-01		LLD<3.02E-01
TL-95	LLD<2.32E-01		LLD<2.32E-01
TL-210	LLD<1.31E+00		LLD<1.31E+00
CO-59	LLD<2.29E-01		LLD<2.29E-01
CO-136	LLD<1.98E-01		LLD<1.98E-01
MN-54	LLD<2.51E-01		LLD<2.51E-01
CO-55	LLD<1.72E-01		LLD<1.72E-01
I-134	LLD<2.11E-01		LLD<2.11E-01
TL-207	LLD<1.94E+02		LLD<1.94E+02
V-88	LLD<2.24E-01		LLD<2.24E-01
AC-228	9.34E-01 +- 3.17E-01		9.34E-01 +- 3.17E-01
EU-152	LLD<2.43E+00		LLD<2.43E+00
FA-234M	LLD<1.97E+00		LLD<1.97E+00
SR-91	LLD<9.36E-01		LLD<9.36E-01
RR-89	LLD<6.84E-01		LLD<6.84E-01
LA-59	LLD<3.22E-01		LLD<3.22E-01
ZK-65	LLD<8.34E-01		LLD<8.34E-01
SC-46	LLD<3.01E-01		LLD<3.01E-01
TA-162	LLD<8.84E-01		LLD<8.84E-01
I-135	LLD<8.39E-01		LLD<8.39E-01
CL-39	LLD<6.41E-01		LLD<6.41E-01
NA-22	LLD<3.32E-01		LLD<3.32E-01
AR-41	LLD<2.55E-01		LLD<2.55E-01
CO-60	LLD<1.92E-01		LLD<1.92E-01
NA-24	LLD<3.40E-01		LLD<3.40E-01
SR-92	LLD<3.45E-01		LLD<3.45E-01
DS-138	LLD<3.71E-01		LLD<3.71E-01
K-40	1.62E+01 +- 1.73E+00		1.62E+01 +- 1.73E+00
KR-88	LLD<1.60E+00		LLD<1.60E+00
TL-209	LLD<1.84E-01		LLD<1.84E-01
LA-140	LLD<2.92E-01		LLD<2.92E-01
AL-26	LLD<1.67E-01		LLD<1.67E-01
MN-56	LLD<6.28E-01		LLD<6.28E-01
RB-88	LLD<9.51E-01		LLD<9.51E-01
Total	2.41E+01 +- 2.39E+00		2.41E+01 +- 2.39E+00

For Quotation at 1.00 Sigma
Confidence Level at 95.0%

DATE	TIME	LOCATION	WIND DIRECTION	WIND SPEED	TEMPERATURE	HUMIDITY	PRESSURE	SEA STATE	VISIBILITY	CLOUDS	REMARKS
01-07-68	1900	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1800	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1700	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1600	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1500	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1400	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1300	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1200	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1100	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	1000	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0900	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0800	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0700	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0600	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0500	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0400	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0300	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0200	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0100	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	
01-07-68	0000	OFF SHORE	090	12	27.0	88	101.40	18	10	BKN	

GAMMA SPECTRUM ANALYSIS

TANTRON SPECTRAN-AT V4.2a

Duke Corporation, Revere, PA

02-AUG-94 09:36:45

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.

Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0127

Measured by: kc

Sample Description: 4&5 Trench

Geometry Description: 500 ML MARINELLI

Sample Size: $8.0690E+02$ gram / Conversion Factor: $1.0000E+00$

Standard Size: $8.8840E+02$ GRAM

Analysis Library file: ANL000

COLLECT started on 02-AUG-94 at 09:22:41

COLLECT Live Time: 600. seconds

Real Time: 600. seconds

Dead Time: 00.00%

Decayed to 0.000000 hours BEFORE the start of COLLECT

Energy Calibration performed 02-AUG-94

Efficiency Calibration performed 02-JUN-94

PEAK ANALYSIS

Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1 677.60	238.90	1.5	31.	119.	13.1	PB-212
2 590.58	295.13	1.2	21.	79.	31.9	PB-214
3 703.67	351.72	1.7	5.	52.	15.4	BI-211.PB-214
4 1144.94	383.02	0.7	8.	40.	19.4	TL-208
5 1018.94	303.93	1.7	5.	21.	26.5	XE-135.BI-214
6 1338.83	368.61	1.0	3.	15.	30.6	AC-228.RU-105
7 2921.93	1460.10	2.9	0.	96.	10.2	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Samples: 425 Trench

Data collected on 02-AUG-94 at 09:22:41

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

RADIOISOTOPE ANALYSIS REPORT

Isotope	Activity Concentration in PCI /gram	Decay corrected
Measured	Error	Error
AM-241	LLD<3.00E-01	LLD<3.00E-01
AM-234	LLD<2.96E+00	LLD<2.96E+00
AM-230	LLD<3.95E+01	LLD<3.95E+01
AS-133	LLD<4.74E-01	LLD<4.74E-01
CD-109	LLD<4.42E+00	LLD<4.42E+00
CD-57	LLD<2.08E-01	LLD<2.08E-01
PA-234	LLD<8.28E-01	LLD<8.28E-01
CE-144	LLD<1.71E+00	LLD<1.71E+00
TC-99M	LLD<1.96E-01	LLD<1.96E-01
CE-141	LLD<3.36E-01	LLD<3.36E-01
KR-85M	LLD<2.74E-01	LLD<2.74E-01
XE-131M	LLD<8.08E+00	LLD<8.08E+00
BA-139	LLD<9.02E-01	LLD<9.02E-01
CE-139	LLD<1.83E-01	LLD<1.83E-01
U-235	LLD<3.55E-01	LLD<3.55E-01
RA-226	LLD<5.70E+00	LLD<5.70E+00
BA-141	LLD<4.43E-01	LLD<4.43E-01
AM-239	LLD<2.43E+00	LLD<2.43E+00
TE-132	LLD<1.99E-01	LLD<1.99E-01
XE-133M	LLD<1.95E+00	LLD<1.95E+00
PB-212	1.19E+00 +- 1.56E-01	1.19E+00 +- 1.56E-01
RA-224	LLD<6.16E+00	LLD<6.16E+00
XE-135	LLD<1.88E-01	LLD<1.88E-01
XE-138	LLD<7.48E-01	LLD<7.48E-01
SE-75	LLD<2.50E-01	LLD<2.50E-01
NP-239	LLD<1.16E+00	LLD<1.16E+00
AG-203	LLD<1.97E-01	LLD<1.97E-01
IR-192	LLD<1.78E-01	LLD<1.78E-01
CR-51	LLD<1.53E+00	LLD<1.53E+00
BI-211	8.06E+00 +- 1.24E+00	8.06E+00 +- 1.24E+00
PB-214	9.43E-01 +- 1.46E-01	9.43E-01 +- 1.46E-01
BA-133	LLD<4.09E-01	LLD<4.09E-01
I-131	LLD<1.61E-01	LLD<1.61E-01
SN-113	LLD<2.47E-01	LLD<2.47E-01
KR-87	LLD<3.02E-01	LLD<3.02E-01
PB-211	LLD<6.05E+00	LLD<6.05E+00
AU-198	LLD<1.69E-01	LLD<1.69E-01
SB-125	LLD<4.66E-01	LLD<4.66E-01
PI-212	LLD<4.78E+01	LLD<4.78E+01
SE-7	LLD<1.67E+00	LLD<1.67E+00
HF-181	LLD<2.00E-01	LLD<2.00E-01
RU-103	LLD<1.58E-01	LLD<1.58E-01
KR-85	LLD<4.71E+01	LLD<4.71E+01
CE-135	LLD<2.06E-01	LLD<2.06E-01
I-133	LLD<2.03E-01	LLD<2.03E-01
BA-140	LLD<8.25E-01	LLD<8.25E-01

LA-134	LLD<1.44E-01	LLD<1.44E-01
LA-134	LLD<2.37E-01	LLD<2.37E-01
LA-134	LLD<6.24E-01	LLD<6.24E-01
LA-136	LLD<2.03E+00	LLD<2.03E+00
LA-142	LLD<3.18E-01	LLD<3.18E-01
LA-110M	LLD<2.11E-01	LLD<2.11E-01
LA-97	LLD<2.46E-01	LLD<2.46E-01
LA-177	LLD<1.76E-01	LLD<1.76E-01
LA-173	LLD<2.02E-01	LLD<2.02E-01
LA-177	LLD<3.11E-01	LLD<3.11E-01
LA-97	LLD<2.18E-01	LLD<2.18E-01
LA-95	LLD<3.79E-01	LLD<3.79E-01
LA-95	LLD<2.41E-01	LLD<2.41E-01
LA-910	LLD<1.12E+00	LLD<1.12E+00
LA-53	LLD<2.35E-01	LLD<2.35E-01
LA-136	LLD<2.86E-01	LLD<2.86E-01
LA-53	LLD<2.42E-01	LLD<2.42E-01
LA-55	LLD<2.29E-01	LLD<2.29E-01
LA-134	LLD<2.28E-01	LLD<2.28E-01
LA-207	LLD<2.10E+02	LLD<2.10E+02
LA-58	LLD<2.60E-01	LLD<2.60E-01
LA-328	LLD<1.28E+00	LLD<1.28E+00
LA-152	LLD<2.77E+00	LLD<2.77E+00
LA-234M	LLD<2.80E+00	LLD<2.80E+00
LA-91	LLD<6.59E-01	LLD<6.59E-01
LA-89	LLD<5.29E-01	LLD<5.29E-01
LA-59	LLD<5.56E-01	LLD<5.56E-01
LA-65	LLD<8.30E-01	LLD<8.30E-01
LA-6	LLD<3.17E-01	LLD<3.17E-01
LA-182	LLD<8.52E-01	LLD<8.52E-01
LA-135	LLD<1.02E+00	LLD<1.02E+00
LA-39	LLD<6.12E-01	LLD<6.12E-01
LA-22	LLD<2.86E-01	LLD<2.86E-01
LA-41	LLD<4.02E-01	LLD<4.02E-01
LA-60	LLD<2.86E-01	LLD<2.86E-01
LA-24	LLD<2.44E-01	LLD<2.44E-01
LA-92	LLD<2.58E-01	LLD<2.58E-01
LA-138	LLD<4.54E-01	LLD<4.54E-01
LA-40	1.91E+01 +- 1.96E+00	1.91E+01 +- 1.96E+00
LA-88	LLD<5.57E-01	LLD<5.57E-01
LA-209	LLD<4.42E-01	LLD<4.42E-01
LA-140	LLD<2.63E-01	LLD<2.63E-01
LA-26	LLD<6.67E-02	LLD<6.67E-02
LA-56	LLD<2.50E-01	LLD<2.50E-01
LA-88	LLD<1.57E+00	LLD<1.57E+00
Total	2.93E+01 +- 2.34E+00	2.93E+01 +- 2.34E+00

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

Results saved in File SD0127



1973.57	583.02	15.	30.6	7108E+00
218.54	508.93	21.	26.3	6.46E+00
55.94	583.02	40.	19.4	1.17E+01
1973.57 583.02 15. 30.6 7108E+00 218.54 508.93 21. 26.3 6.46E+00 55.94 583.02 40. 19.4 1.17E+01				
1973.57 583.02 15. 30.6 7108E+00 218.54 508.93 21. 26.3 6.46E+00 55.94 583.02 40. 19.4 1.17E+01				

GAMMA SPECTRUM ANALYSIS

DANDERPA SPECTRAN-AT V4.2a

Cabot Corporation, Revere, PA

18-AUG-94 11:19:20

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0128
 Measured by: kc

Sample Description: 4&5 Trench
 Geometry Description: 500 ML MARINELLI
 Sample Size: $9.1450\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
 Standard Size: $8.8840\text{E}+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 02-AUG-94 at 09:41:36

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 0.0000 %

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 02-AUG-94
 Efficiency Calibration performed 02-JUN-94

Photo Concentration, Severe, 20

19-AUG-94 11:19:20

PEAK ANALYSIS

PK	Centroid channel	Energy keV	FWHM keV	Backgnd counts	Net Area counts	Error %	Nuclides
1	477.20	238.70	1.2	59.	56.	26.3	PB-212
2	591.34	295.34	1.5	7.	31.	31.6	PB-214
3	703.74	351.76	0.6	8.	25.	25.6	BI-211, PB-214
4	1166.03	583.56	1.7	4.	19.	27.3	TL-208
5	1922.43	910.44	0.5	0.	17.	24.3	AC-228
6	2921.74	1460.01	1.0	2.	32.	18.7	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Sample: 485 Trench

Collected on 02-AUG-94 at 09:41:33

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

RADIONUCLIDE ANALYSIS REPORT

Nuclide	Activity Concentration in PCI /gram			
	Measured	Error	Decay corrected	Error
AM-241	LLD<2.15E-01		LLD<2.15E-01	
TH-234	LLD<2.15E+00		LLD<2.15E+00	
TH-230	LLD<2.62E+01		LLD<2.62E+01	
XE-133	LLD<3.43E-01		LLD<3.43E-01	
CO-109	LLD<3.03E+00		LLD<3.03E+00	
CO-57	LLD<1.30E-01		LLD<1.30E-01	
RA-234	LLD<5.83E-01		LLD<5.83E-01	
CE-144	LLD<1.11E+00		LLD<1.11E+00	
TC-99M	LLD<1.33E-01		LLD<1.33E-01	
CE-141	LLD<2.72E-01		LLD<2.72E-01	
KR-85M	LLD<1.52E-01		LLD<1.52E-01	
XE-131M	LLD<6.89E+00		LLD<6.89E+00	
BA-139	LLD<7.40E-01		LLD<7.40E-01	
CE-139	LLD<1.50E-01		LLD<1.50E-01	
U-235	LLD<2.61E-01		LLD<2.61E-01	
RA-226	LLD<3.84E+00		LLD<3.84E+00	
CE-41	LLD<3.43E-01		LLD<3.43E-01	
KR-89	LLD<1.48E+00		LLD<1.48E+00	
TE-132	LLD<1.68E-01		LLD<1.68E-01	
XE-133M	LLD<1.41E+00		LLD<1.41E+00	
PB-212	5.01E-01 +- 1.32E-01		5.01E-01 +- 1.32E-01	
RA-224	LLD<4.72E+00		LLD<4.72E+00	
XE-135	LLD<1.25E-01		LLD<1.25E-01	
XE-138	LLD<5.08E-01		LLD<5.08E-01	
SE-75	LLD<1.93E-01		LLD<1.93E-01	
NR-239	LLD<8.28E-01		LLD<8.28E-01	
SG-203	LLD<1.41E-01		LLD<1.41E-01	
IR-192	LLD<1.49E-01		LLD<1.49E-01	
CR-51	LLD<1.28E+00		LLD<1.28E+00	
FI-211	3.39E+00 +- 8.68E-01		3.39E+00 +- 8.68E-01	
PB-214	3.96E-01 +- 1.02E-01		3.96E-01 +- 1.02E-01	
BA-133	LLD<2.60E-01		LLD<2.60E-01	
I-131	LLD<1.19E-01		LLD<1.19E-01	
SN-113	LLD<2.07E-01		LLD<2.07E-01	
KR-87	LLD<2.55E-01		LLD<2.55E-01	
PB-211	LLD<4.31E+00		LLD<4.31E+00	
AU-198	LLD<1.26E-01		LLD<1.26E-01	
SB-125	LLD<3.86E-01		LLD<3.86E-01	
SI-212	LLD<3.85E+01		LLD<3.85E+01	
SE-7	LLD<1.19E+00		LLD<1.19E+00	
HF-181	LLD<1.83E-01		LLD<1.83E-01	
SI-103	LLD<1.45E-01		LLD<1.45E-01	
K-45	LLD<4.38E+01		LLD<4.38E+01	
SR-85	LLD<1.92E-01		LLD<1.92E-01	
I-133	LLD<1.12E-01		LLD<1.12E-01	
BA-140	LLD<5.57E-01		LLD<5.57E-01	

LA-107	LLD<1.42E-01	LLD<1.51E-01
LA-108	LLD<1.42E-01	LLD<1.52E-01
LA-109	LLD<1.42E-01	LLD<1.51E-01
LA-110	LLD<1.53E-01	LLD<1.58E-01
LA-111	LLD<2.45E-01	LLD<2.45E-01
LA-112	LLD<4.96E-01	LLD<4.96E-01
LA-113	LLD<1.43E+00	LLD<1.43E+00
LA-114	LLD<3.16E-01	LLD<3.16E-01
LA-115	LLD<2.03E-01	LLD<2.03E-01
LA-116	LLD<2.05E-01	LLD<2.05E-01
LA-117	LLD<2.16E-01	LLD<2.16E-01
LA-118	LLD<1.77E-01	LLD<1.77E-01
LA-119	LLD<4.73E-01	LLD<4.73E-01
LA-120	LLD<1.87E-01	LLD<1.87E-01
LA-121	LLD<2.39E-01	LLD<2.39E-01
LA-122	LLD<1.76E-01	LLD<1.76E-01
LA-123	LLD<8.57E-01	LLD<8.57E-01
LA-124	LLD<1.51E-01	LLD<1.51E-01
LA-125	LLD<1.01E-01	LLD<1.01E-01
LA-126	LLD<1.60E-01	LLD<1.60E-01
LA-127	LLD<1.20E-01	LLD<1.20E-01
LA-128	LLD<1.59E-01	LLD<1.59E-01
LA-129	LLD<1.58E+02	LLD<1.58E+02
LA-130	LLD<2.07E-01	LLD<2.07E-01
LA-131	LLD<8.13E-01	LLD<8.13E-01
LA-132	LLD<2.17E+00	LLD<2.17E+00
LA-133	LLD<1.81E+00	LLD<1.81E+00
LA-134	LLD<5.60E-01	LLD<5.60E-01
LA-135	LLD<2.87E-01	LLD<2.87E-01
LA-136	LLD<3.39E-01	LLD<3.39E-01
LA-137	LLD<5.55E-01	LLD<5.55E-01
LA-138	LLD<2.45E-01	LLD<2.45E-01
LA-139	LLD<7.02E-01	LLD<7.02E-01
LA-140	LLD<5.23E-01	LLD<5.23E-01
LA-141	LLD<2.16E-01	LLD<2.16E-01
LA-142	LLD<1.25E-01	LLD<1.25E-01
LA-143	LLD<1.80E-01	LLD<1.80E-01
LA-144	LLD<1.70E-01	LLD<1.70E-01
LA-145	LLD<1.07E-01	LLD<1.07E-01
LA-146	LLD<3.13E-01	LLD<3.13E-01
LA-147	LLD<7.31E-02	LLD<7.31E-02
LA-148	5.70E+00 +- 1.07E+00	5.70E+00 +- 1.07E+00
LA-149	LLD<1.09E+00	LLD<1.09E+00
LA-150	LLD<3.90E-01	LLD<3.90E-01
LA-151	LLD<2.32E-01	LLD<2.32E-01
LA-152	LLD<5.89E-02	LLD<5.89E-02
LA-153	LLD<2.21E-01	LLD<2.21E-01
LA-154	LLD<7.42E-01	LLD<7.42E-01
Total	9.98E+00 +- 1.39E+00	9.98E+00 +- 1.39E+00

Error Quotation at 1.00 Sigma
 Confidence Level at 95.0%

PEAKS DETECTED IN ANALYSIS

Channel No.	Energy keV	Net Area counts	Error %	Counts/sec
1166.03	582.56	19.	27.3	5.63E+00
1223.43	710.44	17.	24.3	7.49E+00

```

* * * * *
*           G A M M A   S P E C T R U M   A N A L Y S I S
*
* * * * *

```

COMBERRA SPECTRAN-AT V4.2a

Target Description: Reverse. PA

02-AUG-94 13:12:47

A N A L Y S I S P A R A M E T E R S

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multichannel Sensitivity: 3
 Identification Energy Window: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multichannel Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0129
 Measured by: kc

Sample Description: 4&5 Random Slag
 Geometry Description: 500 ML MARINELLI
 Sample Size: 6.1930E+02 gram / Conversion Factor: 1.0000E+00
 Standard Size: 8.8840E+02 GRAM
 Analysis Library file: ANL000

COLLECT started on 02-AUG-94 at 12:55:55

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 0.00 %

Decayed to: 0. days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 02-AUG-94
 Efficiency Calibration performed 02-JUN-94

P E R K A N A V S I S

PK	Centroid channel	Energy keV	FWHM keV	Backgnd counts	Net Area counts	Error %	Nuclides
.	477.65	238.92	0.6	1.	14.	28.6	PB-212

Error Estimation at 1.00 sigma
Peak Confidence Level at 95.0%

Sample: 485 Random Blag

Data collected on 02-AUG-94 at 12:55:55

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide	Activity Concentration in PCI /gram			
	Measured	Error	Decay corrected	Error
AM-241	LLD<2.02E-01		LLD<2.02E-01	
TH-234	LLD<2.24E+00		LLD<2.24E+00	
TR-230	LLD<2.47E+01		LLD<2.47E+01	
XE-133	LLD<2.23E-01		LLD<2.23E-01	
CD-109	LLD<2.71E+00		LLD<2.71E+00	
CO-57	LLD<1.21E-01		LLD<1.21E-01	
PA-234	LLD<5.37E-01		LLD<5.37E-01	
CE-144	LLD<1.05E+00		LLD<1.05E+00	
TD-99M	LLD<1.19E-01		LLD<1.19E-01	
CE-141	LLD<1.88E-01		LLD<1.88E-01	
KR-85M	LLD<1.57E-01		LLD<1.57E-01	
XE-131M	LLD<5.49E+00		LLD<5.49E+00	
BA-139	LLD<7.05E-01		LLD<7.05E-01	
CE-139	LLD<1.43E-01		LLD<1.43E-01	
U-235	LLD<2.63E-01		LLD<2.63E-01	
RA-226	LLD<4.23E+00		LLD<4.23E+00	
BA-141	LLD<3.04E-01		LLD<3.04E-01	
KR-89	LLD<1.41E+00		LLD<1.41E+00	
TE-132	LLD<1.23E-01		LLD<1.23E-01	
XE-133M	LLD<9.15E-01		LLD<9.15E-01	
PB-212	1.83E-01 +- 5.24E-02		1.83E-01 +- 5.24E-02	
RA-224	LLD<3.14E+00		LLD<3.14E+00	
XE-135	LLD<1.09E-01		LLD<1.09E-01	
XE-138	LLD<2.82E-01		LLD<2.82E-01	
SE-75	LLD<1.75E-01		LLD<1.75E-01	
NP-239	LLD<6.23E-01		LLD<6.23E-01	
HG-203	LLD<1.19E-01		LLD<1.19E-01	
IR-192	LLD<1.55E-01		LLD<1.55E-01	
CR-51	LLD<9.34E-01		LLD<9.34E-01	
BI-211	LLD<3.45E+00		LLD<3.45E+00	
PB-214	LLD<3.54E-01		LLD<3.54E-01	
BA-133	LLD<2.30E-01		LLD<2.30E-01	
I-131	LLD<1.25E-01		LLD<1.25E-01	
SN-113	LLD<1.54E-01		LLD<1.54E-01	
KR-87	LLD<1.38E-01		LLD<1.38E-01	
PB-211	LLD<2.92E+00		LLD<2.92E+00	
AU-198	LLD<8.21E-02		LLD<8.21E-02	
SB-125	LLD<3.52E-01		LLD<3.52E-01	
BI-212	LLD<2.24E+01		LLD<2.24E+01	
BE-7	LLD<8.78E-01		LLD<8.78E-01	
HF-181	LLD<1.49E-01		LLD<1.49E-01	
RU-103	LLD<1.35E-01		LLD<1.35E-01	
KR-85	LLD<4.06E+01		LLD<4.06E+01	
SR-85	LLD<1.77E-01		LLD<1.77E-01	
I-133	LLD<1.58E-01		LLD<1.58E-01	
BA-140	LLD<5.01E-01		LLD<5.01E-01	

Results saved in file SD0129
 Error Quotation at 1.00 Sigma
 LLD Confidence Level at 95.0%

Total	1.83E-01 +- 5.24E-02	1.83E-01 +- 5.24E-02
RB-88	LLD<1.92E+00	LLD<1.92E+00
MN-56	LLD<3.26E-01	LLD<3.26E-01
AL-26	LLD<8.70E-02	LLD<8.70E-02
LA-140	LLD<8.36E-02	LLD<8.36E-02
TL-209	LLD<2.60E-01	LLD<2.60E-01
KR-88	LLD<1.61E+00	LLD<1.61E+00
K-40	LLD<1.91E+00	LLD<1.91E+00
CS-138	LLD<3.87E-01	LLD<3.87E-01
SR-92	LLD<2.54E-01	LLD<2.54E-01
NA-24	LLD<1.59E-01	LLD<1.59E-01
CO-60	LLD<7.02E-02	LLD<7.02E-02
AR-41	LLD<2.45E-01	LLD<2.45E-01
NA-22	LLD<1.51E-01	LLD<1.51E-01
CL-39	LLD<4.93E-01	LLD<4.93E-01
I-135	LLD<5.22E-01	LLD<5.22E-01
TA-182	LLD<7.03E-01	LLD<7.03E-01
SC-46	LLD<2.11E-01	LLD<2.11E-01
ZN-65	LLD<5.63E-01	LLD<5.63E-01
FE-59	LLD<4.01E-01	LLD<4.01E-01
RB-89	LLD<5.78E-01	LLD<5.78E-01
SR-91	LLD<7.05E-01	LLD<7.05E-01
PA-274M	LLD<5.68E-01	LLD<5.68E-01
EU-152	LLD<1.85E+00	LLD<1.85E+00
AC-228	LLD<5.84E-01	LLD<5.84E-01
V-58	LLD<1.64E-01	LLD<1.64E-01
TL-207	LLD<7.01E+01	LLD<7.01E+01
I-134	LLD<5.48E-02	LLD<5.48E-02
CO-56	LLD<4.90E-02	LLD<4.90E-02
MN-54	LLD<1.44E-01	LLD<1.44E-01
CB-126	LLD<1.49E-01	LLD<1.49E-01
CO-55	LLD<1.05E-01	LLD<1.05E-01
TL-101	LLD<7.51E-01	LLD<7.51E-01
KB-99	LLD<1.49E-01	LLD<1.49E-01
Zr-95	LLD<8.02E-02	LLD<8.02E-02
Zr-97	LLD<4.46E-02	LLD<4.46E-02
U-187	LLD<6.72E-01	LLD<6.72E-01
I-137	LLD<4.12E-02	LLD<4.12E-02
CO-137	LLD<1.23E-01	LLD<1.23E-01
NR-97	LLD<1.16E-01	LLD<1.16E-01
CO-110M	LLD<1.12E-01	LLD<1.12E-01
LA-142	LLD<2.86E-01	LLD<2.86E-01
RU-106	LLD<1.03E+00	LLD<1.03E+00
SI-214	LLD<4.77E-01	LLD<4.77E-01
SR-124	LLD<2.26E-01	LLD<2.26E-01
SE-106	LLD<1.11E-01	LLD<1.11E-01
TE-108	LLD<1.34E-01	LLD<1.34E-01
SI-101	LLD<1.08E-01	LLD<1.08E-01
LLD<1.02E-01		



G A M M A S P E C T R U M A N A L Y S I S

CALCORN SPECTRAN-AT V4.2a

Dept. of Geology, Brown, PA

CU-ALB-PA 11:40:30

A N A L Y S I S P A R A M E T E R S

ADC Unit Number: 1 / AEC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 75.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotations: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0130

Measured by: KC

Sample Description: C.F.A. Sediment
 Geometry Description: 500 ML MARINELLI
 Sample Size: $9.0130E+02$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 02-AUG-94 at 15:02:21

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00%

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 02-AUG-94
 Efficiency Calibration performed 02-JUN-94

	Centroid channel	Energy keV	FWHM keV	Backgnd counts	Net Area counts	Error %	Nuclides
1	872.27	186.33	1.4	27.	25.	35.6	U-235, RA-226
2	877.53	238.86	1.5	66.	74.	21.1	PB-212
3	878.23	338.33	0.9	10.	20.	32.3	AC-238
4	903.52	381.65	1.0	15.	42.	21.2	BI-211, PB-214
5	900.37	449.22	0.7	2.	8.	43.3	
6	1050.75	510.02	1.2	3.	20.	25.5	TL-208, NA-22, ANN-RD
7	1145.15	582.62	1.7	9.	26.	26.2	TL-208
8	1218.61	608.32	1.9	3.	22.	24.1	XE-135, BI-214
9	2922.51	1460.40	2.0	0.	74.	11.6	K-40

C - Multiplet Analysis converged normally

Project: 0.3 A. Bio. Part

Sample collected on 02-AUG-94 at 16:00:12

Delayed to 0. days, 0.0000 hours before BEFCPE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Isotope	Activity Concentration in BTL /gram		Decay	
	Measured	Error	corrected	Error
AC-241	LLD<3.11E-01		LLD<3.11E-01	
AC-244	LLD<2.72E+00		LLD<2.72E+00	
AC-250	LLD<3.17E+01		LLD<3.17E+01	
AC-133	LLD<3.74E-01		LLD<3.74E-01	
AC-109	LLD<3.99E+00		LLD<3.99E+00	
AC-57	LLD<1.71E-01		LLD<1.71E-01	
AC-234	LLD<7.07E-01		LLD<7.07E-01	
AC-144	LLD<1.44E+00		LLD<1.44E+00	
AC-99M	LLD<1.81E-01		LLD<1.81E-01	
AC-141	LLD<2.93E-01		LLD<2.93E-01	
AC-85M	LLD<2.32E-01		LLD<2.32E-01	
AC-131M	LLD<8.41E+00		LLD<8.41E+00	
AC-139	LLD<1.03E+00		LLD<1.03E+00	
AC-139	LLD<2.09E-01		LLD<2.09E-01	
AC-235	LLD<3.31E-01		LLD<3.31E-01	
AC-226	2.64E+00 +- 9.39E-01		2.64E+00 +- 9.39E-01	
AC-141	LLD<3.55E-01		LLD<3.55E-01	
AC-89	LLD<1.93E+00		LLD<1.93E+00	
AC-132	LLD<1.63E-01		LLD<1.63E-01	
AC-133M	LLD<1.65E+00		LLD<1.65E+00	
AC-227	LLD<1.59E+00		LLD<1.59E+00	
AC-212	6.88E-01 +- 1.45E-01		6.88E-01 +- 1.45E-01	
AC-224	LLD<4.38E+00		LLD<4.38E+00	
AC-135	LLD<1.82E-01		LLD<1.82E-01	
AC-138	LLD<6.33E-01		LLD<6.33E-01	
AC-75	LLD<2.24E-01		LLD<2.24E-01	
AC-239	LLD<9.91E-01		LLD<9.91E-01	
AC-203	LLD<1.69E-01		LLD<1.69E-01	
AC-192	LLD<1.43E-01		LLD<1.43E-01	
AC-51	LLD<1.23E+00		LLD<1.23E+00	
AC-211	5.78E+00 +- 1.23E+00		5.78E+00 +- 1.23E+00	
AC-214	LLD<5.59E-01		LLD<5.59E-01	
AC-133	LLD<3.38E-01		LLD<3.38E-01	
AC-131	LLD<1.39E-01		LLD<1.39E-01	
AC-113	LLD<2.18E-01		LLD<2.18E-01	
AC-87	LLD<2.60E-01		LLD<2.60E-01	
AC-211	LLD<4.74E+00		LLD<4.74E+00	
AC-198	LLD<1.44E-01		LLD<1.44E-01	
AC-125	LLD<4.72E-01		LLD<4.72E-01	
AC-212	LLD<3.37E+01		LLD<3.37E+01	
AC-7	LLD<1.19E+00		LLD<1.19E+00	
AC-181	LLD<1.59E-01		LLD<1.59E-01	
AC-103	LLD<1.42E-01		LLD<1.42E-01	
AC-35	LLD<4.45E+01		LLD<4.45E+01	
AC-85	LLD<1.94E-01		LLD<1.94E-01	
AC-133	LLD<1.70E-01		LLD<1.70E-01	

DATE: 10/10/83

TIME: 10:00 AM

BY: J. J. J.

TO: J. J. J.

FROM: J. J. J.

10/10/83

10:00 AM

20.

30.00

3,000.00

449.92

8.

42.00

1,000.00

606.82

22.

24.00

1,000.00

G A M M A S P E C T R U M A N A L Y S I S

DANIELA SPECTRAN-AT V4.2a

Local Identification: Poysse PA

03-AUG-94 09:00:22

A N A L Y S I S P A R A M E T E R S

MOI Unit Number: 1 / ADD Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0131
 Measured by: kc

Sample Description: Water from Creek
 Geometry Description: 500 ML MARINELLI
 Sample Size: $5.3980\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
 Standard Size: $8.8840\text{E}+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 08:47:50

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00%

Decayed to 0.000000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

Sample: Water from Creek

Date collected on 03-AUG-94 at 08:47:50

Delayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide	Activity Concentration in POC /gram			
	Measured	Error	Decay corrected	Error
AM-241	LLD<1.39E-01		LLD<1.39E-01	
TH-234	LLD<1.29E+00		LLD<1.29E+00	
TH-230	LLD<1.71E+01		LLD<1.71E+01	
XF-133	LLD<2.28E-01		LLD<2.28E-01	
DD-139	LLD<2.17E+00		LLD<2.17E+00	
DD-57	LLD<1.00E-01		LLD<1.00E-01	
PA-234	LLD<4.04E-01		LLD<4.04E-01	
CE-144	LLD<1.02E+00		LLD<1.02E+00	
TC-99M	LLD<1.41E-01		LLD<1.41E-01	
CE-141	LLD<2.54E-01		LLD<2.54E-01	
KR-85M	LLD<1.91E-01		LLD<1.91E-01	
XE-131M	LLD<6.03E+00		LLD<6.03E+00	
BA-139	LLD<8.08E-01		LLD<8.08E-01	
CE-139	LLD<1.64E-01		LLD<1.64E-01	
U-235	LLD<2.25E-01		LLD<2.25E-01	
RA-226	LLD<3.86E+00		LLD<3.86E+00	
EA-141	LLD<2.89E-01		LLD<2.89E-01	
CR-89	LLD<1.26E+00		LLD<1.26E+00	
SE-132	LLD<1.05E-01		LLD<1.05E-01	
XE-133M	LLD<9.08E-01		LLD<9.08E-01	
PB-212	LLD<2.68E-01		LLD<2.68E-01	
RA-224	LLD<3.11E+00		LLD<3.11E+00	
XE-135	LLD<1.12E-01		LLD<1.12E-01	
XE-138	LLD<2.08E-01		LLD<2.08E-01	
SE-75	LLD<1.29E-01		LLD<1.29E-01	
NP-239	LLD<5.66E-01		LLD<5.66E-01	
AG-203	LLD<1.17E-01		LLD<1.17E-01	
IR-192	LLD<1.13E-01		LLD<1.13E-01	
CR-51	LLD<1.23E+00		LLD<1.23E+00	
BI-211	LLD<2.25E+00		LLD<2.25E+00	
PB-214	LLD<2.63E-01		LLD<2.63E-01	
BA-133	LLD<1.81E-01		LLD<1.81E-01	
I-131	LLD<1.30E-01		LLD<1.30E-01	
SN-113	LLD<1.49E-01		LLD<1.49E-01	
KR-87	LLD<2.35E-01		LLD<2.35E-01	
PB-211	LLD<4.04E+00		LLD<4.04E+00	
AU-198	LLD<1.07E-01		LLD<1.07E-01	
SB-125	LLD<3.19E-01		LLD<3.19E-01	
LI-212	LLD<2.10E+01		LLD<2.10E+01	
DE-7	LLD<1.13E+00		LLD<1.13E+00	
HF-181	LLD<1.09E-01		LLD<1.09E-01	
RG-103	LLD<1.77E-01		LLD<1.77E-01	
CR-85	LLD<4.52E+01		LLD<4.52E+01	
CR-85	LLD<1.98E-01		LLD<1.98E-01	
I-133	LLD<1.75E-01		LLD<1.75E-01	
BA-140	LLD<5.98E-01		LLD<5.98E-01	

31-107	LLD<1.77E-01	LLD<1.77E-01
75-114	LLD<1.57E-01	LLD<1.57E-01
32-108	LLD<1.76E-01	LLD<1.76E-01
75-114	LLD<1.76E-01	LLD<1.76E-01
32-114	LLD<1.41E-01	LLD<1.41E-01
32-108	LLD<9.61E-01	LLD<9.61E-01
32-102	LLD<2.87E-01	LLD<2.87E-01
43-110M	LLD<1.34E-01	LLD<1.34E-01
43-107	LLD<1.43E-01	LLD<1.43E-01
75-117	LLD<1.11E-01	LLD<1.11E-01
32-102	LLD<1.47E-01	LLD<1.47E-01
32-107	LLD<1.77E-01	LLD<1.77E-01
32-107	LLD<1.17E-01	LLD<1.17E-01
75-105	LLD<9.21E-02	LLD<9.21E-02
43-105	LLD<1.40E-01	LLD<1.40E-01
75-110	LLD<1.05E+00	LLD<1.05E+00
32-102	LLD<5.44E-02	LLD<5.44E-02
32-104	LLD<5.47E-02	LLD<5.47E-02
43-104	LLD<5.55E-02	LLD<5.55E-02
32-104	LLD<1.87E-01	LLD<1.87E-01
32-104	LLD<2.09E-01	LLD<2.09E-01
75-207	LLD<1.61E+02	LLD<1.61E+02
43-108	LLD<1.40E-01	LLD<1.40E-01
43-228	LLD<2.16E-01	LLD<2.16E-01
43-152	LLD<4.35E-01	LLD<4.35E-01
43-234M	LLD<1.44E+00	LLD<1.44E+00
SR-91	LLD<2.02E-01	LLD<2.02E-01
43-109	LLD<3.14E-01	LLD<3.14E-01
FE-59	LLD<3.85E-01	LLD<3.85E-01
ZN-65	LLD<1.39E-01	LLD<1.39E-01
32-46	LLD<7.07E-02	LLD<7.07E-02
43-182	LLD<6.32E-01	LLD<6.32E-01
43-135	LLD<7.35E-01	LLD<7.35E-01
CL-37	LLD<5.66E-01	LLD<5.66E-01
NA-22	LLD<7.80E-02	LLD<7.80E-02
43-41	LLD<8.20E-02	LLD<8.20E-02
CC-60	LLD<1.78E-01	LLD<1.78E-01
NA-24	LLD<8.21E-02	LLD<8.21E-02
SR-92	LLD<9.40E-02	LLD<9.40E-02
CS-138	LLD<1.24E-01	LLD<1.24E-01
K-40	LLD<8.07E-01	LLD<8.07E-01
KR-88	LLD<8.32E-01	LLD<8.32E-01
TL-209	LLD<2.99E-01	LLD<2.99E-01
LA-140	LLD<9.59E-02	LLD<9.59E-02
AL-26	LLD<9.98E-02	LLD<9.98E-02
MN-56	LLD<3.74E-01	LLD<3.74E-01
RS-88	LLD<1.26E+00	LLD<1.26E+00
<hr/>		
Total	0.00E-01 +- 0.00E-01	0.00E-01 +- 0.00E-01

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

Results saved in File SD0131

G A M M A S P E C T R U M A N A L Y S I S

CONSERVA SPECTRAN-AT V4.2a

Tamco Corporation, Sayreville, PA

03-AUG-94 09:20:31

A N A L Y S I S P A R A M E T E R S

MCP Unit Number: 1 / ADC Unit Number: 1.0
Detector Number: 1 / Geometry Number: 1
Spectrum Size: 4096 channels.
First channel for Search: 0
Adaptive smoothing performed.
Number of Background Channels: 4 on each side of peak.
Peak Confidence Factor: 95.0%
Multiplet Sensitivity: 3
Identification Energy Window: ± 1.00 keV.
Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0132
Measured by: kc

Sample Description: D.P.A. Random Slag
Geometry Description: 500 ML MARINELLI
Sample Size: 3.0720E+02 / Conversion Factor: 1.0000E+00
Standard Size: 8.8840E+02 GRAM
Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 09:04:12

COLLECT Live Time: 600. seconds
Real Time: 600. seconds
Dead Time: 0.0000 seconds

Delayed to 0.0000 days 00000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
Efficiency Calibration performed 02-JUN-94

P E A K A N A L Y S I S

PK	Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	113.24	87.12	2.5	1159.	219.	26.0	
2	148.24	75.27	1.4	1752.	480.	15.4	PB-214
3	174.25	77.58	1.4	1574.	1097.	9.1	PB-214
4	174.87	87.87	1.4	1430.	467.	12.7	PB-214 CD-109
5	188.26	77.05	1.4	1368.	565.	12.2	TH-234, TH-234
6	373.15	186.79	1.6	625.	969.	4.9	U-235, RA-226
7	477.31	238.87	1.3	575.	539.	5.6	PB-212
8	484.27	242.24	1.3	587.	950.	5.0	PB-214
9	539.55	269.83	1.3	513.	191.	20.5	
10	590.74	295.38	1.3	326.	1902.	3.3	PB-214
11	600.53	300.26	1.3	328.	81.	16.0	PB-212
12	677.13	338.49	1.6	228.	103.	23.6	AC-228
13	704.01	351.91	1.5	288.	3106.	2.0	BI-211, PB-214
14	1166.49	582.80	1.6	89.	132.	14.1	TL-208
15	1218.82	608.93	1.6	87.	2001.	2.3	XE-135, BI-214
16	1331.27	665.08	1.2	70.	73.	21.2	
17	1536.83	767.76	1.9	77.	179.	10.6	BI-214
18	1868.45	933.43	1.7	42.	104.	13.5	BI-214
19	2240.62	1119.42	2.2	42.	401.	5.7	BI-214
20	2476.18	1237.18	1.9	41.	147.	10.8	I-133, BI-214
21	2561.65	1279.91	2.1	34.	25.	43.0	
22	2755.80	1376.99	2.0	26.	98.	13.5	BI-214, BI-214
23	2815.50	1406.85	1.8	36.	50.	23.9	
24N	3458.16	1728.35	1.4	5.	24.	21.1	
25N	3461.72	1730.13	1.4	5.	23.	21.1	
26	3529.38	1763.98	2.3	13.	253.	6.8	BI-214

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

4 Multiplets processed.

C - Multiplet Analysis Converged normally
N - Multiplet Analysis did NOT converge

Sample: C.P.A. Random Blag

Collected on 03-AUG-94 at 09:24:12

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

RADIOISOTOPE ANALYSIS REPORT

Sample	Activity Concentration in ROI /			
	Measured	Error	Decay corrected	Error
AK-241	LLD<3.66E+00		LLD<3.66E+00	
TH-374	LLD<3.90E+01		LLD<3.90E+01	
TH-330	LLD<3.81E+02		LLD<3.81E+02	
XE-133	LLD<3.12E+00		LLD<3.12E+00	
CD-109	9.06E+01 +- 1.17E+01		9.06E+01 +- 1.17E+01	
CD-57	LLD<1.89E+00		LLD<1.89E+00	
PA-234	LLD<8.30E+00		LLD<8.30E+00	
CE-144	LLD<1.57E+01		LLD<1.57E+01	
TC-99M	LLD<2.10E+00		LLD<2.10E+00	
CE-141	LLD<3.86E+00		LLD<3.86E+00	
KR-85M	LLD<2.77E+00		LLD<2.77E+00	
XE-131M	LLD<9.75E+01		LLD<9.75E+01	
BA-139	LLD<1.25E+01		LLD<1.25E+01	
CE-139	LLD<2.53E+00		LLD<2.53E+00	
U-235	LLD<3.67E+00		LLD<3.67E+00	
U-226	3.00E+02 +- 1.53E+01		3.00E+02 +- 1.53E+01	
U-141	LLD<5.03E+00		LLD<5.03E+00	
KR-89	LLD<2.05E+01		LLD<2.05E+01	
TE-132	LLD<2.00E+00		LLD<2.00E+00	
XE-133M	LLD<1.82E+01		LLD<1.82E+01	
PB-212	1.42E+01 +- 8.10E-01		1.42E+01 +- 8.10E-01	
RA-224	LLD<4.93E+01		LLD<4.93E+01	
XE-135	LLD<2.00E+00		LLD<2.00E+00	
XE-138	LLD<6.32E+00		LLD<6.32E+00	
SE-75	LLD<2.86E+00		LLD<2.86E+00	
NP-239	LLD<1.26E+01		LLD<1.26E+01	
HG-203	LLD<2.07E+00		LLD<2.07E+00	
IR-192	LLD<1.78E+00		LLD<1.78E+00	
CR-51	LLD<1.60E+01		LLD<1.60E+01	
BI-211	1.27E+03 +- 2.62E+01		1.27E+03 +- 2.62E+01	
FE-214	1.47E+02 +- 3.02E+00		1.47E+02 +- 3.02E+00	
BA-133	LLD<6.45E+00		LLD<6.45E+00	
I-131	LLD<1.84E+00		LLD<1.84E+00	
SN-113	LLD<2.42E+00		LLD<2.42E+00	
KR-87	LLD<3.44E+00		LLD<3.44E+00	
FB-211	LLD<6.16E+01		LLD<6.16E+01	
AU-198	LLD<1.73E+00		LLD<1.73E+00	
SB-125	LLD<5.33E+00		LLD<5.33E+00	
BI-212	LLD<4.55E+02		LLD<4.55E+02	
BE-7	LLD<1.58E+01		LLD<1.58E+01	
HF-121	LLD<1.67E+00		LLD<1.67E+00	
U-103	LLD<1.58E+00		LLD<1.58E+00	
U-85	LLD<3.60E+02		LLD<3.60E+02	
SR-85	LLD<1.57E+00		LLD<1.57E+00	
I-133	LLD<1.79E+00		LLD<1.79E+00	
BA-140	LLD<6.10E+00		LLD<6.10E+00	

Results saved in file SD0132

Error Quotation at 1.00 Sigma
Confidence Level at 95.0%

Item	Value	Value	Value
1-106	1.59E+01	1.59E+02	1.59E+03
1-107	1.59E+02	1.59E+03	1.59E+04
1-108	1.59E+03	1.59E+04	1.59E+05
1-109	1.59E+04	1.59E+05	1.59E+06
1-110	1.59E+05	1.59E+06	1.59E+07
1-111	1.59E+06	1.59E+07	1.59E+08
1-112	1.59E+07	1.59E+08	1.59E+09
1-113	1.59E+08	1.59E+09	1.59E+10
1-114	1.59E+09	1.59E+10	1.59E+11
1-115	1.59E+10	1.59E+11	1.59E+12
1-116	1.59E+11	1.59E+12	1.59E+13
1-117	1.59E+12	1.59E+13	1.59E+14
1-118	1.59E+13	1.59E+14	1.59E+15
1-119	1.59E+14	1.59E+15	1.59E+16
1-120	1.59E+15	1.59E+16	1.59E+17
1-121	1.59E+16	1.59E+17	1.59E+18
1-122	1.59E+17	1.59E+18	1.59E+19
1-123	1.59E+18	1.59E+19	1.59E+20
1-124	1.59E+19	1.59E+20	1.59E+21
1-125	1.59E+20	1.59E+21	1.59E+22
1-126	1.59E+21	1.59E+22	1.59E+23
1-127	1.59E+22	1.59E+23	1.59E+24
1-128	1.59E+23	1.59E+24	1.59E+25
1-129	1.59E+24	1.59E+25	1.59E+26
1-130	1.59E+25	1.59E+26	1.59E+27
1-131	1.59E+26	1.59E+27	1.59E+28
1-132	1.59E+27	1.59E+28	1.59E+29
1-133	1.59E+28	1.59E+29	1.59E+30
1-134	1.59E+29	1.59E+30	1.59E+31
1-135	1.59E+30	1.59E+31	1.59E+32
1-136	1.59E+31	1.59E+32	1.59E+33
1-137	1.59E+32	1.59E+33	1.59E+34
1-138	1.59E+33	1.59E+34	1.59E+35
1-139	1.59E+34	1.59E+35	1.59E+36
1-140	1.59E+35	1.59E+36	1.59E+37
1-141	1.59E+36	1.59E+37	1.59E+38
1-142	1.59E+37	1.59E+38	1.59E+39
1-143	1.59E+38	1.59E+39	1.59E+40
1-144	1.59E+39	1.59E+40	1.59E+41
1-145	1.59E+40	1.59E+41	1.59E+42
1-146	1.59E+41	1.59E+42	1.59E+43
1-147	1.59E+42	1.59E+43	1.59E+44
1-148	1.59E+43	1.59E+44	1.59E+45
1-149	1.59E+44	1.59E+45	1.59E+46
1-150	1.59E+45	1.59E+46	1.59E+47
1-151	1.59E+46	1.59E+47	1.59E+48
1-152	1.59E+47	1.59E+48	1.59E+49
1-153	1.59E+48	1.59E+49	1.59E+50
1-154	1.59E+49	1.59E+50	1.59E+51
1-155	1.59E+50	1.59E+51	1.59E+52
1-156	1.59E+51	1.59E+52	1.59E+53
1-157	1.59E+52	1.59E+53	1.59E+54
1-158	1.59E+53	1.59E+54	1.59E+55
1-159	1.59E+54	1.59E+55	1.59E+56
1-160	1.59E+55	1.59E+56	1.59E+57
1-161	1.59E+56	1.59E+57	1.59E+58
1-162	1.59E+57	1.59E+58	1.59E+59
1-163	1.59E+58	1.59E+59	1.59E+60
1-164	1.59E+59	1.59E+60	1.59E+61
1-165	1.59E+60	1.59E+61	1.59E+62
1-166	1.59E+61	1.59E+62	1.59E+63
1-167	1.59E+62	1.59E+63	1.59E+64
1-168	1.59E+63	1.59E+64	1.59E+65
1-169	1.59E+64	1.59E+65	1.59E+66
1-170	1.59E+65	1.59E+66	1.59E+67
1-171	1.59E+66	1.59E+67	1.59E+68
1-172	1.59E+67	1.59E+68	1.59E+69
1-173	1.59E+68	1.59E+69	1.59E+70
1-174	1.59E+69	1.59E+70	1.59E+71
1-175	1.59E+70	1.59E+71	1.59E+72
1-176	1.59E+71	1.59E+72	1.59E+73
1-177	1.59E+72	1.59E+73	1.59E+74
1-178	1.59E+73	1.59E+74	1.59E+75
1-179	1.59E+74	1.59E+75	1.59E+76
1-180	1.59E+75	1.59E+76	1.59E+77
1-181	1.59E+76	1.59E+77	1.59E+78
1-182	1.59E+77	1.59E+78	1.59E+79
1-183	1.59E+78	1.59E+79	1.59E+80
1-184	1.59E+79	1.59E+80	1.59E+81
1-185	1.59E+80	1.59E+81	1.59E+82
1-186	1.59E+81	1.59E+82	1.59E+83
1-187	1.59E+82	1.59E+83	1.59E+84
1-188	1.59E+83	1.59E+84	1.59E+85
1-189	1.59E+84	1.59E+85	1.59E+86
1-190	1.59E+85	1.59E+86	1.59E+87
1-191	1.59E+86	1.59E+87	1.59E+88
1-192	1.59E+87	1.59E+88	1.59E+89
1-193	1.59E+88	1.59E+89	1.59E+90
1-194	1.59E+89	1.59E+90	1.59E+91
1-195	1.59E+90	1.59E+91	1.59E+92
1-196	1.59E+91	1.59E+92	1.59E+93
1-197	1.59E+92	1.59E+93	1.59E+94
1-198	1.59E+93	1.59E+94	1.59E+95
1-199	1.59E+94	1.59E+95	1.59E+96
1-200	1.59E+95	1.59E+96	1.59E+97
1-201	1.59E+96	1.59E+97	1.59E+98
1-202	1.59E+97	1.59E+98	1.59E+99
1-203	1.59E+98	1.59E+99	1.59E+100
1-204	1.59E+99	1.59E+100	1.59E+101
1-205	1.59E+100	1.59E+101	1.59E+102
1-206	1.59E+101	1.59E+102	1.59E+103
1-207	1.59E+102	1.59E+103	1.59E+104
1-208	1.59E+103	1.59E+104	1.59E+105
1-209	1.59E+104	1.59E+105	1.59E+106
1-210	1.59E+105	1.59E+106	1.59E+107
1-211	1.59E+106	1.59E+107	1.59E+108
1-212	1.59E+107	1.59E+108	1.59E+109
1-213	1.59E+108	1.59E+109	1.59E+110
1-214	1.59E+109	1.59E+110	1.59E+111
1-215	1.59E+110	1.59E+111	1.59E+112
1-216	1.59E+111	1.59E+112	1.59E+113
1-217	1.59E+112	1.59E+113	1.59E+114
1-218	1.59E+113	1.59E+114	1.59E+115
1-219	1.59E+114	1.59E+115	1.59E+116
1-220	1.59E+115	1.59E+116	1.59E+117
1-221	1.59E+116	1.59E+117	1.59E+118
1-222	1.59E+117	1.59E+118	1.59E+119
1-223	1.59E+118	1.59E+119	1.59E+120
1-224	1.59E+119	1.59E+120	1.59E+121
1-225	1.59E+120	1.59E+121	1.59E+122
1-226	1.59E+121	1.59E+122	1.59E+123
1-227	1.59E+122	1.59E+123	1.59E+124
1-228	1.59E+123	1.59E+124	1.59E+125
1-229	1.59E+124	1.59E+125	1.59E+126
1-230	1.59E+125	1.59E+126	1.59E+127
1-231	1.59E+126	1.59E+127	1.59E+128
1-232	1.59E+127	1.59E+128	1.59E+129
1-233	1.59E+128	1.59E+129	1.59E+130
1-234	1.59E+129	1.59E+130	1.59E+131
1-235	1.59E+130	1.59E+131	1.59E+132
1-236	1.59E+131	1.59E+132	1.59E+133
1-237	1.59E+132	1.59E+133	1.59E+134
1-238	1.59E+133	1.59E+134	1.59E+135
1-239	1.59E+134	1.59E+135	1.59E+136
1-240	1.59E+135	1.59E+136	1.59E+137
1-241	1.59E+136	1.59E+137	1.59E+138
1-242	1.59E+137	1.59E+138	1.59E+139
1-243	1.59E+138	1.59E+139	1.59E+140
1-244	1.59E+139	1.59E+140	1.59E+141
1-245	1.59E+140	1.59E+141	1.59E+142
1-246	1.59E+141	1.59E+142	1.59E+143
1-247	1.59E+142	1.59E+143	1.59E+144
1-248	1.59E+143	1.59E+144	1.59E+145
1-249	1.59E+144	1.59E+145	1.59E+146
1-250	1.59E+145	1.59E+146	1.59E+147
1-251	1.59E+146	1.59E+147	1.59E+148
1-252	1.59E+147	1.59E+148	1.59E+149
1-253	1.59E+148	1.59E+149	1.59E+150
1-254	1.59E+149	1.59E+150	1.59E+151
1-255	1.59E+150	1.59E+151	1.59E+152
1-256	1.59E+151	1.59E+152	1.59E+153
1-257	1.59E+152	1.59E+153	1.59E+154
1-258	1.59E+153	1.59E+154	1.59E+155
1-259	1.59E+154	1.59E+155	1.59E+156
1-260	1.59E+155	1.59E+156	1.59E+157
1-261	1.59E+156	1.59E+157	1.59E+158
1-262	1.59E+157	1.59E+158	1.59E+159
1-263	1.59E+158	1.59E+159	1.59E+160
1-264	1.59E+159	1.59E+160	1.59E+161
1-265	1.59E+160	1.59E+161	1.59E+162
1-266	1.59E+161	1.59E+162	1.59E+163
1-267	1.59E+162	1.59E+163	1.59E+164
1-268	1.59E+163	1.59E+164	1.59E+165
1-269	1.59E+164	1.59E+165	1.59E+166
1-270	1.59E+165	1.59E+166	1.59E+167
1-271	1.59E+166	1.59E+167	1.59E+168
1-272	1.59E+167	1.59E+168	1.59E+169
1-273	1.59E+168	1.59E+169	1.59E+170
1-274	1.59E+169	1.59E+170	1.59E+171
1-275	1.59E+170	1.59E+171	1.59E+172
1-276	1.59E+171	1.59E+172	1.59E+173
1-277	1.59E+172	1.59E+173	1.59E+174
1-278	1.59E+173	1.59E+174	1.59E+175
1-279	1.59E+174	1.59E+175	1.59E+176
1-280	1.59E+175	1.59E+176	1.59E+177
1-281	1.59E+176	1.59E+177	1.59E+178
1-282	1.59E+177	1.59E+178	1.59E+179
1-283	1.59E+178	1.59E+179	1.59E+180
1-284	1.59E+179	1.59E+180	1.59E+181
1-285	1.59E+180	1.59E+181	1.59E+182
1-286	1.59E+181	1.59E+182	1.59E+183
1-287	1.59E+182	1.59E+183	1.59E+184
1-288	1.59E+183	1.59E+184	1.59E+185
1-289	1.59E+184	1.59E+185	1.59E+186
1-290	1.59E+185	1.59E+186	1.59E+187
1-291	1.59E+186	1.59E+187	1.59E+188
1-292	1.59E+187	1.59E+188	1.59E+189
1-293	1.59E+188	1.59E+189	1.59E+190
1-294	1.59E+189	1.59E+190	1.59E+191
1-295	1.59E+190	1.59E+191	1.59E+192
1-296	1.59E+191	1.59E+192	1.59E+193
1-297	1.59E+192	1.59E+193	1.59E+194
1-298	1.59E+193	1.59E+194	1.59E+195
1-299	1.59E+194	1.59E+195	1.59E+196
1-300	1.59E+195	1.59E+196	1.59E+197
1-301	1.59E+196	1.59E+197	1.59E+198
1-302	1.59E+197	1.59E+198	1.59E+199
1-303	1.59E+198	1.59E+199	1.59E+200
1-304	1.59E+199	1.59E+200	1.59E+201
1-305	1.59E+200	1.59E+201	1.59E+202
1-306	1.59E+201	1.59E+202	1.59E+203
1-307	1.59E+202	1.59E+203	1.59E+204
1-308	1.59E+203	1.59E+204	1.59E+205
1-309	1.59E+204	1.59E+205	1.59E+206
1-310	1.59E+205	1.59E+206	1.59E+207
1-311	1.59E+206	1.59E+207	1.59E+208
1-312	1.59E+207	1.59E+208	1.59E+209
1-313	1.59E+208	1.59E+209	1.59E+210
1-314	1.59E+209	1.59E+210	1.59E+211
1-315	1.59E+210	1.59E+211	1.59E+212
1-316	1.59E+211	1.59E+212	1.59E+213
1-317	1.59E+212	1.59E+213	1.59E+214
1-318	1.59E+213	1.59E+214	1.59E+215
1-319	1.59E+214	1.59E+215	1.59E+216
1-320	1.59E+215	1.59E+216	1.59E+217
1-321	1.59E		

REPORT OF SED IN ANALYSIS

Centroid Channel	Energy keV	Net Area counts	Error %	Counts/sec
113.24	57.12	219.	26.0	1.55E+01
129.66	75.29	480.	15.4	3.74E+01
144.25	77.58	1097.	9.1	8.62E+01
155.04	93.05	565.	12.2	4.73E+01
204.27	242.24	950.	5.0	1.25E+02
230.55	247.83	191.	20.5	2.77E+01
260.83	300.24	81.	16.0	1.25E+01
277.15	338.49	107.	23.6	1.74E+01
315.49	387.60	132.	14.1	3.89E+01
337.27	465.08	73.	21.2	2.44E+01
353.83	747.36	179.	10.6	6.81E+01
368.45	933.43	104.	13.5	4.70E+01
2678.18	1237.18	147.	10.8	8.29E+01
2561.65	1279.91	25.	43.0	1.44E+01
2755.80	1376.99	98.	13.5	5.95E+01
2815.50	1406.85	50.	23.9	3.11E+01
3458.16	1728.35	24.	21.1	1.72E+01
3461.72	1730.13	23.	21.1	1.62E+01

GAMMA SPECTRUM ANALYSIS

SPYRRSA SPECTRAN-AT V4.2a

David Corporation, Revere, PA

24-AUG-94 11:45:22

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Pretrigger Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0133
 Measured by: kc

Sample Description: D.P.A. Pit 1
 Geometry Description: 500 ML MARINELLI
 Sample Size: 7.5250×10^2 gram / Conversion Factor: 1.0000×10^0
 Standard Size: 8.8840×10^2 GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 09:34:57

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

PEAK ANALYSIS

Peak #	Centroid Channel	Energy keV	FWHM keV	Background Counts	Net Area Counts	Error %	Nuclides
1*	677.31	239.02	1.2	25.	112.	14.2	PB-212
2*	684.08	242.15	1.2	28.	108.	26.5	RA-224, PB-214
3	676.74	239.30	1.0	18.	28.	30.5	AC-228
4	1022.35	310.55	1.6	13.	50.	36.9	TL-208, NA-22.
5	1154.27	392.70	2.5	3.	35.	18.7	ANN-RD
6	1213.70	408.87	1.5	9.	18.	32.6	TL-208
7	1952.30	710.32	1.9	5.	20.	29.6	XE-135, BI-214
8	1922.47	1460.35	2.1	0.	82.	11.0	AC-228
							K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

1 Multiplets processed.

* - Multiplet Analysis Terminated because of no CHI-SQ improvement

AL-107	LLD<7.41E-01	LLD<7.51E-01
AL-107	LLD<1.87E-01	LLD<1.82E-01
AL-107	LLD<2.18E-01	LLD<2.18E-01
AL-108	LLD<1.11E+00 +- 2.10E-01	LLD<1.11E+00 +- 2.10E-01
AL-109	LLD<1.97E-01	LLD<1.97E-01
AL-134	LLD<3.12E-01	LLD<3.12E-01
AL-134	LLD<7.38E-01	LLD<7.38E-01
AL-136	LLD<2.20E+00	LLD<2.20E+00
AL-140	LLD<5.27E-01	LLD<5.27E-01
AL-140M	LLD<2.37E-01	LLD<2.37E-01
AL-97	LLD<2.24E-01	LLD<2.24E-01
AL-177	LLD<2.75E-01	LLD<2.75E-01
AL-177	LLD<2.26E-01	LLD<2.26E-01
AL-187	LLD<9.34E-01	LLD<9.35E-01
AL-97	LLD<2.87E-01	LLD<2.87E-01
AL-95	LLD<5.11E-01	LLD<5.11E-01
AL-95	LLD<2.18E-01	LLD<2.18E-01
AL-010	LLD<1.36E+00	LLD<1.36E+00
AL-58	LLD<2.07E-01	LLD<2.07E-01
AL-136	LLD<2.43E-01	LLD<2.43E-01
AL-54	LLD<3.21E-01	LLD<3.21E-01
AL-56	LLD<1.73E-01	LLD<1.73E-01
AL-134	LLD<1.93E-01	LLD<1.93E-01
AL-207	LLD<1.56E+02	LLD<1.56E+02
AL-88	LLD<2.04E-01	LLD<2.04E-01
AL-228	LLD<1.13E+00 +- 3.34E-01	LLD<1.13E+00 +- 3.34E-01
AL-152	LLD<3.06E+00	LLD<3.06E+00
AL-234M	LLD<2.23E+00	LLD<2.23E+00
AL-91	LLD<9.80E-01	LLD<9.80E-01
AL-89	LLD<6.28E-01	LLD<6.28E-01
AL-59	LLD<4.93E-01	LLD<4.93E-01
AL-65	LLD<8.47E-01	LLD<8.47E-01
AL-46	LLD<4.03E-01	LLD<4.03E-01
AL-182	LLD<9.76E-01	LLD<9.76E-01
AL-135	LLD<1.25E+00	LLD<1.25E+00
AL-39	LLD<7.46E-01	LLD<7.46E-01
AL-22	LLD<2.30E-01	LLD<2.30E-01
AL-41	LLD<2.61E-01	LLD<2.61E-01
AL-60	LLD<2.44E-01	LLD<2.44E-01
AL-24	LLD<2.34E-01	LLD<2.34E-01
AL-92	LLD<2.99E-01	LLD<2.99E-01
AL-138	LLD<8.89E-02	LLD<8.89E-02
AL-40	LLD<1.75E+01 +- 1.95E+00	LLD<1.75E+01 +- 1.95E+00
AL-88	LLD<1.32E+00	LLD<1.32E+00
AL-209	LLD<8.79E-01	LLD<8.79E-01
AL-140	LLD<3.13E-01	LLD<3.13E-01
AL-26	LLD<7.16E-02	LLD<7.16E-02
AL-56	LLD<2.69E-01	LLD<2.69E-01
AL-88	LLD<4.07E-01	LLD<4.07E-01
Total	2.44E+01 +- 2.19E+00	2.44E+01 +- 2.19E+00

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

DATE	TIME	LOCATION	TYPE	REMARKS
10/16/74	339.70	28.	30.5	4.74E+00
10/19/70	508.97	18.	30.5	9.57E+00

G A M M A S P E C T R U M A N A L Y S I S

DANBEFR4 SPECTRAN-AT V4.2a

Point Location: Revere, PA

24-AUG-94 11:50:26

A N A L Y S I S P A R A M E T E R S

PCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4076 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0134
 Measured by: kc

Sample Description: D.P.A. Pit 2
 Geometry Description: 500 ML MARINELLI
 Sample Size: $7.7070\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
 Standard Size: $8.8840\text{E}+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 09:56:02

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Count	Energy	FWHM	Decay	Net Area	Error	Nuclides
1	677.45	1.3	73.	15.1	15.1	P8-212
2	677.45	1.9	21.	33.	27.3	AC-228
3	704.18	0.3	21.	48.	21.2	81-211, P8-214
4	1051.54	2.1	51.	21.	27.0	TL-208, NA-22.
5	1146.75	1.3	9.	46.	17.7	TL-208
6	1278.62	2.0	4.	35.	19.2	XE-135, 81-214
7	1923.81	0.6	8.	10.	95.6	AC-228, BU-109
8	2013.15	1.5	3.	7.	57.9	CS-138
9	2920.99	1.2	4.	119.	9.6	K-40

P E A K A N A L Y S I S

Sample: C.P.A. Site 2

File collected on 03-AUG-94 at 09:56:00

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Isotope	Activity Concentration in PDI /gram	Decay corrected
Year(s)	Error	Error
Am-241	LLD<3.53E-01	LLD<3.56E-01
Am-243	LLD<3.53E+00	LLD<3.53E+00
Am-243	LLD<3.98E+01	LLD<3.98E+01
Am-243	LLD<5.27E-01	LLD<5.27E-01
Am-243	LLD<5.11E+00	LLD<5.11E+00
Am-243	LLD<2.07E-01	LLD<2.07E-01
Am-243	LLD<1.02E+00	LLD<1.02E+00
Am-243	LLD<2.00E+00	LLD<2.00E+00
Am-243	LLD<2.51E-01	LLD<2.51E-01
Am-243	LLD<4.17E-01	LLD<4.17E-01
Am-243	LLD<3.23E-01	LLD<3.23E-01
Am-243	LLD<1.12E+01	LLD<1.12E+01
Am-243	LLD<1.27E+00	LLD<1.27E+00
Am-243	LLD<2.57E-01	LLD<2.57E-01
Am-243	LLD<4.02E-01	LLD<4.02E-01
Am-243	LLD<7.23E+00	LLD<7.23E+00
Am-243	LLD<5.65E-01	LLD<5.65E-01
Am-243	LLD<2.51E+00	LLD<2.51E+00
Am-243	LLD<2.52E-01	LLD<2.52E-01
Am-243	LLD<1.81E+00	LLD<1.81E+00
Am-243	LLD<2.42E+00	LLD<2.42E+00
Am-243	1.22E+00 +- 1.85E-01	1.22E+00 +- 1.85E-01
Am-243	LLD<4.72E+00	LLD<4.72E+00
Am-243	LLD<1.91E-01	LLD<1.91E-01
Am-243	LLD<7.16E-01	LLD<7.16E-01
Am-243	LLD<3.54E-01	LLD<3.54E-01
Am-243	LLD<1.42E+00	LLD<1.42E+00
Am-243	LLD<2.38E-01	LLD<2.38E-01
Am-243	LLD<2.17E-01	LLD<2.17E-01
Am-243	LLD<1.87E+00	LLD<1.87E+00
Am-243	7.70E+00 +- 1.64E+00	7.70E+00 +- 1.64E+00
Am-243	LLD<6.80E-01	LLD<6.80E-01
Am-243	LLD<3.82E-01	LLD<3.82E-01
Am-243	LLD<1.98E-01	LLD<1.98E-01
Am-243	LLD<2.76E-01	LLD<2.76E-01
Am-243	LLD<3.95E-01	LLD<3.95E-01
Am-243	LLD<7.32E+00	LLD<7.32E+00
Am-243	LLD<1.81E-01	LLD<1.81E-01
Am-243	LLD<6.54E-01	LLD<6.54E-01
Am-243	LLD<5.36E+01	LLD<5.36E+01
Am-243	LLD<1.77E+00	LLD<1.77E+00
Am-243	LLD<2.41E-01	LLD<2.41E-01
Am-243	LLD<1.77E-01	LLD<1.77E-01
Am-243	LLD<5.84E+01	LLD<5.84E+01
Am-243	LLD<2.55E-01	LLD<2.55E-01
Am-243	LLD<2.25E-01	LLD<2.25E-01

4-110	LLD<5.17E-01	LLD<5.17E-01	
4-111	LLD<3.44E-01	LLD<3.44E-01	
4-112	LLD<2.79E-01	LLD<2.79E-01	
4-113	LLD<1.43E+00	LLD<1.43E+00	+- 2.52E-01
4-114	LLD<1.71E-01	LLD<1.71E-01	
4-115	LLD<4.15E-01	LLD<4.15E-01	
4-116	LLD<5.96E-01	LLD<5.96E-01	
4-117	LLD<2.28E+00	LLD<2.28E+00	
4-118	LLD<4.87E-01	LLD<4.87E-01	
4-119	LLD<2.24E-01	LLD<2.24E-01	
4-120	LLD<2.55E-01	LLD<2.55E-01	
4-121	LLD<2.29E-01	LLD<2.29E-01	
4-122	LLD<2.31E-01	LLD<2.31E-01	
4-123	LLD<8.69E-01	LLD<8.69E-01	
4-124	LLD<2.20E-01	LLD<2.20E-01	
4-125	LLD<4.14E-01	LLD<4.14E-01	
4-126	LLD<2.86E-01	LLD<2.86E-01	
4-127	LLD<1.53E+00	LLD<1.53E+00	
4-128	LLD<2.66E-01	LLD<2.66E-01	
4-129	LLD<2.91E-01	LLD<2.91E-01	
4-130	LLD<3.17E-01	LLD<3.17E-01	
4-131	LLD<2.49E-01	LLD<2.49E-01	
4-132	LLD<2.79E-01	LLD<2.79E-01	
4-133	LLD<1.87E+02	LLD<1.87E+02	
4-134	LLD<2.59E-01	LLD<2.59E-01	
4-135	LLD<1.34E+00	LLD<1.34E+00	
4-136	LLD<2.88E+00	LLD<2.88E+00	
4-137	LLD<2.74E+00	LLD<2.74E+00	
4-138	LLD<9.38E-01	LLD<9.38E-01	
4-139	LLD<7.19E-01	LLD<7.19E-01	
4-140	LLD<6.66E-01	LLD<6.66E-01	
4-141	LLD<1.08E+00	LLD<1.08E+00	
4-142	LLD<4.18E-01	LLD<4.18E-01	
4-143	LLD<1.18E+00	LLD<1.18E+00	
4-144	LLD<1.36E+00	LLD<1.36E+00	
4-145	LLD<1.02E+00	LLD<1.02E+00	
4-146	LLD<4.13E-01	LLD<4.13E-01	
4-147	LLD<3.79E-01	LLD<3.78E-01	
4-148	LLD<4.19E-01	LLD<4.19E-01	
4-149	LLD<2.55E-01	LLD<2.55E-01	
4-150	LLD<3.65E-01	LLD<3.65E-01	
4-151	LLD<3.56E-01	LLD<3.56E-01	
4-152	2.50E+01 +- 2.40E+00	2.50E+01 +- 2.40E+00	
4-153	LLD<3.04E+00	LLD<3.04E+00	
4-154	LLD<1.01E+00	LLD<1.01E+00	
4-155	LLD<4.14E-01	LLD<4.14E-01	
4-156	LLD<1.90E-01	LLD<1.90E-01	
4-157	LLD<7.13E-01	LLD<7.13E-01	
4-158	LLD<1.64E+00	LLD<1.64E+00	
Total	3.53E+01 +- 2.92E+00	3.53E+01 +- 2.92E+00	

Error Quotation at 1.00 Sigma
 Confidence Level at 95.0%

Channel	Energy keV	Area counts	Error %	Counts/sec
14.41	338.14	33.	27.2	3.65E+00
218.62	608.83	35.	19.3	1.07E+01
1938.81	968.59	10.	55.6	4.52E+00
2015.15	1008.74	7.	57.9	3.24E+00

GAMMA SPECTRUM ANALYSIS

CANBERA SPECTRAN-AT V4.2a

Canberra Corporation, Sydney, PA

24-AUG-94 11:55:15

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Full Output.
 Analysis of Spectrum saved in Disk File SD0135
 Measured by: kc

Sample Description: D.P.A. Pit 3
 Geometry Description: 500 ML MARINELLI
 Sample Size: $8.3940\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
 Standard Size: $8.8840\text{E}+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 10:19:49

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 0.00 seconds

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

P E A K A N A L Y S I S

PK	Centroid channel	Energy keV	FWHM keV	Back- ground counts	Net Area counts	Error %	Nuclides
1	477.25	233.74	1.4	61.	110.	15.2	PS-212
2	477.51	237.44	1.2	16.	24.	37.7	AC-228
3	703.94	351.98	1.4	13.	44.	20.1	BI-211, PS-214
4	1021.89	510.95	1.3	7.	15.	30.3	TL-208, NA-22, ANN-RD
5	1146.77	582.94	1.2	8.	37.	20.4	TL-208
6	1213.39	609.30	1.9	19.	19.	42.1	XE-135, BI-214
7	1822.75	910.60	1.1	3.	16.	29.4	AC-228
8	2921.33	1459.60	2.0	0.	90.	10.5	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

LA-142	LLD<7.23E-01	
LA-142	LLD<1.80E-01	
LA-142	LLD<2.38E-01	
LA-142	LLD<1.85E+00	+- 2.15E-01
LA-142	LLD<2.17E-01	
LA-142	LLD<3.18E-01	
LA-142	LLD<7.19E-01	
LA-142	LLD<1.85E+00	
LA-142	LLD<4.33E-01	
LA-142	LLD<2.25E-01	
LA-142	LLD<2.33E-01	
LA-142	LLD<2.27E-01	
LA-142	LLD<2.47E-01	
LA-142	LLD<6.45E-01	
LA-142	LLD<2.21E-01	
LA-142	LLD<3.40E-01	
LA-142	LLD<2.16E-01	
LA-142	LLD<1.09E+00	
LA-142	LLD<2.33E-01	
LA-142	LLD<2.01E-01	
LA-142	LLD<2.62E-01	
LA-142	LLD<1.40E-01	
LA-142	LLD<1.39E-01	
LA-142	LLD<1.81E+02	
LA-142	LLD<2.29E-01	
LA-142	LLD<2.29E-01	
LA-142	8.33E-01	+- 2.45E-01
LA-142	LLD<2.47E+00	
LA-142	LLD<1.83E+00	
LA-142	LLD<8.61E-01	
LA-142	LLD<4.77E-01	
LA-142	LLD<5.84E-01	
LA-142	LLD<7.36E-01	
LA-142	LLD<2.73E-01	
LA-142	LLD<8.90E-01	
LA-142	LLD<9.07E-01	
LA-142	LLD<7.11E-01	
LA-142	LLD<2.94E-01	
LA-142	LLD<3.60E-01	
LA-142	LLD<3.33E-01	
LA-142	LLD<2.56E-01	
LA-142	LLD<2.81E-01	
LA-142	LLD<3.07E-01	
LA-142	1.73E+01	+- 1.83E+00
LA-142	LLD<1.66E+00	
LA-142	LLD<5.22E-01	
LA-142	LLD<3.11E-01	
LA-142	LLD<2.49E-01	
LA-142	LLD<1.22E+00	
LA-142	LLD<1.25E+00	
Total	2.67E+01	+- 2.28E+00

Error Quotation at 1.00 Sigma
 Confidence Level at 95.0%

10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100
 101
 102
 103
 104
 105
 106
 107
 108
 109
 110
 111
 112
 113
 114
 115
 116
 117
 118
 119
 120
 121
 122
 123
 124
 125
 126
 127
 128
 129
 130
 131
 132
 133
 134
 135
 136
 137
 138
 139
 140
 141
 142
 143
 144
 145
 146
 147
 148
 149
 150
 151
 152
 153
 154
 155
 156
 157
 158
 159
 160
 161
 162
 163
 164
 165
 166
 167
 168
 169
 170
 171
 172
 173
 174
 175
 176
 177
 178
 179
 180
 181
 182
 183
 184
 185
 186
 187
 188
 189
 190
 191
 192
 193
 194
 195
 196
 197
 198
 199
 200
 201
 202
 203
 204
 205
 206
 207
 208
 209
 210
 211
 212
 213
 214
 215
 216
 217
 218
 219
 220
 221
 222
 223
 224
 225
 226
 227
 228
 229
 230
 231
 232
 233
 234
 235
 236
 237
 238
 239
 240
 241
 242
 243
 244
 245
 246
 247
 248
 249
 250
 251
 252
 253
 254
 255
 256
 257
 258
 259
 260
 261
 262
 263
 264
 265
 266
 267
 268
 269
 270
 271
 272
 273
 274
 275
 276
 277
 278
 279
 280
 281
 282
 283
 284
 285
 286
 287
 288
 289
 290
 291
 292
 293
 294
 295
 296
 297
 298
 299
 300
 301
 302
 303
 304
 305
 306
 307
 308
 309
 310
 311
 312
 313
 314
 315
 316
 317
 318
 319
 320
 321
 322
 323
 324
 325
 326
 327
 328
 329
 330
 331
 332
 333
 334
 335
 336
 337
 338
 339
 340
 341
 342
 343
 344
 345
 346
 347
 348
 349
 350
 351
 352
 353
 354
 355
 356
 357
 358
 359
 360
 361
 362
 363
 364
 365
 366
 367
 368
 369
 370
 371
 372
 373
 374
 375
 376
 377
 378
 379
 380
 381
 382
 383
 384
 385
 386
 387
 388
 389
 390
 391
 392
 393
 394
 395
 396
 397
 398
 399
 400
 401
 402
 403
 404
 405
 406
 407
 408
 409
 410
 411
 412
 413
 414
 415
 416
 417
 418
 419
 420
 421
 422
 423
 424
 425
 426
 427
 428
 429
 430
 431
 432
 433
 434
 435
 436
 437
 438
 439
 440
 441
 442
 443
 444
 445
 446
 447
 448
 449
 450
 451
 452
 453
 454
 455
 456
 457
 458
 459
 460
 461
 462
 463
 464
 465
 466
 467
 468
 469
 470
 471
 472
 473
 474
 475
 476
 477
 478
 479
 480
 481
 482
 483
 484
 485
 486
 487
 488
 489
 490
 491
 492
 493
 494
 495
 496
 497
 498
 499
 500
 501
 502
 503
 504
 505
 506
 507
 508
 509
 510
 511
 512
 513
 514
 515
 516
 517
 518
 519
 520
 521
 522
 523
 524
 525
 526
 527
 528
 529
 530
 531
 532

DATE	DESCRIPTION	AMOUNT	BALANCE
1908.44	24.	32.7	1.00
1908.92	19.	42.1	1.00

GAMMA SPECTRUM ANALYSIS

DAYTRAN SPECTRAN-AT V4.2a

Event Description: Source: PA

24-AUG-94 12:00:28

ANALYSIS PARAMETERS

ADC Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

MID Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0136
 Measured by: kc

Sample Description: G.P.A Pit 4
 Geometry Description: 500 ML MARINELLI
 Sample Size: $9.7230E+02$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 10:39:08

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 0.0000

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

PEAK ANALYSIS

	Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	477.63	238.93	1.0	39.	56.	14.9	PB-212
2	557.81	278.94	3.2	9.	21.	30.2	NP-239, HG-203, SE-75
3	551.30	275.94	1.0	10.	38.	20.4	PB-214
4	703.72	351.90	1.2	5.	52.	15.3	BI-211, PB-214
5	1070.63	537.97	1.3	6.	19.	30.7	TL-208, NA-22, ANN-RD
6	1166.60	582.75	1.2	5.	32.	20.9	TL-208
7	1219.13	609.09	1.9	7.	31.	21.6	XE-135, BI-214
8	2931.99	1460.11	2.9	0.	67.	12.2	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

C - Multiplet Analysis converged normally

Sample: D.F.A. #114

Data collected on 03-AUG-94 at 10:39:08

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Radionuclide		Activity Concentration in PCl /gram	
Measured	Error	Decay corrected	Error
Am-241	LLD<3.73E-01	LLD<3.23E-01	
Th-232	LLD<2.91E+00	LLD<2.91E+00	
Pa-232	LLD<3.43E+01	LLD<3.43E+01	
Xe-133	LLD<4.65E-01	LLD<4.65E-01	
Co-60	LLD<3.99E+00	LLD<3.99E+00	
Co-57	LLD<1.74E-01	LLD<1.74E-01	
Pa-234	LLD<7.45E-01	LLD<7.45E-01	
Ce-144	LLD<1.63E+00	LLD<1.63E+00	
Tc-99m	LLD<1.69E-01	LLD<1.69E-01	
Ce-141	LLD<3.55E-01	LLD<3.55E-01	
Kr-85m	LLD<2.28E-01	LLD<2.28E-01	
Xe-131m	LLD<8.30E+00	LLD<8.30E+00	
Ba-139	LLD<1.14E+00	LLD<1.14E+00	
Ce-139	LLD<2.32E-01	LLD<2.32E-01	
U-235	LLD<3.44E-01	LLD<3.44E-01	
RA-226	LLD<5.51E+00	LLD<5.51E+00	
Ba-141	LLD<4.75E-01	LLD<4.75E-01	
I-139	LLD<1.97E+00	LLD<1.97E+00	
Te-132	LLD<1.75E-01	LLD<1.75E-01	
Xe-133m	LLD<1.46E+00	LLD<1.46E+00	
Th-227	LLD<1.93E+00	LLD<1.93E+00	
Fr-212	8.48E-01 +- 1.27E-01	8.48E-01 +- 1.27E-01	
Ra-224	LLD<5.71E+00	LLD<5.71E+00	
Xe-135	LLD<1.62E-01	LLD<1.62E-01	
Xe-138	LLD<6.20E-01	LLD<6.20E-01	
Se-75	LLD<2.51E-01	LLD<2.51E-01	
Fr-239	LLD<1.15E+00	LLD<1.15E+00	
Hg-203	1.32E-01 +- 3.99E-02	1.32E-01 +- 3.99E-02	
Ir-192	LLD<1.78E-01	LLD<1.78E-01	
Cr-51	LLD<1.55E+00	LLD<1.55E+00	
Bi-211	7.90E+00 +- 1.21E+00	7.90E+00 +- 1.21E+00	
Pb-214	9.23E-01 +- 1.41E-01	9.23E-01 +- 1.41E-01	
Ba-133	LLD<4.01E-01	LLD<4.01E-01	
I-131	LLD<1.71E-01	LLD<1.71E-01	
Sm-113	LLD<2.40E-01	LLD<2.40E-01	
Kr-87	LLD<3.21E-01	LLD<3.21E-01	
Pb-211	LLD<5.85E+00	LLD<5.85E+00	
At-198	LLD<1.70E-01	LLD<1.70E-01	
Sb-125	LLD<4.12E-01	LLD<4.12E-01	
Bi-212	LLD<4.78E+01	LLD<4.78E+01	
Be-7	LLD<1.47E+00	LLD<1.47E+00	
Fr-181	LLD<2.08E-01	LLD<2.08E-01	
Th-230	LLD<1.70E-01	LLD<1.70E-01	
Ac-225	LLD<4.79E+01	LLD<4.79E+01	
Fr-85	LLD<2.09E-01	LLD<2.09E-01	
I-133	LLD<1.58E-01	LLD<1.58E-01	

10-000000	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.
-----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----

GAMMA SPECTRUM ANALYSIS

CAASEPRA SPECTRAN-AT V4.2a

Rock Corporation, Peverly, PA

03-AUG-94 11:11:10

ANALYSIS PARAMETERS

ADC Unit Number: 1 / ADC Unit Number: 1.0
Detector Number: 1 / Geometry Number: 1
Spectrum Size: 4096 channels.
First channel for Search: 0
Adaptive smoothing performed.
Number of Background Channels: 4 on each side of peak.
Peak Confidence Factor: 95.0%
Multiplet Sensitivity: 3
Identification Energy Window: ± 1.00 keV.
Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0137
Measured by: kc

Sample Description: D.P.A. Trench
Geometry Description: 500 ML MARINELLI
Sample Size: $9.1470\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
Standard Size: $8.8840\text{E}+02$ GRAM
Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 10:56:40

COLLECT Live Time: 600. seconds
Real Time: 600. seconds
Dead Time: 00.00 %

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration: 03-AUG-94
Efficiency Calibration: 02-JUN-94

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

PK	Centroid	Energy	FWHM	Background	Net Area	Error	Nuclides
1	472.56	238.80	1.4	38.	31.	14.7	PB-212
2	518.54	252.06	1.1	12.	18.	44.7	
3	577.06	328.45	0.7	7.	12.	39.3	AC-228
4	702.48	347.74	1.3	13.	38.	23.8	BI-211, PB-214
5	1146.99	383.04	1.5	1.	31.	19.0	TL-208
6	1218.78	408.90	1.3	4.	22.	34.9	XE-135, BI-214
7	1823.57	910.84	2.5	0.	18.	28.8	AC-228
8	1937.28	957.82	0.7	4.	9.	48.7	
9	2921.78	1460.01	1.7	0.	61.	12.8	K-40

PEAK ANALYSIS

73-AUG-74 11:11:10

73-AUG-74 11:11:10

Form collected on 03-AUG-74 at 10:56:40

ended to 0. days, 0.0000 hours BEFORE the start of COLLECT

RADIONUCLIDE ANALYSIS REPORT

Activity	Concentration in PDI /gram	Decay	
Measured	Error	corrected	Error
GM-241	LLD<2.29E-01	LLD<2.69E-01	
TH-234	LLD<2.21E+00	LLD<2.21E+00	
HA-230	LLD<2.58E+01	LLD<2.58E+01	
XE-133	LLD<3.26E-01	LLD<3.26E-01	
OD-109	LLD<3.59E+00	LLD<3.59E+00	
OG-57	LLD<1.53E-01	LLD<1.53E-01	
PA-234	LLD<7.13E-01	LLD<7.13E-01	
GE-144	LLD<1.19E+00	LLD<1.19E+00	
TD-99M	LLD<1.61E-01	LLD<1.61E-01	
DE-141	LLD<3.04E-01	LLD<3.04E-01	
KR-85M	LLD<2.17E-01	LLD<2.17E-01	
XE-131M	LLD<6.65E+00	LLD<6.65E+00	
BA-139	LLD<8.60E-01	LLD<8.60E-01	
GE-139	LLD<1.75E-01	LLD<1.75E-01	
U-235	LLD<2.66E-01	LLD<2.66E-01	
RA-226	LLD<4.47E+00	LLD<4.47E+00	
TE-141	LLD<3.90E-01	LLD<3.90E-01	
TE-89	LLD<1.67E+00	LLD<1.67E+00	
TE-132	LLD<1.79E-01	LLD<1.79E-01	
XE-133M	LLD<1.38E+00	LLD<1.38E+00	
PB-212	7.17E-01 +- 1.05E-01	7.17E-01 +- 1.05E-01	
RA-224	LLD<4.64E+00	LLD<4.64E+00	
XE-135	LLD<1.46E-01	LLD<1.46E-01	
XE-138	LLD<6.11E-01	LLD<6.11E-01	
GE-75	LLD<2.13E-01	LLD<2.13E-01	
NP-239	LLD<9.53E-01	LLD<9.53E-01	
HG-203	LLD<1.49E-01	LLD<1.49E-01	
IR-192	LLD<1.22E-01	LLD<1.22E-01	
OR-51	LLD<1.26E+00	LLD<1.26E+00	
BI-211	4.74E+00 +- 1.13E+00	4.74E+00 +- 1.13E+00	
PB-214	LLD<4.76E-01	LLD<4.76E-01	
BA-133	LLD<3.16E-01	LLD<3.16E-01	
I-131	LLD<1.35E-01	LLD<1.35E-01	
BN-113	LLD<1.67E-01	LLD<1.67E-01	
KR-87	LLD<2.84E-01	LLD<2.84E-01	
PB-211	LLD<5.20E+00	LLD<5.20E+00	
AU-198	LLD<1.39E-01	LLD<1.39E-01	
SB-125	LLD<4.02E-01	LLD<4.02E-01	
SI-212	LLD<4.23E+01	LLD<4.23E+01	
BE-7	LLD<1.26E+00	LLD<1.26E+00	
HF-181	LLD<1.79E-01	LLD<1.79E-01	
BU-103	LLD<1.60E-01	LLD<1.60E-01	
SR-85	LLD<4.18E+01	LLD<4.18E+01	
SR-85	LLD<1.83E-01	LLD<1.83E-01	
I-133	LLD<1.22E-01	LLD<1.22E-01	
BA-140	LLD<5.14E-01	LLD<5.14E-01	

AB-1X	LLD<1.41E-01	LLD<1.41E-01
BA-107	LLD<1.37E-01	LLD<1.37E-01
CA-107	LLD<3.95E-01	LLD<3.95E-01
DA-124	LLD<1.51E-01	LLD<1.51E-01
EA-134	LLD<2.62E-01	LLD<2.62E-01
FA-114	LLD<5.64E-01	LLD<5.64E-01
GA-106	LLD<1.91E+00	LLD<1.91E+00
HA-142	LLD<2.77E-01	LLD<2.77E-01
IA-110M	LLD<1.29E-01	LLD<1.29E-01
JA-97	LLD<1.50E-01	LLD<1.50E-01
KA-117	LLD<1.49E-01	LLD<1.49E-01
LA-172	LLD<1.54E-01	LLD<1.54E-01
MA-157	LLD<5.57E-01	LLD<5.57E-01
NA-97	LLD<1.17E-01	LLD<1.17E-01
OA-95	LLD<3.46E-01	LLD<3.46E-01
PA-95	LLD<1.75E-01	LLD<1.75E-01
QA-210	LLD<8.57E-01	LLD<8.57E-01
RA-53	LLD<1.89E-01	LLD<1.89E-01
SA-136	LLD<1.80E-01	LLD<1.80E-01
TA-54	LLD<2.45E-01	LLD<2.45E-01
UA-56	LLD<1.82E-01	LLD<1.82E-01
V-134	LLD<1.86E-01	LLD<1.86E-01
WL-207	LLD<1.74E+02	LLD<1.74E+02
Y-88	LLD<2.22E-01	LLD<2.22E-01
AC-228	7.06E-01 +- 1.82E-01	7.06E-01 +- 1.82E-01
EU-152	LLD<2.03E+00	LLD<2.03E+00
FA-234M	LLD<2.27E+00	LLD<2.27E+00
SR-91	LLD<4.75E-01	LLD<4.75E-01
RB-89	LLD<4.07E-01	LLD<4.07E-01
FE-59	LLD<3.39E-01	LLD<3.39E-01
ZN-65	LLD<5.05E-01	LLD<5.05E-01
46	LLD<1.76E-01	LLD<1.76E-01
TR-182	LLD<6.02E-01	LLD<6.02E-01
I-135	LLD<8.04E-01	LLD<8.04E-01
CL-39	LLD<3.87E-01	LLD<3.87E-01
NA-22	LLD<2.14E-01	LLD<2.14E-01
AR-41	LLD<2.04E-01	LLD<2.04E-01
CO-60	LLD<1.77E-01	LLD<1.77E-01
NA-24	LLD<2.99E-01	LLD<2.99E-01
SR-92	LLD<1.23E-01	LLD<1.23E-01
OS-138	LLD<1.62E-01	LLD<1.62E-01
X-40	1.07E+01 +- 1.38E+00	1.07E+01 +- 1.38E+00
KR-88	LLD<1.09E+00	LLD<1.09E+00
TL-209	LLD<3.90E-01	LLD<3.90E-01
LA-140	LLD<1.25E-01	LLD<1.25E-01
AL-26	LLD<2.29E-01	LLD<2.29E-01
YN-56	LLD<4.90E-01	LLD<4.90E-01
RB-88	LLD<7.41E-01	LLD<7.41E-01
Total	1.69E+01 +- 1.79E+00	1.69E+01 +- 1.79E+00

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

Results saved in File SD0137

REPORT OF RESEARCH ANALYSIS

Item	Amount	Percentage	From	Amount/Year
105.54	253.06	15.	44.7	5,035.00
166.50	583.04	31.	15.0	5,045.00
1713.75	608.90	22.	74.0	4,775.00
1787.28	967.82	9.	42.7	4,125.00

GAMMA SPECTRUM ANALYSIS

GENESIS SPECTRAN-AT V4.2a

North Charleston, SC, PA

24-AUG-94 13:20:45

ANALYSIS PARAMETERS

DA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Circular Output.
 Analysis of Spectrum saved in Disk File SD0138
 Measured by: kc

Sample Description: D.P.A. Trench
 Geometry Description: 500 ML MARINELLI
 Sample Size: 1.0224×10^3 gram / Conversion Factor: 1.0000×10^0
 Standard Size: 8.8840×10^2 GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 11:20:51

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00

Decayed to 0.000000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

PEAK ANALYSIS

PK	Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	177.69	238.96	1.9	21.	56.	17.7	PB-212
2	250.39	343.30	2.0	19.	23.	36.7	PB-214
3	204.16	281.78	1.6	6.	35.	19.6	BI-211, PB-214
4	1166.82	158.74	1.0	1.	25.	21.2	TL-208
5	2920.78	1459.87	1.0	2.	30.	19.6	K-40

Linear Rotation at 1.00 sigma
Peak Confidence Level at 95.0%

Water D.F.A. Trench

collected on 03-AUG-94 at 11:20:51

Delayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

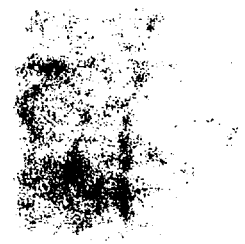
RADIOISOTOPE ANALYSIS REPORT

Activity Concentration in PFI Vials

	Measurement	Error	Decay corrected	Error
PA-241	LLD<1.77E-01		LLD<1.77E-01	
PA-233	LLD<1.34E+00		LLD<1.34E+00	
PA-133	LLD<2.52E+01		LLD<2.52E+01	
XE-133	LLD<3.22E-01		LLD<3.22E-01	
CR-107	LLD<2.75E+00		LLD<2.75E+00	
CI-37	LLD<1.11E-01		LLD<1.11E-01	
PA-234	LLD<5.91E-01		LLD<5.91E-01	
TE-144	LLD<8.99E-01		LLD<8.99E-01	
TC-79M	LLD<1.38E-01		LLD<1.38E-01	
CE-141	LLD<2.39E-01		LLD<2.39E-01	
KR-85M	LLD<1.53E-01		LLD<1.53E-01	
XE-131M	LLD<6.16E+00		LLD<6.16E+00	
BA-137	LLD<6.97E-01		LLD<6.97E-01	
CE-137	LLD<1.41E-01		LLD<1.41E-01	
U-235	LLD<2.64E-01		LLD<2.64E-01	
PA-226	LLD<4.56E+00		LLD<4.56E+00	
PA-141	LLD<3.20E-01		LLD<3.20E-01	
KR-89	LLD<1.36E+00		LLD<1.36E+00	
TE-132	LLD<1.47E-01		LLD<1.47E-01	
XE-133M	LLD<1.21E+00		LLD<1.21E+00	
TH-227	LLD<1.29E+00		LLD<1.29E+00	
PB-212	4.44E-01 +- 7.87E-02		4.44E-01 +- 7.87E-02	
RA-224	LLD<3.29E+00		LLD<3.29E+00	
YE-135	LLD<1.35E-01		LLD<1.35E-01	
XE-138	LLD<4.77E-01		LLD<4.77E-01	
SE-75	LLD<1.79E-01		LLD<1.79E-01	
NP-239	LLD<8.63E-01		LLD<8.63E-01	
YG-203	LLD<1.24E-01		LLD<1.24E-01	
TR-192	LLD<1.20E-01		LLD<1.20E-01	
CR-51	LLD<9.52E-01		LLD<9.52E-01	
BI-211	4.24E-01 +- 8.31E-01		4.24E-01 +- 8.31E-01	
QB-214	4.96E-01 +- 9.72E-02		4.96E-01 +- 9.72E-02	
PA-133	LLD<2.58E-01		LLD<2.58E-01	
I-131	LLD<1.36E-01		LLD<1.36E-01	
SN-117	LLD<1.48E-01		LLD<1.48E-01	
KR-87	LLD<2.81E-01		LLD<2.81E-01	
FB-211	LLD<4.23E+00		LLD<4.23E+00	
AI-198	LLD<1.12E-01		LLD<1.12E-01	
GB-125	LLD<3.84E-01		LLD<3.84E-01	
BI-212	LLD<3.55E+01		LLD<3.55E+01	
BE-7	LLD<8.30E-01		LLD<8.30E-01	
BI-121	LLD<9.93E-02		LLD<9.93E-02	
BI-103	LLD<9.43E-02		LLD<9.43E-02	
KR-85	LLD<3.48E+01		LLD<3.48E+01	
BR-85	LLD<1.52E-01		LLD<1.52E-01	
I-133	LLD<1.11E-01		LLD<1.11E-01	

1964-1965 110 11 1101-1105

1964-1965	110 11 1101-1105	110 11 1101-1105	110 11 1101-1105	110 11 1101-1105
110 11 1101-1105	110 11 1101-1105	110 11 1101-1105	110 11 1101-1105	110 11 1101-1105
110 11 1101-1105	110 11 1101-1105	110 11 1101-1105	110 11 1101-1105	110 11 1101-1105



GAMMA SPECTRUM ANALYSIS

SPN8000A SPECTRAN-AT V4.2a

Sample Description: REXENE, PA

28-AUG-94 17:25:15

ANALYSIS PARAMETERS

MTA Unit Number: 1 ADD Unit Number: 1.0
 Selector Number: 1 Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0139
 Measured by: kc

Sample Description: D.P.A. Trench
 Geometry Description: 500 ML MARINELLI
 Sample Size: $6.0610E+02$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 12:54:41

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 0.00

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94



N - Multiplet Analysis did NOT converge
 Peak Confidence Level at 95.0%
 Error Quotation at 1.00 sigma

PR	Isotopic	Energy	FWHM	Background	Net Area	Error	Nuclides
	Channel	keV	keV	counts	counts	%	
1	407.04	203.70	0.9	13.	35.6		Pu-239
2	477.23	125.78	1.3	30.	15.8		Pu-238
3	707.12	744.97	1.6	2.	14.4		Bi-211, Pb-214
4	1088.46	111.38	1.7	3.	40.3		Tl-208, Pa-232
5	1146.97	581.04	1.0	6.	26.0		Am-241
6	1262.95	1450.58	0.7	1.	53.0		Bi-214
7	1323.97	1460.10	1.7	0.	12.5		K-40

P E A K A N A L Y S I S

24-CHG-94 17:25:15

2017-10-03 10:07, Rev 1.04

Collected on 03-AUG-94 at 12:54:41
 0. days, 0.0000 days before the start of collect.

NUCLEAR ANALYSIS REPORT

Activity Concentration in Bq/gm

Decay Error Corrected Error

1-133	LDD<2.86E-01		
NR-85	LDD<2.26E-01		
NR-85	LDD<5.16E+01		
103	LDD<1.94E-01		
NR-181	LDD<2.65E-01		
SE-7	LDD<1.54E+00		
81-212	LDD<6.12E+01		
88-125	LDD<6.65E-01		
NU-198	LDD<2.27E-01		
PS-211	LDD<6.67E+00		
NR-87	LDD<4.21E-01		
8N-113	LDD<3.06E-01		
1-131	LDD<2.21E-01		
BA-133	LDD<4.54E-01		
PS-214	LDD<7.53E-01		
31-211	LDD<1.68E+00		
DR-51	LDD<2.06E-01		
1R-192	LDD<2.21E-01		
NR-203	LDD<1.34E+00		
NR-239	LDD<3.18E-01		
SE-75	LDD<7.61E-01		
XE-138	LDD<2.31E-01		
XE-135	LDD<6.00E+00		
RA-224	LDD<1.08E+00		
PS-212	LDD<2.28E+00		
TH-227	LDD<2.09E+00		
XE-133M	LDD<2.25E-01		
TE-132	LDD<6.26E-01		
NR-89	LDD<6.36E+00		
141	LDD<3.77E-01		
RA-226	LDD<2.86E-01		
U-235	LDD<1.41E+00		
CE-139	LDD<1.06E+01		
BA-139	LDD<2.63E-01		
XE-131M	LDD<3.82E-01		
NR-85M	LDD<1.92E-01		
CE-141	LDD<1.90E+00		
TC-99M	LDD<9.97E-01		
CE-144	LDD<2.43E-01		
PA-234	LDD<4.89E+00		
CO-57	LDD<5.47E-01		
CO-109	LDD<4.08E+01		
XE-133	LDD<3.89E+00		
TC-99C	LDD<4.17E-01		
TH-234			
BA-241			
1-133	LDD<2.86E-01		
NR-85	LDD<2.26E-01		
NR-85	LDD<5.16E+01		
103	LDD<1.94E-01		
NR-181	LDD<2.65E-01		
SE-7	LDD<1.54E+00		
81-212	LDD<6.12E+01		
88-125	LDD<6.65E-01		
NU-198	LDD<2.27E-01		
PS-211	LDD<6.67E+00		
NR-87	LDD<4.21E-01		
8N-113	LDD<3.06E-01		
1-131	LDD<2.21E-01		
BA-133	LDD<4.54E-01		
PS-214	LDD<7.53E-01		
31-211	LDD<1.68E+00		
DR-51	LDD<2.06E-01		
1R-192	LDD<2.21E-01		
NR-203	LDD<1.34E+00		
NR-239	LDD<3.18E-01		
SE-75	LDD<7.61E-01		
XE-138	LDD<2.31E-01		
XE-135	LDD<6.00E+00		
RA-224	LDD<1.08E+00		
PS-212	LDD<2.28E+00		
TH-227	LDD<2.09E+00		
XE-133M	LDD<2.25E-01		
TE-132	LDD<6.26E-01		
NR-89	LDD<6.36E+00		
141	LDD<3.77E-01		
RA-226	LDD<2.86E-01		
U-235	LDD<1.41E+00		
CE-139	LDD<1.06E+01		
BA-139	LDD<2.63E-01		
XE-131M	LDD<3.82E-01		
NR-85M	LDD<1.92E-01		
CE-141	LDD<1.90E+00		
TC-99M	LDD<9.97E-01		
CE-144	LDD<2.43E-01		
PA-234	LDD<4.89E+00		
CO-57	LDD<5.47E-01		
CO-109	LDD<4.08E+01		
XE-133	LDD<3.89E+00		
TC-99C	LDD<4.17E-01		
TH-234			
BA-241			

LA-142	LLD<3.40E-01	LLD<3.40E-01
LA-144	LLD<3.34E-01	LLD<3.34E-01
LA-147	LLD<3.31E-01	LLD<3.31E-01
LA-205	9.31E-01 +- 3.48E-01	9.51E-01 +- 2.48E-01
LA-154	LLD<3.01E-01	LLD<3.01E-01
LA-174	LLD<4.17E-01	LLD<4.17E-01
LA-214	LLD<3.40E-01	LLD<3.40E-01
LA-166	LLD<1.98E+00	LLD<1.98E+00
LA-142	LLD<4.05E-01	LLD<4.05E-01
LA-110	LLD<2.49E-01	LLD<2.49E-01
LA-97	LLD<2.76E-01	LLD<2.76E-01
LA-117	LLD<2.76E-01	LLD<2.76E-01
LA-122	LLD<2.00E-01	LLD<2.00E-01
LA-127	LLD<3.53E-01	LLD<3.53E-01
LA-127	LLD<2.64E-01	LLD<2.64E-01
LA-75	LLD<4.54E-01	LLD<4.54E-01
LA-95	LLD<3.05E-01	LLD<3.05E-01
LA-210	LLD<1.62E+00	LLD<1.62E+00
LA-58	LLD<3.11E-01	LLD<3.11E-01
LA-136	LLD<2.55E-01	LLD<2.55E-01
LA-54	LLD<3.15E-01	LLD<3.15E-01
LA-56	LLD<2.98E-01	LLD<2.98E-01
LA-134	LLD<3.24E-01	LLD<3.24E-01
LA-207	LLD<2.25E+02	LLD<2.25E+02
LA-88	LLD<3.12E-01	LLD<3.12E-01
LA-228	LLD<1.63E+00	LLD<1.63E+00
LA-152	LLD<2.79E+00	LLD<2.79E+00
LA-234M	LLD<3.30E+00	LLD<3.30E+00
LA-91	LLD<9.76E-01	LLD<9.76E-01
LA-89	LLD<5.34E-01	LLD<5.34E-01
LA-59	LLD<5.34E-01	LLD<5.34E-01
LA-65	LLD<1.06E+00	LLD<1.06E+00
LA-46	LLD<4.38E-01	LLD<4.38E-01
LA-182	LLD<1.14E+00	LLD<1.14E+00
LA-135	LLD<9.88E-01	LLD<9.88E-01
LA-39	LLD<5.85E-01	LLD<5.85E-01
LA-22	LLD<2.49E-01	LLD<2.49E-01
LA-41	LLD<3.08E-01	LLD<3.08E-01
LA-60	LLD<1.59E-01	LLD<1.59E-01
LA-24	LLD<2.27E-01	LLD<2.27E-01
LA-92	LLD<1.85E-01	LLD<1.85E-01
LA-138	LLD<2.44E-01	LLD<2.44E-01
LA-40	1.70E+01 +- 2.13E+00	1.70E+01 +- 2.13E+00
LA-88	LLD<7.41E-01	LLD<7.41E-01
LA-209	LLD<5.89E-01	LLD<5.89E-01
LA-140	LLD<4.60E-01	LLD<4.60E-01
LA-26	LLD<2.42E-01	LLD<2.42E-01
LA-56	LLD<9.07E-01	LLD<9.07E-01
LA-88	LLD<5.05E-01	LLD<5.05E-01
Total	2.95E+01 +- 2.63E+00	2.95E+01 +- 2.63E+00

Error Quotation at 1.00 Sigma
 Confidence Level at 95.0%

FIG 2 - 107 LINE IN ANALYSIS

Count	Area	Net Area	Area	Count/Sec
Count	Area	Counts	Area	
107.04	203.70	10.	83.0	1.25E+00
2562.97	1230.58	6.	83.0	3.08E+00

GAMMA SPECTRUM ANALYSIS

DEBYE SPECTRUM-AT V4.2a

Target Identification: 500 ML MARINELLI

24-AUG-94 13:30:29

ANALYSIS PARAMETERS

ADC Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0140
 Measured by: kc

Sample Description: D.P.A. Trench
 Geometry Description: 500 ML MARINELLI
 Sample Size: $1.0833E+03$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 13:16:48

COLLECT Live Time: 600. seconds
 Real Time: 601. seconds
 Dead Time: 0.1

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

pk	Derivative channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	277.81	338.87	1.5	113.	159.	13.7	PB-212
2	353.37	367.14	1.4	34.	34.	31.9	PB-214
3	704.10	351.96	1.4	21.	66.	21.9	BI-211, PB-214
4	1167.09	583.10	1.2	14.	44.	17.0	TL-208
5	1218.41	608.92	1.6	11.	49.	17.7	XE-135, BI-214
6	1453.70	771.03	1.2	3.	21.	27.3	BI-212
7	1802.36	910.40	1.9	4.	29.	21.6	AC-228
8	1937.30	947.84	1.6	18.	14.	55.3	AC-228
9	2921.14	1459.68	1.9	0.	170.	7.7	K-40

1 Multiplets processed.

SD0140 p. 2

Site: J.P.A. Trench

Collected on 03-AUG-94 at 13:04:03

Decayed for 0. days, 0.0000 hours BEFORE the start of COLLECT.

ADDENDUM TO ANALYSIS REPORT

Analyte Concentration in POC /gram		Decay corrected	
Sample	Error	Sample	Error
GA-141	LLD<3.74E-01	LLD<3.26E-01	
GA-132	LLD<2.94E+00	LLD<2.94E+00	
GA-132	LLD<3.50E+01	LLD<3.50E+01	
GA-173	LLD<4.27E-01	LLD<4.27E-01	
CO-109	LLD<7.79E+00	LLD<7.79E+00	
CO-57	LLD<1.92E-01	LLD<1.92E-01	
GA-234	LLD<8.49E-01	LLD<8.49E-01	
TE-144	LLD<1.44E+00	LLD<1.44E+00	
TD-99M	LLD<2.09E-01	LLD<2.09E-01	
CE-141	LLD<3.74E-01	LLD<3.74E-01	
KR-85M	LLD<2.42E-01	LLD<2.42E-01	
XE-131M	LLD<8.89E+00	LLD<8.89E+00	
GA-139	LLD<1.08E+00	LLD<1.08E+00	
CE-139	LLD<2.19E-01	LLD<2.19E-01	
U-235	LLD<3.33E-01	LLD<3.33E-01	
U-226	LLD<5.54E+00	LLD<5.54E+00	
BA-141	LLD<4.19E-01	LLD<4.19E-01	
KR-89	LLD<2.05E+00	LLD<2.05E+00	
TE-132	LLD<1.77E-01	LLD<1.77E-01	
XE-133M	LLD<1.89E+00	LLD<1.89E+00	
TH-227	LLD<1.96E+00	LLD<1.96E+00	
PS-212	1.19E+00 +- 1.64E-01	1.19E+00 +- 1.64E-01	
GA-224	LLD<4.16E+00	LLD<4.16E+00	
XE-135	LLD<1.61E-01	LLD<1.61E-01	
XE-136	LLD<6.05E-01	LLD<6.05E-01	
GE-75	LLD<2.63E-01	LLD<2.63E-01	
JP-239	LLD<1.35E+00	LLD<1.35E+00	
VE-203	LLD<1.85E-01	LLD<1.85E-01	
TR-192	LLD<1.88E-01	LLD<1.88E-01	
CR-51	LLD<1.43E+00	LLD<1.43E+00	
BI-211	7.57E+00 +- 1.66E+00	7.57E+00 +- 1.66E+00	
PS-214	8.84E-01 +- 1.94E-01	8.84E-01 +- 1.94E-01	
GA-133	LLD<3.34E-01	LLD<3.34E-01	
I-131	LLD<1.83E-01	LLD<1.83E-01	
EV-113	LLD<2.50E-01	LLD<2.50E-01	
KR-87	LLD<3.21E-01	LLD<3.21E-01	
PS-211	LLD<5.03E+00	LLD<5.03E+00	
GU-198	LLD<1.50E-01	LLD<1.50E-01	
PS-133	LLD<4.86E-01	LLD<4.86E-01	
AI-212	LLD<4.11E+01	LLD<4.11E+01	
PS-7	LLD<1.34E+00	LLD<1.34E+00	
U-181	LLD<1.76E-01	LLD<1.76E-01	
GU-103	LLD<1.49E-01	LLD<1.49E-01	
KR-85	LLD<5.38E+01	LLD<5.38E+01	
TR-85	LLD<2.35E-01	LLD<2.35E-01	
I-133	LLD<2.15E-01	LLD<2.15E-01	

Confidence Level at 95.0%

Total		3.61E+01 +- 2.59E+00	3.61E+01 +- 2.59E+00
88-88	LTD<7.69E-01		
88-88	LTD<1.87E-01		
88-88	LTD<1.93E-01		
88-88	LTD<2.73E-01		
88-88	LTD<5.74E-01		
88-88	LTD<9.19E-01		
88-88	LTD<2.53E+01 +- 1.95E+00		
88-88	LTD<4.41E-01		
88-88	LTD<2.82E-01		
88-88	LTD<4.09E-02		
88-88	LTD<2.79E-01		
88-88	LTD<2.99E-01		
88-88	LTD<2.89E-01		
88-88	LTD<7.06E-01		
88-88	LTD<1.20E+00		
88-88	LTD<8.78E-01		
88-88	LTD<3.11E-01		
88-88	LTD<7.88E-01		
88-88	LTD<5.44E-01		
88-88	LTD<4.15E-01		
88-88	LTD<7.31E-01		
88-88	LTD<2.31E+00		
88-88	LTD<2.46E+00		
88-88	LTD<1.17E+00 +- 2.54E-01		
88-88	LTD<2.63E-01		
88-88	LTD<1.96E+02		
88-88	LTD<2.49E-01		
88-88	LTD<2.23E-01		
88-88	LTD<2.00E-01		
88-88	LTD<1.76E-01		
88-88	LTD<1.95E-01		
88-88	LTD<1.14E+00		
88-88	LTD<2.47E-01		
88-88	LTD<4.80E-01		
88-88	LTD<2.12E-01		
88-88	LTD<6.02E-01		
88-88	LTD<1.80E-01		
88-88	LTD<2.15E-01		
88-88	LTD<3.32E-01		
88-88	LTD<2.32E-01		
88-88	LTD<4.24E-01		
88-88	LTD<1.88E+00		
88-88	LTD<6.44E-01		
88-88	LTD<2.59E-01		
88-88	LTD<1.89E-01		
88-88	LTD<5.89E-01		
88-88	LTD<1.40E-01		
88-88	LTD<1.03E-01		
88-88	LTD<1.47E-01		



Net Area	Area	Counts	%	Counts/Sec
583.10	44.	17.0	1.70E+01	6.15E+00
608.82	49.	17.7	1.81E+01	7.75E+00
726.03	21.	27.3	7.75E+00	6.15E+00
967.84	14.	55.3	6.15E+00	

S A M M A S P E C I A L A N A L Y S I S

TRANSFORMED SPECTRUM-AT V4.2a

Robert J. Galloway, Jr., Ph.D.

24-000-74 13-05-83

A N A L Y S I S P A R A M E T E R S

MCA Unit Number: 1 / ADC Unit Number: 1.0

Detector Number: 1 / Geometry Number: 1

Spectrum Size: 4096 channels

First channel for search: 0

Order of smoothing function: 5

Number of background channels: 4 on each side of peak.

Peak Confidence Factor: 95.0%

Multiplet Sensitivity: 3

Identification Energy Window: ± 1.50 keV.

Error Quotation: 1.00 sigma uncertainty.

ULD calculation performed.

Multiplet Analysis performed.

Linear Output.

Analysis of spectrum saved in disk file SD0141

Measured by: KC

Sample Description: O.P.A.

Geometry Description: 500 ML MARINELLI

Sample Size: 9.2800E+02 gram

Standard Size: 8.8840E+02 GRAM

Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 13:50:23

COLLECT Live Time: 600. seconds

Real Time: 601. seconds

Dead Time: 0.14 %

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94

Efficiency Calibration performed 02-JUN-94

PEAK DATA

74-AUG-94 12:55:33

PK	Count	Energy	FWHM	Backsc	Net Area	Error	Nuclides
1	177.37	252.80	1.8	75.	148.	12.4	PB-212
2	708.14	151.86	1.2	15.	56.	16.6	BI-211, PB-214
3	1022.07	510.57	2.4	8.	22.	37.5	TL-208, NA-22,
4	1166.17	532.64	1.8	9.	56.	15.5	TL-208
5	1219.52	409.73	2.6	6.	48.	16.1	XE-135, BI-214
6	1484.40	726.58	1.7	7.	19.	31.1	BI-212
7	1822.95	910.70	2.0	4.	28.	21.4	AC-229
8	1936.78	957.58	2.5	9.	25.	27.6	K-40
9	2921.21	1459.72	1.7	0.	148.	8.2	

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Sample: D.P.A.

Collected on 03-AUG-94 at 13:50:23

Decayed for 0. days, 0.0000 hours BEFORE the start of COLLECT.

RADIONUCLIDE ANALYSIS REPORT

Radionuclide	Activity Concentration in PCI /gram	
Measured	Decay corrected	Error
TH-234	LLD<3.52E-01	
TH-234	LLD<3.38E+00	
TH-230	LLD<3.64E+01	
XE-133	LLD<4.67E-01	
TD-109	LLD<5.08E+00	
CD-57	LLD<2.27E-01	
PA-234	LLD<9.24E-01	
CE-144	LLD<1.69E+00	
TC-99M	LLD<2.00E-01	
CE-141	LLD<3.65E-01	
KR-85M	LLD<2.82E-01	
XE-131M	LLD<1.07E+01	
BA-139	LLD<1.27E+00	
CE-139	LLD<2.58E-01	
U-235	LLD<3.60E-01	
PO-226	LLD<6.06E+00	
LO-141	LLD<4.15E-01	
KR-89	LLD<2.30E+00	
TE-132	LLD<2.06E-01	
XE-133M	LLD<1.91E+00	
TH-227	LLD<2.04E+00	
GB-212	1.29E+00 +- 1.61E-01	1.29E+00 +- 1.61E-01
RA-224	LLD<4.51E+00	
XE-135	LLD<2.08E-01	
XE-138	LLD<7.27E-01	
SE-75	LLD<2.94E-01	
AF-239	LLD<1.16E+00	
AG-203	LLD<2.12E-01	
IR-192	LLD<1.73E-01	
CR-51	LLD<1.64E+00	
RI-211	7.49E+00 +- 1.24E+00	7.49E+00 +- 1.24E+00
PB-214	LLD<6.38E-01	
BA-133	LLD<3.66E-01	
I-131	LLD<2.19E-01	
GN-113	LLD<2.44E-01	
KR-87	LLD<4.14E-01	
FB-211	LLD<6.45E+00	
AU-198	LLD<2.03E-01	
GB-125	LLD<5.93E-01	
BI-212	LLD<4.85E+01	
SE-7	LLD<1.70E+00	
LO-181	LLD<1.86E-01	
CO-103	LLD<1.81E-01	
KR-85	LLD<5.29E+01	
GB-95	LLD<2.31E-01	
LO-133	LLD<1.83E-01	

104	LLD<2.28E-01	LLD<7.55E-01	
104	LLD<3.94E-01	LLD<1.64E-01	
104	LLD<7.03E-01	LLD<7.04E-01	
104	LLD<1.63E+00	LLD<1.46E+00	+- 2.34E-01
104	LLD<4.31E-01	LLD<1.23E-01	
104	LLD<2.40E-01	LLD<3.84E-01	
104	LLD<2.44E-01	LLD<7.01E-01	
104	LLD<2.30E-01	LLD<1.63E-00	
104	LLD<2.23E-01	LLD<4.31E-01	
104	LLD<6.94E-01	LLD<2.40E-01	
104	LLD<2.26E-01	LLD<2.44E-01	
104	LLD<3.70E-01	LLD<2.30E-01	
104	LLD<2.24E-01	LLD<2.23E-01	
104	LLD<1.35E+00	LLD<6.94E-01	
104	LLD<2.89E-01	LLD<2.26E-01	
104	LLD<2.62E-01	LLD<3.70E-01	
104	LLD<2.33E-01	LLD<2.24E-01	
104	LLD<2.32E-01	LLD<1.35E+00	
104	LLD<2.60E-01	LLD<2.89E-01	
104	LLD<2.03E+02	LLD<2.62E-01	
104	LLD<2.52E-01	LLD<2.33E-01	
104	1.31E+00 +- 2.81E-01	LLD<2.32E-01	
104	LLD<3.61E+00	LLD<2.60E-01	
104	LLD<2.66E+00	LLD<2.03E+02	
104	LLD<8.52E-01	LLD<2.03E+02	
104	LLD<6.07E-01	LLD<2.52E-01	
104	LLD<4.64E-01	1.31E+00 +- 2.81E-01	
104	LLD<9.09E-01	LLD<3.61E+00	
104	LLD<3.35E-01	LLD<2.66E+00	
104	LLD<1.02E+00	LLD<8.52E-01	
104	LLD<1.02E+00	LLD<6.07E-01	
104	LLD<7.13E-01	LLD<4.64E-01	
104	LLD<2.86E-01	LLD<9.09E-01	
104	LLD<2.72E-01	LLD<3.35E-01	
104	LLD<2.67E-01	LLD<1.02E+00	
104	LLD<2.49E-01	LLD<1.02E+00	
104	LLD<2.54E-01	LLD<7.13E-01	
104	LLD<2.58E-01	LLD<2.86E-01	
104	2.57E+01 +- 2.13E+00	LLD<2.72E-01	
104	LLD<4.84E-01	LLD<2.67E-01	
104	LLD<5.97E-01	LLD<2.49E-01	
104	LLD<1.52E-01	LLD<2.54E-01	
104	LLD<1.58E-01	LLD<2.58E-01	
104	LLD<9.00E-01	2.57E+01 +- 2.13E+00	
104	LLD<1.36E+00	LLD<4.84E-01	
Total	3.72E+01 +- 2.49E+00	LLD<5.97E-01	
		LLD<1.52E-01	
		LLD<1.58E-01	
		LLD<9.00E-01	
		LLD<1.36E+00	

Error Quotation at 1.00 Sigma
 Confidence Level at 95.0%

DATE: 10/10/68 BY: ANAL/616

Channel	Energy keV	Net Area counts	Error %	Gamma/sec
1210.52	508.78	48.	16.1	1.15E+01
1324.40	726.58	19.	31.1	5.73E+00
1471.73	957.58	25.	27.6	1.16E+01

GAMMA SPECTRUM ANALYSIS

CANBERRA SPECTRAN-AT V4.2a

Canberra Corporation, Revere, PA

24-AUG-94 13:41:05

ANALYSIS PARAMETERS

PCA Unit Number: 1 / ADD Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0142
 Measured by: kc

Sample Description: D.P.A. Trench
 Geometry Description: 500 ML MARINELLI
 Sample Size: $7.3420\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
 Standard Size: $8.9840\text{E}+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 14:12:53

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

70
m
D
A
D
A
D
A
A
A
A
A

Energy keV	FWHM keV	Backscat- tered	Net spec counts	Error %	Nuclides
277.14	1.3	41.	158.	12.0	Fe-212
321.90	2.4	11.	19.	25.6	
420.51	1.0	21.	19.	41.1	Fe-214
704.78	1.4	18.	61.	20.8	Bi-211, Pb-214
929.02	1.8	17.	17.	48.1	Os-132
1017.55	1.8	10.	14.	42.9	Tl-208
1161.78	1.7	4.	47.	16.6	Tl-208
1218.72	1.5	4.	32.	21.9	Xe-135, Bi-214
1823.18	1.7	10.	15.	40.8	Ac-228
1937.43	1.7	10.	15.	40.8	Ac-228
2921.33	1.9	0.	118.	9.2	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Multi-Step Process.

```

# -- Multiplet Analysis Terminated because of no CHI-SQ improvement

```

Sample: 3-11-74

Collected on 74-ALB-74 at 14:12:57

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

RADIONUCLIDE ANALYSIS REPORT

Activity Concentration in Bq/gm

Decay
Measured Error Corrected Error

AM-241	LLD<2.97E-01		LLD<2.97E-01	
CA-134	LLD<3.09E+00		LLD<3.09E+00	
CA-133	LLD<3.50E+01		LLD<3.50E+01	
XE-133	LLD<4.54E-01		LLD<4.54E-01	
CE-109	LLD<4.72E+00		LLD<4.72E+00	
CD-57	LLD<2.15E-01		LLD<2.15E-01	
PA-234	LLD<8.47E-01		LLD<8.47E-01	
CE-144	LLD<1.81E+00		LLD<1.81E+00	
TC-99M	LLD<2.00E-01		LLD<2.00E-01	
CE-141	LLD<3.95E-01		LLD<3.95E-01	
KR-85M	LLD<2.64E-01		LLD<2.64E-01	
XE-131M	LLD<8.95E+00		LLD<8.95E+00	
BA-139	LLD<1.19E+00		LLD<1.19E+00	
CE-139	LLD<2.42E-01		LLD<2.42E-01	
U-235	LLD<3.62E-01		LLD<3.62E-01	
RA-226	LLD<5.96E+00		LLD<5.96E+00	
BA-141	LLD<4.50E-01		LLD<4.50E-01	
K-39	LLD<2.23E+00		LLD<2.23E+00	
TE-132	LLD<2.13E-01		LLD<2.13E-01	
XE-133M	LLD<1.61E+00		LLD<1.61E+00	
TH-227	LLD<1.79E+00		LLD<1.79E+00	
PS-212	1.29E+00	+- 1.66E-01	1.29E+00	+- 1.66E-01
RA-224	LLD<4.54E+00		LLD<4.54E+00	
XE-135	LLD<1.93E-01		LLD<1.93E-01	
XE-138	LLD<5.88E-01		LLD<5.88E-01	
SE-75	LLD<2.68E-01		LLD<2.68E-01	
CP-239	LLD<1.08E+00		LLD<1.08E+00	
AG-203	LLD<1.82E-01		LLD<1.82E-01	
TR-192	LLD<1.87E-01		LLD<1.87E-01	
OR-51	LLD<1.36E+00		LLD<1.36E+00	
SI-211	5.46E+00	+- 1.25E+00	5.46E+00	+- 1.25E+00
PS-214	6.38E-01	+- 1.46E-01	6.38E-01	+- 1.46E-01
GA-133	LLD<3.04E-01		LLD<3.04E-01	
I-131	LLD<1.57E-01		LLD<1.57E-01	
SN-113	LLD<2.50E-01		LLD<2.50E-01	
KR-87	LLD<3.43E-01		LLD<3.43E-01	
TR-211	LLD<5.39E+00		LLD<5.39E+00	
BU-176	LLD<1.73E-01		LLD<1.73E-01	
SS-123	LLD<5.28E-01		LLD<5.28E-01	
SI-212	LLD<5.07E+01		LLD<5.07E+01	
SE-7	LLD<1.35E+00		LLD<1.35E+00	
VE-181	LLD<2.20E-01		LLD<2.20E-01	
SI-103	LLD<1.47E-01		LLD<1.47E-01	
RA-85	LLD<5.07E+01		LLD<5.07E+01	
TR-85	LLD<2.22E-01		LLD<2.22E-01	
I-133	LLD<2.03E-01		LLD<2.03E-01	

Error Quotation at 1.00 Sigma
95.0% Confidence Level at 95.0%

70-88	LTD<7.26E-01	2.96E+01 +- 2.30E+00	70-88	LTD<7.26E-01	2.96E+01 +- 2.30E+00
71-89	LTD<7.42E-01		71-89	LTD<7.42E-01	
72-90	LTD<2.64E-01		72-90	LTD<2.64E-01	
73-91	LTD<2.52E-01		73-91	LTD<2.52E-01	
74-92	LTD<6.18E-01		74-92	LTD<6.18E-01	
75-93	LTD<1.85E+00		75-93	LTD<1.85E+00	
76-94	2.03E+01 +- 1.88E+00	2.03E+01 +- 1.88E+00	76-94	2.03E+01 +- 1.88E+00	2.03E+01 +- 1.88E+00
77-95	LTD<3.10E-01		77-95	LTD<3.10E-01	
78-96	LTD<2.52E-01		78-96	LTD<2.52E-01	
79-97	LTD<2.92E-01		79-97	LTD<2.92E-01	
80-98	LTD<1.73E-01		80-98	LTD<1.73E-01	
81-99	LTD<2.71E-01		81-99	LTD<2.71E-01	
82-00	LTD<3.05E-01		82-00	LTD<3.05E-01	
83-01	LTD<6.98E-01		83-01	LTD<6.98E-01	
84-02	LTD<1.18E+00		84-02	LTD<1.18E+00	
85-03	LTD<8.00E-01		85-03	LTD<8.00E-01	
86-04	LTD<2.54E-01		86-04	LTD<2.54E-01	
87-05	LTD<7.24E-01		87-05	LTD<7.24E-01	
88-06	LTD<4.61E-01		88-06	LTD<4.61E-01	
89-07	LTD<6.49E-01		89-07	LTD<6.49E-01	
90-08	LTD<9.15E-01		90-08	LTD<9.15E-01	
91-09	LTD<2.82E+00		91-09	LTD<2.82E+00	
92-10	LTD<2.82E+00		92-10	LTD<2.82E+00	
93-11	7.60E-01 +- 3.10E-01	7.60E-01 +- 3.10E-01	93-11	7.60E-01 +- 3.10E-01	7.60E-01 +- 3.10E-01
94-12	LTD<2.47E-01		94-12	LTD<2.47E-01	
95-13	LTD<1.85E+02		95-13	LTD<1.85E+02	
96-14	LTD<1.71E-01		96-14	LTD<1.71E-01	
97-15	LTD<1.42E-01		97-15	LTD<1.42E-01	
98-16	LTD<2.22E-01		98-16	LTD<2.22E-01	
99-17	LTD<2.00E-01		99-17	LTD<2.00E-01	
00-18	LTD<2.34E-01		00-18	LTD<2.34E-01	
01-19	LTD<8.29E-01		01-19	LTD<8.29E-01	
02-20	LTD<2.40E-01		02-20	LTD<2.40E-01	
03-21	LTD<4.49E-01		03-21	LTD<4.49E-01	
04-22	LTD<3.48E-01		04-22	LTD<3.48E-01	
05-23	LTD<2.89E-01		05-23	LTD<2.89E-01	
06-24	LTD<1.87E-01		06-24	LTD<1.87E-01	
07-25	LTD<1.07E-01		07-25	LTD<1.07E-01	
08-26	LTD<3.51E-01		08-26	LTD<3.51E-01	
09-27	LTD<2.39E-01		09-27	LTD<2.39E-01	
10-28	LTD<2.14E-01		10-28	LTD<2.14E-01	
11-29	LTD<3.70E-01		11-29	LTD<3.70E-01	
12-30	LTD<1.70E+00		12-30	LTD<1.70E+00	
13-31	LTD<6.57E-01		13-31	LTD<6.57E-01	
14-32	LTD<3.42E-01		14-32	LTD<3.42E-01	
15-33	LTD<2.40E-01		15-33	LTD<2.40E-01	
16-34	LTD<1.12E+00		16-34	LTD<1.12E+00	
17-35	LTD<1.75E-01		17-35	LTD<1.75E-01	
18-36	LTD<1.97E-01		18-36	LTD<1.97E-01	
19-37	LTD<1.15E-01		19-37	LTD<1.15E-01	

PEAKS NOT USED IN ANALYSIS

Channel	Energy keV	Net Area counts	Error %	Counts/sec
152.22	269.55	29.	25.6	4.19E+00
155.85	462.65	13.	48.1	5.17E+00
1512.77	608.88	32.	21.9	1.00E+01
1537.43	967.90	15.	40.8	5.96E+00

GAMMA SPECTRUM ANALYSIS

CANBERRA SPECTRAN-AT V4.2a

Labco Corporation, Revere, PA

24-AUG-94 13:46:31

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0143
 Measured by: KC

Sample Description: O.P.A. Trench
 Geometry Description: 500 ML MARINELLI
 Sample Size: $8.7460E+02$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 15:32:33

COLLECT Live Time: 600. seconds
 Real Time: 601. seconds
 Dead Time: 0.17 %

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration Performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

Peak Analysis

	Centroid keV	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	477.27	238.75	1.1	99.	145.	11.7	PB-212
2	559.89	294.95	1.6	29.	74.	31.2	PB-214
3	707.55	351.68	2.3	13.	41.	20.2	BI-211, PB-214
4	1021.58	510.44	2.5	11.	22.	31.1	TL-208, NA-22, ANN-RD
5	1166.15	582.63	1.2	12.	33.	24.1	TL-208
6	1315.68	656.96	1.9	12.	35.	23.1	XE-135, BI-214
7	1434.84	726.81	0.9	5.	16.	32.6	BI-212
8	1647.70	821.10	0.7	3.	11.	40.8	
9	1704.26	851.40	1.2	4.	8.	53.4	TE131M
10	1937.78	968.08	1.3	15.	19.	39.2	AC-228, RU-105
11	2921.21	1459.72	2.8	0.	112.	9.4	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Sample: T-2, T-3, T-4

T-2: collected on 27-AUG-94 at 15:02:33

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

RADIOISOTOPE ANALYSIS REPORT

Nuclide	Activity Concentration in PDI /gram		Decay corrected	Error
	Measured	Error		
CM-64	LLD<3.99E-01		LLD<3.99E-01	
TC-93A	LLD<3.47E+00		LLD<3.47E+00	
TC-230	LLD<4.22E+01		LLD<4.22E+01	
SE-133	LLD<5.00E-01		LLD<5.00E-01	
TD-109	LLD<4.84E+00		LLD<4.84E+00	
CB-57	LLD<2.17E-01		LLD<2.17E-01	
TA-234	LLD<9.19E-01		LLD<9.19E-01	
CE-144	LLD<1.86E+00		LLD<1.86E+00	
CD-99M	LLD<2.07E-01		LLD<2.07E-01	
TE-141	LLD<3.98E-01		LLD<3.98E-01	
KR-85M	LLD<2.78E-01		LLD<2.78E-01	
XE-131M	LLD<9.26E+00		LLD<9.26E+00	
BA-139	LLD<1.13E+00		LLD<1.13E+00	
CE-139	LLD<2.29E-01		LLD<2.29E-01	
U-235	LLD<3.79E-01		LLD<3.79E-01	
RA-226	LLD<6.11E+00		LLD<6.11E+00	
BA-141	LLD<5.29E-01		LLD<5.29E-01	
KR-89	LLD<2.33E+00		LLD<2.33E+00	
TF-132	LLD<2.39E-01		LLD<2.39E-01	
133M	LLD<1.96E+00		LLD<1.96E+00	
TH-227	LLD<2.09E+00		LLD<2.09E+00	
RB-212	1.35E+00 +- 1.59E-01		1.35E+00 +- 1.59E-01	
RA-224	LLD<4.59E+00		LLD<4.59E+00	
XE-135	LLD<2.00E-01		LLD<2.00E-01	
XE-138	LLD<6.65E-01		LLD<6.65E-01	
SE-75	LLD<3.07E-01		LLD<3.07E-01	
NP-239	LLD<1.37E+00		LLD<1.37E+00	
HG-203	LLD<2.25E-01		LLD<2.25E-01	
TS-192	LLD<1.57E-01		LLD<1.57E-01	
CR-51	LLD<1.58E+00		LLD<1.58E+00	
TI-211	5.89E+00 +- 1.19E+00		5.89E+00 +- 1.19E+00	
RB-214	6.88E-01 +- 1.39E-01		6.88E-01 +- 1.39E-01	
BA-133	LLD<3.83E-01		LLD<3.83E-01	
I-131	LLD<1.84E-01		LLD<1.84E-01	
AN-113	LLD<2.69E-01		LLD<2.69E-01	
KR-87	LLD<3.84E-01		LLD<3.84E-01	
RB-211	LLD<6.37E+00		LLD<6.37E+00	
CD-198	LLD<1.76E-01		LLD<1.76E-01	
SE-125	LLD<6.19E-01		LLD<6.19E-01	
TI-212	LLD<4.48E+01		LLD<4.48E+01	
CE-7	LLD<1.74E+00		LLD<1.74E+00	
CF-181	LLD<2.07E-01		LLD<2.07E-01	
TI-103	LLD<1.63E-01		LLD<1.63E-01	
KR-85	LLD<5.74E+01		LLD<5.74E+01	
CE-85	LLD<2.51E-01		LLD<2.51E-01	
CE-133	LLD<2.04E-01		LLD<2.04E-01	

[illegible]

Area	Area	Area	Area	Area
sq. ft.	sq. ft.	sq. ft.	sq. ft.	sq. ft.
1000.00	800.00	75.	27.1	1.07E+01
1004.84	726.81	16.	32.6	5.80E+00
1043.70	521.14	11.	40.5	4.34E+00
1704.26	351.40	8.	53.4	3.08E+00
1207.72	768.08	19.	39.2	8.45E+00

G A M M A S P E C T R U M A N A L Y S I S

CINBERRA SPECTRAN-AT V4.2a

Joint Corporation, Reverse, PA

04-AUG-94 13:51:32

A N A L Y S I S P A R A M E T E R S

ADC Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0144
 Measured by: kc

Sample Description: O.P.A. Trench
 Geometry Description: 500 ML MARINELLI
 Sample Size: $8.4950\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
 Standard Size: $8.8840\text{E}+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-JUL-94 at 04:20:00

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

Sample: D.F.A. Trench

Sample collected on 03-JUL-94 at 04:20:00

Exposed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide	Activity Concentration in PCI /gram			
	Measured	Error	Decay corrected	Error
AM-241	LLD<3.37E-01		LLD<3.37E-01	
CM-234	LLD<3.60E+00		LLD<3.60E+00	
CM-230	LLD<3.68E+01		LLD<3.68E+01	
KE-137	LLD<4.92E-01		LLD<4.92E-01	
CM-139	LLD<4.37E+00		LLD<4.37E+00	
CM-57	LLD<1.97E-01		LLD<1.97E-01	
PA-234	LLD<7.01E-01		LLD<7.01E-01	
CE-144	LLD<1.69E+00		LLD<1.69E+00	
CE-99M	LLD<1.77E-01		LLD<1.77E-01	
CE-141	LLD<3.56E-01		LLD<3.56E-01	
KR-85M	LLD<2.56E-01		LLD<2.56E-01	
KE-131M	LLD<9.92E+00		LLD<9.92E+00	
BA-139	LLD<1.14E+00		LLD<1.14E+00	
DE-139	LLD<2.30E-01		LLD<2.30E-01	
U-235	LLD<3.77E-01		LLD<3.77E-01	
RA-226	LLD<5.87E+00		LLD<5.87E+00	
BA-141	LLD<5.01E-01		LLD<5.01E-01	
89	LLD<2.18E+00		LLD<2.18E+00	
FE-132	LLD<1.81E-01		LLD<1.81E-01	
KE-133M	LLD<1.85E+00		LLD<1.85E+00	
TR-227	LLD<2.16E+00		LLD<2.16E+00	
FB-212	1.11E+00 +- 1.78E-01		1.11E+00 +- 1.78E-01	
RA-224	LLD<4.13E+00		LLD<4.13E+00	
KE-135	LLD<1.89E-01		LLD<1.89E-01	
KE-138	LLD<7.60E-01		LLD<7.60E-01	
SE-75	LLD<3.16E-01		LLD<3.16E-01	
NP-239	LLD<1.20E+00		LLD<1.20E+00	
MS-203	LLD<2.19E-01		LLD<2.19E-01	
TR-192	LLD<1.52E-01		LLD<1.52E-01	
CR-51	LLD<1.37E+00		LLD<1.37E+00	
FI-211	7.81E+00 +- 1.22E+00		7.81E+00 +- 1.22E+00	
FB-214	LLD<5.58E-01		LLD<5.58E-01	
BA-133	LLD<3.77E-01		LLD<3.77E-01	
I-131	LLD<1.70E-01		LLD<1.70E-01	
BN-113	LLD<2.68E-01		LLD<2.68E-01	
KR-87	LLD<3.52E-01		LLD<3.52E-01	
FB-211	LLD<5.72E+00		LLD<5.72E+00	
PU-198	LLD<1.66E-01		LLD<1.66E-01	
GB-125	LLD<5.92E-01		LLD<5.92E-01	
BI-212	LLD<5.48E+01		LLD<5.48E+01	
FE-7	LLD<1.66E+00		LLD<1.66E+00	
HF-181	LLD<2.21E-01		LLD<2.21E-01	
7-103	LLD<1.71E-01		LLD<1.71E-01	
85	LLD<4.95E+01		LLD<4.95E+01	
RR-85	LLD<2.16E-01		LLD<2.16E-01	
I-133	LLD<2.25E-01		LLD<2.25E-01	

Error Detection at 1.00 Sigma
Confidence Level at 95.0%

70-281	3.05E+01 +- 2.33E+00	3.05E+01 +- 2.33E+00
70-281	LDD<7.98E-01	LDD<7.98E-01
70-281	LDD<1.04E+00	LDD<1.04E+00
70-281	LDD<1.97E-01	LDD<1.97E-01
70-281	LDD<2.96E-01	LDD<2.96E-01
70-281	LDD<7.78E-01	LDD<7.78E-01
70-281	LDD<2.46E+00	LDD<2.46E+00
70-281	1.97E+01 +- 1.94E+00	1.97E+01 +- 1.94E+00
70-281	LDD<3.82E-01	LDD<3.82E-01
70-281	LDD<2.78E-01	LDD<2.78E-01
70-281	LDD<2.08E-01	LDD<2.08E-01
70-281	LDD<3.00E-01	LDD<3.00E-01
70-281	LDD<2.89E-01	LDD<2.89E-01
70-281	LDD<2.35E-01	LDD<2.35E-01
70-281	LDD<6.30E-01	LDD<6.30E-01
70-281	LDD<8.33E-01	LDD<8.33E-01
70-281	LDD<8.64E-01	LDD<8.64E-01
70-281	LDD<2.98E-01	LDD<2.98E-01
70-281	LDD<6.61E-01	LDD<6.61E-01
70-281	LDD<5.57E-01	LDD<5.57E-01
70-281	LDD<5.95E-01	LDD<5.95E-01
70-281	LDD<7.97E-01	LDD<7.97E-01
70-281	LDD<2.13E+00	LDD<2.13E+00
70-281	LDD<2.61E+00	LDD<2.61E+00
70-281	1.09E+00 +- 2.98E-01	1.09E+00 +- 2.98E-01
70-281	LDD<2.29E-01	LDD<2.29E-01
70-281	LDD<1.55E+02	LDD<1.55E+02
70-281	LDD<3.42E-01	LDD<3.42E-01
70-281	LDD<2.94E-01	LDD<2.94E-01
70-281	LDD<2.30E-01	LDD<2.30E-01
70-281	LDD<2.04E-01	LDD<2.04E-01
70-281	LDD<1.88E-01	LDD<1.88E-01
70-281	LDD<1.28E+00	LDD<1.28E+00
70-281	LDD<2.73E-01	LDD<2.73E-01
70-281	LDD<5.18E-01	LDD<5.18E-01
70-281	LDD<2.09E-01	LDD<2.09E-01
70-281	LDD<7.13E-01	LDD<7.13E-01
70-281	LDD<1.67E-01	LDD<1.67E-01
70-281	LDD<2.67E-01	LDD<2.67E-01
70-281	LDD<2.39E-01	LDD<2.39E-01
70-281	LDD<2.38E-01	LDD<2.38E-01
70-281	LDD<4.01E-01	LDD<4.01E-01
70-281	LDD<1.66E+00	LDD<1.66E+00
70-281	LDD<5.32E-01	LDD<5.32E-01
70-281	LDD<4.02E-01	LDD<4.02E-01
70-281	LDD<3.67E-01	LDD<3.67E-01
70-281	1.99E-01 +- 1.99E-01	1.99E-01 +- 1.99E-01
70-281	LDD<1.67E-01	LDD<1.67E-01
70-281	LDD<1.67E-01	LDD<1.67E-01
70-281	LDD<1.67E-01	LDD<1.67E-01

DATA FILE USED IN ANALYSIS

Retention Time	Area Count	Area Count	Area Count	Area Count
18.41	608.72	38.	17.3	1.17E+01
19.58	960.97	8.	53.4	3.43E+00

GAMMA SPECTRUM ANALYSIS

CONPERA SPECTRAN-AT V4.2a

Total Concentration, Revere, PA

24-AUG-94 13:56:31

ANALYSIS PARAMETERS

ADP Unit Number: 1 / ADP Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0145
 Measured by: kc

Sample Description: Blank Soil - Creek
 Geometry Description: 500 ML MARINELLI
 Sample Size: $7.0330\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
 Standard Size: $8.8840\text{E}+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 03-AUG-94 at 17:46:55

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 0.0000

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

PEAK ANALYSIS

PK	Centroid channel	Energy keV	FWHM keV	Backgnd counts	Net Area counts	Error %	Nuclides
1	477.40	238.81	1.6	56.	71.	18.1	PB-212
2	550.72	295.37	0.7	16.	75.	24.2	PB-214
3	1221.62	912.03	1.4	4.	24.	24.3	AC-228
4	1931.62	967.53	0.7	9.	12.	48.9	
5	1921.70	969.96	1.8	0.	82.	11.0	K-40

Error Estimation at 1.00 sigma
Peak Confidence Level at 95.0%

Sample: Blank Soil - Fresh

Sample collected on 03-AUG-94 at 17:46:35

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide	Activity Concentration in PCI /gram			
	Measured	Error	Decay corrected	Error
AC-241	LLD<3.96E-01		LLD<3.96E-01	
AC-234	LLD<3.40E+00		LLD<3.40E+00	
AC-230	LLD<3.96E+01		LLD<3.96E+01	
XE-137	LLD<5.11E-01		LLD<5.11E-01	
IC-109	LLD<4.76E+00		LLD<4.76E+00	
CC-57	LLD<2.31E-01		LLD<2.31E-01	
AC-234	LLD<7.58E-01		LLD<7.58E-01	
CE-144	LLD<1.61E+00		LLD<1.61E+00	
TC-99M	LLD<2.20E-01		LLD<2.20E-01	
CE-141	LLD<4.06E-01		LLD<4.06E-01	
KR-85M	LLD<2.76E-01		LLD<2.76E-01	
XE-131M	LLD<1.05E+01		LLD<1.05E+01	
BA-139	LLD<1.34E+00		LLD<1.34E+00	
CE-139	LLD<2.72E-01		LLD<2.72E-01	
U-235	LLD<4.56E-01		LLD<4.56E-01	
RA-226	LLD<6.63E+00		LLD<6.63E+00	
BA-141	LLD<5.47E-01		LLD<5.47E-01	
89	LLD<2.67E+00		LLD<2.67E+00	
132	LLD<2.14E-01		LLD<2.14E-01	
XE-133M	LLD<2.11E+00		LLD<2.11E+00	
TH-227	LLD<2.23E+00		LLD<2.23E+00	
PR-212	1.05E+00	+- 1.91E-01	1.05E+00	+- 1.91E-01
RA-224	LLD<5.62E+00		LLD<5.62E+00	
XE-135	LLD<2.11E-01		LLD<2.11E-01	
XE-138	LLD<8.74E-01		LLD<8.74E-01	
BE-75	LLD<2.92E-01		LLD<2.92E-01	
NR-239	LLD<1.37E+00		LLD<1.37E+00	
WG-203	LLD<2.18E-01		LLD<2.18E-01	
IR-192	LLD<1.88E-01		LLD<1.88E-01	
CR-51	LLD<1.47E+00		LLD<1.47E+00	
SI-211	LLD<5.76E+00		LLD<5.76E+00	
PB-214	LLD<6.28E-01		LLD<6.28E-01	
SA-133	LLD<4.33E-01		LLD<4.33E-01	
I-131	LLD<2.08E-01		LLD<2.08E-01	
BN-113	LLD<2.66E-01		LLD<2.66E-01	
KR-87	LLD<4.30E-01		LLD<4.30E-01	
PB-211	LLD<7.85E+00		LLD<7.85E+00	
AU-198	LLD<2.34E-01		LLD<2.34E-01	
GB-125	LLD<7.03E-01		LLD<7.03E-01	
BI-212	LLD<5.10E+01		LLD<5.10E+01	
BE-7	LLD<1.63E+00		LLD<1.63E+00	
WF-131	LLD<2.59E-01		LLD<2.59E-01	
103	LLD<1.77E-01		LLD<1.77E-01	
85	LLD<5.35E+01		LLD<5.35E+01	
BR-85	LLD<2.34E-01		LLD<2.34E-01	
I-133	LLD<2.48E-01		LLD<2.48E-01	

BA-141	LLD<1.12E-01	LLD<1.91E-01
CA-128	LLD<2.11E-01	LLD<2.11E-01
DA-214	LLD<3.77E-01	LLD<3.77E-01
EA-208	LLD<9.87E-01	LLD<9.87E-01
FA-134	LLD<2.68E-01	LLD<2.68E-01
GA-174	LLD<3.56E-01	LLD<3.56E-01
HA-214	LLD<7.31E-01	LLD<7.31E-01
IA-136	LLD<2.05E+00	LLD<2.05E+00
JA-142	LLD<4.04E-01	LLD<4.04E-01
KA-110Y	LLD<3.17E-01	LLD<3.17E-01
LA-87	LLD<3.39E-01	LLD<3.39E-01
MA-137	LLD<2.46E-01	LLD<2.46E-01
NA-137	LLD<1.86E-01	LLD<1.86E-01
OA-107	LLD<5.65E-01	LLD<5.65E-01
PA-97	LLD<2.00E-01	LLD<2.00E-01
QA-98	LLD<2.36E-01	LLD<2.36E-01
RA-98	LLD<2.36E-01	LLD<2.36E-01
SA-210	LLD<1.34E+00	LLD<1.34E+00
TA-88	LLD<1.73E-01	LLD<1.73E-01
UA-136	LLD<2.41E-01	LLD<2.41E-01
VA-54	LLD<2.75E-01	LLD<2.75E-01
WA-56	LLD<2.48E-01	LLD<2.48E-01
XA-134	LLD<2.56E-01	LLD<2.56E-01
YA-207	LLD<2.42E+02	LLD<2.42E+02
ZA-88	LLD<2.74E-01	LLD<2.74E-01
AC-228	1.46E+00 +- 3.55E-01	1.46E+00 +- 3.55E-01
EC-152	LLD<3.13E+00	LLD<3.13E+00
FA-234M	LLD<2.82E+00	LLD<2.82E+00
GR-91	LLD<9.41E-01	LLD<9.41E-01
HR-89	LLD<6.24E-01	LLD<6.24E-01
IR-59	LLD<6.13E-01	LLD<6.13E-01
JA-65	LLD<6.57E-01	LLD<6.57E-01
KA-46	LLD<3.34E-01	LLD<3.34E-01
LA-182	LLD<9.15E-01	LLD<9.15E-01
MA-135	LLD<1.20E+00	LLD<1.20E+00
NA-39	LLD<7.98E-01	LLD<7.98E-01
OA-22	LLD<4.32E-01	LLD<4.32E-01
PA-41	LLD<3.28E-01	LLD<3.28E-01
QA-60	LLD<4.22E-01	LLD<4.22E-01
RA-24	LLD<2.66E-01	LLD<2.66E-01
SA-92	LLD<3.04E-01	LLD<3.04E-01
TA-138	LLD<2.59E-01	LLD<2.59E-01
UA-40	1.88E+01 +- 2.08E+00	1.88E+01 +- 2.08E+00
VA-88	LLD<1.74E+00	LLD<1.74E+00
WA-209	LLD<8.83E-01	LLD<8.83E-01
XA-140	LLD<3.71E-01	LLD<3.71E-01
YA-26	LLD<7.66E-02	LLD<7.66E-02
ZA-56	LLD<2.87E-01	LLD<2.87E-01
AB-88	LLD<4.35E-01	LLD<4.35E-01
Total	2.13E+01 +- 2.12E+00	2.13E+01 +- 2.12E+00

Error Quotation at 1.00 Sigma
 Confidence Level at 95.0%

PEAKS NOT USED IN ANALYSIS

Channel	Energy keV	Net Area counts	Error %	Gamma/sec
90.72	295.37	36.	24.8	5.50E+00
1936.69	967.53	12.	48.9	5.54E+00

 *
 * GAMMA SPECTRUM ANALYSIS *
 *

DAVEERRA SPECTRAN-AT V4.1a

North Corporation, Reverse, P-

04-AUG-94 09:24:01

ANALYSIS PARAMETERS

MOA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Windows: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0146
 Measured by: kc

Sample Description: Blank from Campsite
 Geometry Description: 500 ML MARINELLI
 Sample Size: $5.3430E+02$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 04-AUG-94 at 08:06:42

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed for 0.0000 days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 03-AUG-94
 Efficiency Calibration performed 02-JUN-94

P E A K A N A L Y S I S

PK	Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	477.13	238.68	1.6	40.	38.	30.2	PE-212
2	590.87	295.44	0.8	8.	19.	31.3	PE-214
3	703.75	351.52	1.3	4.	23.	24.5	BI-211, PE-214
4	1115.43	552.79	1.2	4.	14.	30.9	TL-208
5	1216.89	608.96	1.7	3.	18.	27.3	VE-135, BI-214
6	1323.18	661.04	1.9	0.	37.	15.4	CS-137
7	2921.57	1459.90	0.7	0.	25.	19.6	Y-40
8	7529.42	1764.00	1.5	0.	0.	35.4	BI-214

Error Ductation at 1.00 sigma
Peak Confidence Level at 95.0%

LA-124	LLD<1.99E-01		LLD<2.29E-01	
LA-127	LLD<1.39E-01		LLD<1.39E-01	
TL-124	LLD<1.02E+00		LLD<1.02E+00	
SE-124	LLD<1.72E-01		LLD<1.72E-01	
CS-134	LLD<3.63E-01		LLD<3.63E-01	
SI-214	LLD<7.57E-01		LLD<7.57E-01	
CO-106	LLD<2.45E+00		LLD<2.45E+00	
LA-142	LLD<3.61E-01		LLD<3.61E-01	
AS-110M	LLD<6.98E-01		LLD<6.98E-01	
AS-97	LLD<6.57E-01		LLD<6.57E-01	
CS-137	6.92E-01 +- 1.14E-01		6.92E-01 +- 1.14E-01	
LA-175	LLD<1.06E-01		LLD<1.06E-01	
LA-187	LLD<6.19E-01		LLD<6.19E-01	
AS-97	LLD<2.32E-01		LLD<2.32E-01	
ZE-75	LLD<3.62E-01		LLD<3.62E-01	
AB-78	LLD<2.80E-01		LLD<2.80E-01	
TL-210	LLD<1.79E+00		LLD<1.79E+00	
CO-58	LLD<2.66E-01		LLD<2.66E-01	
CO-134	LLD<3.08E-01		LLD<3.08E-01	
MN-54	LLD<2.81E-01		LLD<2.81E-01	
CO-56	LLD<2.21E-01		LLD<2.21E-01	
I-134	LLD<3.07E-01		LLD<3.07E-01	
TL-207	LLD<4.71E+01		LLD<4.71E+01	
Y-88	LLD<6.39E-02		LLD<6.39E-02	
AD-228	LLD<1.28E+00		LLD<1.28E+00	
EU-152	LLD<2.78E+00		LLD<2.78E+00	
PA-234M	LLD<2.82E+00		LLD<2.82E+00	
SR-91	LLD<6.35E-01		LLD<6.35E-01	
RB-89	LLD<7.50E-01		LLD<7.50E-01	
FE-59	LLD<6.04E-01		LLD<6.04E-01	
ZN-63	LLD<9.59E-01		LLD<9.59E-01	
SC-46	LLD<3.96E-01		LLD<3.96E-01	
TA-182	LLD<1.10E+00		LLD<1.10E+00	
I-135	LLD<1.32E+00		LLD<1.32E+00	
CL-39	LLD<6.20E-01		LLD<6.20E-01	
NA-22	LLD<3.04E-01		LLD<3.04E-01	
AR-41	LLD<4.86E-01		LLD<4.86E-01	
CO-60	LLD<2.53E-01		LLD<2.53E-01	
NA-24	LLD<2.26E-01		LLD<2.26E-01	
SR-92	LLD<4.21E-01		LLD<4.21E-01	
CS-138	LLD<1.25E-01		LLD<1.25E-01	
K-40	7.83E+00 +- 1.54E+00		7.83E+00 +- 1.54E+00	
KR-88	LLD<8.41E-01		LLD<8.41E-01	
TL-209	LLD<1.08E+00		LLD<1.08E+00	
LA-146	LLD<2.15E-01		LLD<2.15E-01	
AL-26	LLD<2.23E-01		LLD<2.23E-01	
MN-56	LLD<8.38E-01		LLD<8.38E-01	
RB-88	LLD<5.73E-01		LLD<5.73E-01	

Total	1.50E+01 +- 2.02E+00		1.50E+01 +- 2.02E+00	

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

Results saved in File SD0146

PEAKS NOT USED IN ANALYSIS

Peak No. Channel	Energy keV	Net Area counts	Area %	Intensity counts/sec
1166.48	582.79	16.	10.7	4.87E+00
1218.89	608.96	18.	27.3	5.62E+00
3529.42	1764.00	3.	33.4	5.75E+00

 * GAMMA SPECTRUM ANALYSIS *

CANBERRA SPECTRAN-AT V4.2a

Tecnot Corporation, Revsco, PA

04-AUG-94 09:02:30

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0147
 Measured by: kc

Sample Description: Blank from Park
 Geometry Description: 500 ML MARINELLI
 Sample Size: $3.4460E+02$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 04-AUG-94 at 08:59:06

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 04-AUG-94
 Efficiency Calibration performed 02-JUN-94

Decomposition, Reverse, 50

04-06-94 09:22:30

P E C ANALYSIS

PK	Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	477.37	238.76	1.0	7.	15.	34.6	PB-212

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Sample taken from Park
Data collected on 04-AUG-94 at 08:59:06
Decayed to 0. days, 0.0000 hours BEFORE the start of collect.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide Activity Concentration in PPI / gram

Decay Measured Error corrected Error

24-241	LDD<4.44E-01				
24-234	LDD<3.91E+00				
24-230	LDD<4.79E+01				
XE-135	LDD<7.51E-01				
CD-109	LDD<5.93E+00				
CO-57	LDD<2.18E-01				
24-234	LDD<9.52E-01				
CE-144	LDD<1.93E+00				
TC-99M	LDD<2.23E-01				
CE-141	LDD<3.41E-01				
KR-85M	LDD<2.47E-01				
XE-131M	LDD<1.26E+01				
BA-139	LDD<1.49E+00				
CE-139	LDD<3.03E-01				
U-235	LDD<4.50E-01				
RA-226	LDD<7.78E+00				
BA-141	LDD<6.53E-01				
KR-89	LDD<2.72E+00				
TE-132	LDD<2.49E-01				
XE-133M	LDD<2.35E+00				
FB-212	3.65E-01				
RA-224	LDD<8.58E+00				
XE-135	LDD<2.81E-01				
XE-138	LDD<9.64E-01				
SE-75	LDD<4.29E-01				
NF-239	LDD<1.34E+00				
HG-203	LDD<3.03E-01				
IR-192	LDD<2.62E-01				
CR-51	LDD<1.65E+00				
31-211	LDD<7.76E+00				
FB-214	LDD<8.10E-01				
24-133	LDD<4.99E-01				
I-131	LDD<2.64E-01				
SN-113	LDD<2.76E-01				
KR-87	LDD<6.05E-01				
24-211	LDD<9.12E+00				
AU-198	LDD<2.20E-01				
SB-125	LDD<9.71E-01				
B1-212	LDD<7.92E+01				
BE-7	LDD<2.11E+00				
HF-181	LDD<2.71E-01				
RU-103	LDD<3.34E-01				
KR-85	LDD<6.66E+01				
SR-85	LDD<2.91E-01				
I-133	LDD<2.40E-01				
BA-140	LDD<1.13E+00				

3.65E-01 +- 1.26E-01 3.65E-01 +- 1.26E-01

LDD<4.44E-01	
LDD<3.91E+00	
LDD<4.79E+01	
LDD<7.51E-01	
LDD<5.93E+00	
LDD<2.18E-01	
LDD<9.52E-01	
LDD<1.93E+00	
LDD<2.23E-01	
LDD<3.41E-01	
LDD<2.47E-01	
LDD<1.26E+01	
LDD<1.49E+00	
LDD<3.03E-01	
LDD<4.50E-01	
LDD<7.78E+00	
LDD<6.53E-01	
LDD<2.72E+00	
LDD<2.49E-01	
LDD<2.35E+00	
3.65E-01	
LDD<8.58E+00	
LDD<2.81E-01	
LDD<9.64E-01	
LDD<4.29E-01	
LDD<1.34E+00	
LDD<3.03E-01	
LDD<2.62E-01	
LDD<1.65E+00	
LDD<7.76E+00	
LDD<8.10E-01	
LDD<4.99E-01	
LDD<2.64E-01	
LDD<2.76E-01	
LDD<6.05E-01	
LDD<9.12E+00	
LDD<2.20E-01	
LDD<9.71E-01	
LDD<7.92E+01	
LDD<2.11E+00	
LDD<2.71E-01	
LDD<3.34E-01	
LDD<6.66E+01	
LDD<2.91E-01	
LDD<2.40E-01	
LDD<1.13E+00	

4-514	LLD<1.37E-01	LLD<1.37E-01
51-117	LLD<1.07E-01	LLD<1.07E-01
7-109	LLD<1.16E+00	LLD<1.16E+00
23-134	LLD<2.67E-01	LLD<2.67E-01
05-134	LLD<4.30E-01	LLD<4.30E-01
21-214	LLD<8.49E-01	LLD<8.49E-01
9U-106	LLD<2.38E+00	LLD<2.38E+00
LA-142	LLD<3.00E-01	LLD<3.00E-01
43-110M	LLD<4.20E-01	LLD<4.20E-01
48-97	LLD<4.50E-01	LLD<4.50E-01
05-137	LLD<3.69E-01	LLD<3.69E-01
1-132	LLD<3.20E-01	LLD<3.20E-01
4-107	LLD<1.09E+00	LLD<1.09E+00
ZR-57	LLD<2.90E-01	LLD<2.90E-01
73-95	LLD<6.17E-01	LLD<6.17E-01
43-95	LLD<2.92E-01	LLD<2.92E-01
TL-210	LLD<1.00E+00	LLD<1.00E+00
03-55	LLD<2.83E-01	LLD<2.83E-01
07-136	LLD<3.64E-01	LLD<3.64E-01
4N-54	LLD<2.36E-01	LLD<2.36E-01
03-56	LLD<2.92E-01	LLD<2.92E-01
1-134	LLD<3.27E-01	LLD<3.27E-01
TL-207	LLD<7.31E+01	LLD<7.31E+01
Y-88	LLD<9.90E-02	LLD<9.90E-02
AC-228	LLD<1.70E+00	LLD<1.70E+00
EU-152	LLD<3.70E+00	LLD<3.70E+00
FA-234M	LLD<3.17E+00	LLD<3.17E+00
SR-91	LLD<8.62E-01	LLD<8.62E-01
RB-89	LLD<7.65E-01	LLD<7.65E-01
FE-59	LLD<9.42E-01	LLD<9.42E-01
ZN-65	LLD<7.79E-01	LLD<7.79E-01
SD-46	LLD<3.01E-01	LLD<3.01E-01
TA-182	LLD<8.60E-01	LLD<8.60E-01
1-135	LLD<1.39E+00	LLD<1.39E+00
CL-39	LLD<5.73E-01	LLD<5.73E-01
NA-22	LLD<1.22E-01	LLD<1.22E-01
AR-41	LLD<2.85E-01	LLD<2.85E-01
CS-60	LLD<3.43E-01	LLD<3.43E-01
NA-24	LLD<4.42E-01	LLD<4.42E-01
SR-92	LLD<1.47E-01	LLD<1.47E-01
CS-138	LLD<1.94E-01	LLD<1.94E-01
K-40	LLD<8.30E+00	LLD<8.30E+00
KR-88	LLD<1.30E+00	LLD<1.30E+00
TL-209	LLD<4.68E-01	LLD<4.68E-01
LA-140	LLD<5.79E-01	LLD<5.79E-01
AL-26	LLD<1.56E-01	LLD<1.56E-01
MN-56	LLD<2.28E+00	LLD<2.28E+00
RB-88	LLD<8.88E-01	LLD<8.88E-01
<hr/>		
Total	3.65E-01 +- 1.26E-01	3.65E-01 +- 1.26E-01

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

Results saved in File SD0147

 *
 * GAMMA SPECTRUM ANALYSIS *
 *

CANBERRA SPECTRAN-AT V4.2a

Canberra Corporation, Meriden, PA

18-AUG-94 12:01:15

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Full Output.
 Analysis of Spectrum saved in Disk File SD0148
 Measured by: kc

Sample Description: 166 sifted
 Geometry Description: 500 ML MARINELLI
 Sample Size: $6.4560\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
 Standard Size: $8.8840\text{E}+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 04-AUG-94 at 13:44:53

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 04-AUG-94
 Efficiency Calibration performed 02-JUN-94

P E A K A N A L Y S I S

PK	Centroid channel	Energy keV	FWHM keV	Backgnd counts	Net Area counts	Error %	Nuclides
1	477.56	238.85	1.0	57.	103.	15.2	PB-212
2*	590.86	295.40	2.3	34.	29.	40.1	PB-214
3	704.27	352.01	1.2	13.	66.	15.1	BI-211, PB-214
4	1167.12	583.10	1.7	2.	37.	17.3	TL-208
5	1219.10	609.06	2.2	0.	48.	14.4	XE-135, BI-214
6	1275.23	637.59	0.6	1.	9.	38.9	I-131
7	1476.93	737.83	0.7	1.	5.	60.7	
8	1822.48	910.47	1.7	1.	14.	29.5	AC-228
9	1938.61	968.60	1.5	5.	11.	44.0	AC-228, RU-105
10	2921.58	1459.96	2.6	2.	32.	19.3	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

* - Multiplet Analysis Terminated because of no CHI-SQ improvement

Sample: 166 sifted

collected on 04-AUG-94 at 13:44:53

Delayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide	Activity Concentration in PCI /gram			
	Measured	Error	Decay corrected	Error
Am-241	LLD<3.91E-01		LLD<3.91E-01	
Am-234	LLD<4.04E+00		LLD<4.04E+00	
Am-230	LLD<3.89E+01		LLD<3.89E+01	
Am-133	LLD<5.70E-01		LLD<5.70E-01	
Am-109	LLD<4.98E+00		LLD<4.98E+00	
Am-57	LLD<2.31E-01		LLD<2.31E-01	
Am-234	LLD<1.01E+00		LLD<1.01E+00	
Am-144	LLD<2.20E+00		LLD<2.20E+00	
Am-99M	LLD<2.39E-01		LLD<2.39E-01	
Am-141	LLD<5.02E-01		LLD<5.02E-01	
Kr-85M	LLD<3.17E-01		LLD<3.17E-01	
Xe-131M	LLD<1.01E+01		LLD<1.01E+01	
BA-139	LLD<1.32E+00		LLD<1.32E+00	
CE-139	LLD<2.69E-01		LLD<2.69E-01	
U-235	LLD<3.77E-01		LLD<3.77E-01	
Pa-226	LLD<6.46E+00		LLD<6.46E+00	
Pa-141	LLD<6.52E-01		LLD<6.52E-01	
Kr-89	LLD<2.91E+00		LLD<2.91E+00	
Te-132	LLD<2.62E-01		LLD<2.62E-01	
Xe-133M	LLD<2.19E+00		LLD<2.19E+00	
Pb-212	1.29E+00 +- 1.97E-01		1.29E+00 +- 1.97E-01	
RA-224	LLD<5.26E+00		LLD<5.26E+00	
Xe-135	LLD<2.49E-01		LLD<2.49E-01	
Xe-138	LLD<8.07E-01		LLD<8.07E-01	
Se-75	LLD<3.58E-01		LLD<3.58E-01	
Np-239	LLD<1.51E+00		LLD<1.51E+00	
Ag-203	LLD<2.47E-01		LLD<2.47E-01	
Ir-192	LLD<2.06E-01		LLD<2.06E-01	
Cr-51	LLD<1.74E+00		LLD<1.74E+00	
Bi-211	1.28E+01 +- 1.92E+00		1.28E+01 +- 1.92E+00	
Pb-214	1.49E+01 +- 2.25E-01		1.49E+01 +- 2.25E-01	
BA-133	LLD<4.64E-01		LLD<4.64E-01	
I-131	LLD<2.47E-01		LLD<2.47E-01	
Sn-113	LLD<3.46E-01		LLD<3.46E-01	
Kr-87	LLD<4.09E-01		LLD<4.09E-01	
Pb-211	LLD<7.12E+00		LLD<7.12E+00	
Au-198	LLD<1.86E-01		LLD<1.86E-01	
Sb-125	LLD<6.36E-01		LLD<6.36E-01	
Bi-212	LLD<5.86E+01		LLD<5.86E+01	
Be-7	LLD<1.83E+00		LLD<1.83E+00	
Hf-181	LLD<2.67E-01		LLD<2.67E-01	
Sc-103	LLD<1.66E-01		LLD<1.66E-01	
Sc-85	LLD<6.00E+01		LLD<6.00E+01	
Sr-85	LLD<2.63E-01		LLD<2.63E-01	
I-133	LLD<1.73E-01		LLD<1.73E-01	
SA-140	LLD<8.16E-01		LLD<8.16E-01	

LA-103	LLD<2.28E+00	LLD<2.28E+00
LA-140	LLD<5.44E-01	LLD<5.44E-01
PS-110M	LLD<3.03E-01	LLD<3.03E-01
LA-97	LLD<3.19E-01	LLD<3.19E-01
IP-177	LLD<3.13E-01	LLD<3.13E-01
I-137	LLD<2.75E-01	LLD<2.75E-01
I-137	LLD<7.39E-01	LLD<7.39E-01
IP-97	LLD<2.48E-01	LLD<2.48E-01
PS-95	LLD<4.87E-01	LLD<4.87E-01
PS-95	LLD<3.15E-01	LLD<3.15E-01
LA-210	LLD<1.48E+00	LLD<1.48E+00
PS-83	LLD<3.02E-01	LLD<3.02E-01
PS-136	LLD<2.48E-01	LLD<2.48E-01
MN-54	LLD<3.06E-01	LLD<3.06E-01
CC-56	LLD<2.36E-01	LLD<2.36E-01
I-134	LLD<2.79E-01	LLD<2.79E-01
TL-207	LLD<1.82E+02	LLD<1.82E+02
Y-88	LLD<2.59E-01	LLD<2.59E-01
AC-228	LLD<1.17E+00	LLD<1.17E+00
EU-152	LLD<3.22E+00	LLD<3.22E+00
PA-234M	LLD<2.17E+00	LLD<2.17E+00
SR-91	LLD<7.89E-01	LLD<7.89E-01
RB-89	LLD<6.20E-01	LLD<6.20E-01
FE-59	LLD<4.80E-01	LLD<4.80E-01
55	LLD<9.87E-01	LLD<9.87E-01
PS-46	LLD<4.15E-01	LLD<4.15E-01
TA-182	LLD<1.18E+00	LLD<1.18E+00
I-135	LLD<1.00E+00	LLD<1.00E+00
CL-39	LLD<5.49E-01	LLD<5.49E-01
NA-22	LLD<2.34E-01	LLD<2.34E-01
AR-41	LLD<2.73E-01	LLD<2.73E-01
CO-60	LLD<2.31E-01	LLD<2.31E-01
NA-24	LLD<1.52E-01	LLD<1.52E-01
BR-92	LLD<2.44E-01	LLD<2.44E-01
CS-138	LLD<4.81E-01	LLD<4.81E-01
K-40	7.98E+00 +- 1.54E+00	7.98E+00 +- 1.54E+00
KR-88	LLD<1.89E+00	LLD<1.89E+00
TL-209	LLD<5.53E-01	LLD<5.53E-01
LA-140	LLD<4.94E-01	LLD<4.94E-01
AL-26	LLD<3.45E-01	LLD<3.45E-01
MN-56	LLD<6.94E-01	LLD<6.94E-01
RB-88	LLD<1.29E+00	LLD<1.29E+00
Total	2.35E+01 +- 2.48E+00	2.35E+01 +- 2.48E+00

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

PEAKS NOT USED IN ANALYSIS

Isotopic Energy	Energy keV	Net Area counts	Error %	Gamma/sec
1157.12	583.10	37.	17.3	1.09E+01
1219.10	609.06	48.	14.4	1.48E+01
1276.23	637.59	9.	38.9	2.81E+00
1475.93	737.83	5.	60.7	1.70E+00
1822.98	910.47	14.	29.5	6.39E+00
1975.51	949.50	11.	44.0	5.16E+00

 *
 * GAMMA SPECTRUM ANALYSIS *
 *

CANBERRA SPECTRAN-AT V4.2a

Casht Corporation, Beverly, MA

04-AUG-94 13:40:11

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0149
 Measured by: kc

Sample Description: 127 sifted
 Geometry Description: 500 ML MARINELLI
 Sample Size: 7.7960E+02 gram / Conversion Factor: 1.0000E+00
 Standard Size: 8.8840E+02 GRAM
 Analysis Library file: ANL000

COLLECT started on 04-AUG-94 at 12:09:08

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed to 0.0000 days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 04-AUG-94
 Efficiency Calibration performed 02-JUN-94



Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

PK	Centroid	Energy	FWHM	Background	Net Area	Error	%	Nuclides
1	477.63	238.99	1.7	35	105	12.5		PB-212
2	540.79	270.41	1.5	21	14	60.0		
3	550.50	295.12	0.2	11	17	38.7		PB-214
4	673.93	327.89	1.6	13	21	35.4		LA-140
5	675.19	338.09	1.8	17	24	35.5		AC-228
6	700.74	351.85	1.6	16	38	23.8		BI-211, PB-214
7	1166.84	582.81	1.8	7	32	21.6		TL-208
8	1219.37	609.19	2.0	3	32	19.3		BI-214
9	1823.51	910.49	0.7	2	19	27.9		AC-228
10	2921.74	1460.04	2.5	0	71	11.9		K-40

PEAK ANALYSIS

JA-005-94 13:40:17

Lab: 11-000000, Rev: 1.0

Sample: 107 sifted

Data collected on 04-AUG-94 at 12:09:09

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide	Activity Concentration in PCI /gram		Decay	
	Measured	Error	corrected	Error
AM-241	LLD<3.15E-01		LLD<3.15E-01	
TA-234	LLD<3.07E+00		LLD<3.07E+00	
TH-230	LLD<3.79E+01		LLD<3.79E+01	
XE-133	LLD<4.68E-01		LLD<4.68E-01	
CD-109	LLD<4.69E+00		LLD<4.69E+00	
CD-57	LLD<1.84E-01		LLD<1.84E-01	
PA-234	LLD<8.57E-01		LLD<8.57E-01	
CE-144	LLD<1.67E+00		LLD<1.67E+00	
TC-99M	LLD<1.88E-01		LLD<1.88E-01	
CE-141	LLD<3.66E-01		LLD<3.66E-01	
KR-85M	LLD<2.55E-01		LLD<2.55E-01	
XE-131M	LLD<8.88E+00		LLD<8.88E+00	
BA-139	LLD<1.19E+00		LLD<1.19E+00	
CE-139	LLD<2.42E-01		LLD<2.42E-01	
U-235	LLD<3.47E-01		LLD<3.47E-01	
RA-226	LLD<5.35E+00		LLD<5.35E+00	
BA-141	LLD<4.35E-01		LLD<4.35E-01	
KR-89	LLD<2.08E+00		LLD<2.08E+00	
TE-132	LLD<2.14E-01		LLD<2.14E-01	
XE-133M	LLD<1.69E+00		LLD<1.69E+00	
PB-212	1.11E+00 +- 1.38E-01		1.11E+00 +- 1.38E-01	
RA-224	LLD<4.36E+00		LLD<4.36E+00	
XE-135	LLD<1.78E-01		LLD<1.78E-01	
XE-138	LLD<5.93E-01		LLD<5.93E-01	
SE-75	LLD<2.52E-01		LLD<2.52E-01	
NP-239	LLD<1.26E+00		LLD<1.26E+00	
HG-203	LLD<2.03E-01		LLD<2.03E-01	
IR-192	LLD<1.68E-01		LLD<1.68E-01	
CR-51	LLD<1.37E+00		LLD<1.37E+00	
BI-211	6.00E+00 +- 1.43E+00		6.00E+00 +- 1.43E+00	
FR-214	7.02E-01 +- 1.67E-01		7.02E-01 +- 1.67E-01	
BA-133	LLD<3.49E-01		LLD<3.49E-01	
I-131	LLD<2.02E-01		LLD<2.02E-01	
SN-113	LLD<2.46E-01		LLD<2.46E-01	
KR-87	LLD<3.32E-01		LLD<3.32E-01	
PB-211	LLD<6.35E+00		LLD<6.35E+00	
AU-198	LLD<1.71E-01		LLD<1.71E-01	
SB-125	LLD<4.71E-01		LLD<4.71E-01	
BI-212	LLD<5.06E+01		LLD<5.06E+01	
BE-7	LLD<1.57E+00		LLD<1.57E+00	
HF-181	LLD<1.65E-01		LLD<1.65E-01	
RU-103	LLD<1.72E-01		LLD<1.72E-01	
KR-85	LLD<3.89E+01		LLD<3.89E+01	
SR-85	LLD<1.70E-01		LLD<1.70E-01	
I-133	LLD<1.89E-01		LLD<1.89E-01	
BA-140	LLD<5.79E-01		LLD<5.79E-01	

AD-174	LLD<3.05E-01		LLD<1.97E-01
BI-214	LLD<7.01E-01		LLD<1.97E-01
BU-106	LLD<1.85E+00		LLD<3.25E-01
CA-142	LLD<3.53E-01		LLD<2.19E-01
CG-110M	LLD<2.58E-01		LLD<3.89E-01
CH-97	LLD<2.73E-01		LLD<7.01E-01
CS-137	LLD<2.32E-01		LLD<1.85E+00
CI-132	LLD<1.84E-01		LLD<3.53E-01
AE-197	LLD<7.66E-01		LLD<2.58E-01
CE-97	LLD<2.41E-01		LLD<2.73E-01
FE-97	LLD<4.68E-01		LLD<2.32E-01
AB-95	LLD<2.02E-01		LLD<1.84E-01
TL-010	LLD<1.01E+00		LLD<7.66E-01
CG-58	LLD<1.46E-01		LLD<2.41E-01
CS-135	LLD<1.92E-01		LLD<4.68E-01
MN-54	LLD<2.52E-01		LLD<2.02E-01
CD-56	LLD<2.09E-01		LLD<1.01E+00
I-134	LLD<2.34E-01		LLD<1.46E-01
TL-207	LLD<1.85E+02		LLD<1.92E-01
Y-88	LLD<2.42E-01		LLD<2.52E-01
AD-228	1.03E+00 +- 2.88E-01		LLD<2.09E-01
EU-152	LLD<2.45E+00		LLD<2.34E-01
PA-234M	LLD<3.43E+00		LLD<2.34E-01
SR-91	LLD<8.27E-01		LLD<1.85E+02
RB-99	LLD<4.57E-01		LLD<2.42E-01
FE-59	LLD<6.18E-01		1.03E+00 +- 2.88E-01
ZN-65	LLD<8.54E-01		LLD<2.45E+00
SC-46	LLD<3.61E-01		LLD<3.43E+00
TA-182	LLD<1.08E+00		LLD<8.27E-01
I-135	LLD<1.04E+00		LLD<4.57E-01
CL-39	LLD<7.66E-01		LLD<6.18E-01
NA-22	LLD<2.08E-01		LLD<8.54E-01
AR-41	LLD<3.15E-01		LLD<3.61E-01
CD-60	LLD<3.05E-01		LLD<1.08E+00
NA-24	LLD<1.77E-01		LLD<1.04E+00
SR-92	LLD<3.27E-01		LLD<7.66E-01
CS-138	LLD<3.41E-01		LLD<2.08E-01
X-40	1.47E+01 +- 1.75E+00		LLD<3.15E-01
KR-88	LLD<2.68E+00		LLD<3.05E-01
TL-209	LLD<6.42E-01		LLD<3.05E-01
LA-140	LLD<3.64E-01		LLD<1.77E-01
AL-26	LLD<1.53E-01		LLD<3.27E-01
MN-56	LLD<5.74E-01		LLD<3.41E-01
RB-88	LLD<1.59E+00		1.47E+01 +- 1.75E+00
			LLD<2.68E+00
			LLD<6.42E-01
			LLD<3.64E-01
			LLD<1.53E-01
			LLD<5.74E-01
			LLD<1.59E+00
Total	2.35E+01 +- 2.28E+00		2.35E+01 +- 2.28E+00

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

Results saved in File SD0149

PEAKS NOT USED IN ANALYSIS

Channel	Energy keV	Net Area counts	Area %	Background/sec
540.79	270.41	14.	60.0	7.01E+00
655.95	327.89	21.	35.4	3.48E+00
1166.54	582.81	32.	21.6	7.59E+00
1219.37	609.19	32.	19.3	7.93E+00

 * GAMMA SPECTRUM ANALYSIS *

DANEERRA SPECTRAN-AT V4.2a

Cal. of Corrections: Reverse, P3

04-AUG-94 14:19:57

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 10
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: +- 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0150
 Measured by: kc

Sample Description: 127 sift w/4.75
 Geometry Description: 500 ML MARINELLI
 Sample Size: 5.3310E+02 gram / Conversion Factor: 1.0000E+00
 Standard Size: 8.8840E+02 GRAM
 Analysis Library file: ANL000

COLLECT started on 04-AUG-94 at 14:06:26

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed to 0.00 days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 04-AUG-94
 Efficiency Calibration performed 02-JUN-94

PEAK ANALYSIS

PK	Centroid channel	Energy keV	FWHM keV	Backscat counts	Net Area counts	Error %	Nuclides
1	309.31	154.90	2.0	17.	14.	40.5	
2	477.56	238.87	1.5	25.	70.	14.0	PB-212
3	590.86	295.31	1.0	9.	23.	29.3	PB-214
4	707.55	351.65	1.4	10.	33.	23.1	BI-211, PB-214
5	1020.35	509.80	0.8	4.	13.	35.6	TL-208
6	1106.29	553.72	1.1	1.	8.	41.2	BR-92
7	2921.41	1459.68	2.8	0.	67.	12.2	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Sample: 007 slit w/4.75

Data collected on 04-AUG-84 at 14:06:26

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide	Activity Concentration in PCl /gram			
	Measured	Error	Decay corrected	Error
AM-241	LLD<3.84E-01		LLD<3.84E-01	
Th-234	LLD<3.90E+00		LLD<3.90E+00	
Th-230	LLD<4.19E+01		LLD<4.19E+01	
XE-133	LLD<6.03E-01		LLD<6.03E-01	
CD-109	LLD<4.40E+00		LLD<4.40E+00	
CS-57	LLD<2.58E-01		LLD<2.58E-01	
PA-234	LLD<1.07E+00		LLD<1.07E+00	
CE-144	LLD<2.19E+00		LLD<2.19E+00	
TC-99M	LLD<2.61E-01		LLD<2.61E-01	
CE-141	LLD<4.81E-01		LLD<4.81E-01	
KR-85M	LLD<3.09E-01		LLD<3.09E-01	
XE-131M	LLD<9.61E+00		LLD<9.61E+00	
BA-139	LLD<1.31E+00		LLD<1.31E+00	
CE-139	LLD<2.65E-01		LLD<2.65E-01	
U-235	LLD<4.16E-01		LLD<4.16E-01	
RA-226	LLD<6.59E+00		LLD<6.59E+00	
BA-141	LLD<5.89E-01		LLD<5.89E-01	
KR-89	LLD<2.67E+00		LLD<2.67E+00	
TE-132	LLD<2.35E-01		LLD<2.35E-01	
XE-133M	LLD<2.04E+00		LLD<2.04E+00	
PR-212	1.37E+00	+- 1.92E-01	1.37E+00	+- 1.92E-01
RA-224	LLD<7.98E+00		LLD<7.98E+00	
XE-135	LLD<2.32E-01		LLD<2.32E-01	
XE-138	LLD<8.72E-01		LLD<8.72E-01	
SE-75	LLD<3.02E-01		LLD<3.02E-01	
NP-239	LLD<1.54E+00		LLD<1.54E+00	
HG-203	LLD<2.22E-01		LLD<2.22E-01	
IR-192	LLD<2.19E-01		LLD<2.19E-01	
CR-51	LLD<2.17E+00		LLD<2.17E+00	
BI-211	7.79E+00	+- 1.80E+00	7.79E+00	+- 1.80E+00
PB-214	9.11E-01	+- 2.10E-01	9.11E-01	+- 2.10E-01
BA-133	LLD<4.98E-01		LLD<4.98E-01	
I-131	LLD<2.17E-01		LLD<2.17E-01	
SN-113	LLD<3.05E-01		LLD<3.05E-01	
KR-87	LLD<4.16E-01		LLD<4.16E-01	
PB-214	LLD<6.91E+00		LLD<6.91E+00	
AU-198	LLD<2.60E-01		LLD<2.60E-01	
SB-125	LLD<8.73E-01		LLD<8.73E-01	
BI-212	LLD<6.64E+01		LLD<6.64E+01	
SE-7	LLD<1.90E+00		LLD<1.90E+00	
HF-181	LLD<2.48E-01		LLD<2.48E-01	
RU-103	LLD<2.52E-01		LLD<2.52E-01	
KR-85	LLD<8.25E+01		LLD<8.25E+01	
SR-85	LLD<3.61E-01		LLD<3.61E-01	
I-133	LLD<2.74E-01		LLD<2.74E-01	
BA-140	LLD<8.44E-01		LLD<8.44E-01	

4-114	LLD<2.90E-01		LLD<2.90E-01
51-207	LLD<2.78E-01		LLD<2.78E-01
71-208	LLD<1.11E+00		LLD<1.11E+00
73-134	LLD<2.27E-01		LLD<2.27E-01
88-134	LLD<3.29E-01		LLD<3.29E-01
81-214	LLD<7.38E-01		LLD<7.38E-01
RU-106	LLD<2.49E+00		LLD<2.49E+00
LA-142	LLD<5.03E-01		LLD<5.03E-01
AG-110M	LLD<2.69E-01		LLD<2.69E-01
WB-97	LLD<3.05E-01		LLD<3.05E-01
CS-137	LLD<3.28E-01		LLD<3.28E-01
I-132	LLD<2.93E-01		LLD<2.93E-01
A-137	LLD<7.27E-01		LLD<7.27E-01
72-97	LLD<2.44E-01		LLD<2.44E-01
ZF-95	LLD<4.57E-01		LLD<4.57E-01
N2-95	LLD<2.71E-01		LLD<2.71E-01
TL-210	LLD<1.42E+00		LLD<1.42E+00
CS-88	LLD<2.76E-01		LLD<2.76E-01
CS-136	LLD<2.34E-01		LLD<2.34E-01
MN-54	LLD<2.96E-01		LLD<2.96E-01
CC-56	LLD<1.89E-01		LLD<1.89E-01
I-134	LLD<2.30E-01		LLD<2.30E-01
TL-207	LLD<2.64E+02		LLD<2.64E+02
Y-88	LLD<3.40E-01		LLD<3.40E-01
AD-228	LLD<1.53E+00		LLD<1.53E+00
EU-152	LLD<3.77E+00		LLD<3.77E+00
PA-234M	LLD<2.94E+00		LLD<2.94E+00
SR-91	LLD<1.04E+00		LLD<1.04E+00
RB-89	LLD<6.40E-01		LLD<6.40E-01
FE-59	LLD<5.54E-01		LLD<5.54E-01
ZN-65	LLD<1.05E+00		LLD<1.05E+00
SC-46	LLD<5.53E-01		LLD<5.53E-01
TA-182	LLD<1.66E+00		LLD<1.66E+00
I-135	LLD<9.39E-01		LLD<9.39E-01
CL-39	LLD<5.73E-01		LLD<5.73E-01
NA-22	LLD<3.59E-01		LLD<3.59E-01
AR-41	LLD<3.69E-01		LLD<3.69E-01
CC-60	LLD<2.22E-01		LLD<2.22E-01
NA-24	LLD<2.85E-01		LLD<2.85E-01
SR-92	LLD<3.54E-01		LLD<3.54E-01
CS-138	LLD<2.78E-01		LLD<2.78E-01
K-40	2.02E+01 +- 2.48E+00		2.02E+01 +- 2.48E+00
KR-88	LLD<8.43E-01		LLD<8.43E-01
TL-209	LLD<6.70E-01		LLD<6.70E-01
LA-140	LLD<4.52E-01		LLD<4.52E-01
AL-26	LLD<1.01E-01		LLD<1.01E-01
MN-56	LLD<3.79E-01		LLD<3.79E-01
RB-88	LLD<2.58E+00		LLD<2.58E+00
<hr/>			
Total	3.03E+01 +- 3.08E+00		3.03E+01 +- 3.08E+00

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

Results saved in File SD0150

PEAKS NOT USED IN ANALYSIS

Peak #	Energy keV	Net Area counts	E corr %	Counts/sec
309.31	154.90	14	40.3	1.57E+00
1020.35	509.80	13	33.6	3.50E+00
1108.29	553.72	9	41.2	2.39E+00

GAMMA SPECTRUM ANALYSIS

CAN3E994 SPECTRAN-AT V4.2a

Geoff Corporation, Deyere, PA

24-AUG-94 14:11:15

ANALYSIS PARAMETERS

ADN Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Order of Smoothing Function: 5
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.50 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0151
 Measured by: kc

Sample Description: 116 sift w/4.75
 Geometry Description: 500 ML MARINELLI
 Sample Size: 5.3780E+02 gram / Conversion Factor: 1.0000E+00
 Standard Size: 8.8840E+02 GRAM
 Analysis Library file: ANL000

COLLECT started on 04-AUG-94 at 14:23:24

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00:00.0

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 04-AUG-94
 Efficiency Calibration performed 02-JUN-94

PEAK ANALYSIS

PK	Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1	479.14	229.66	2.1	9.	18.	33.3	TE-132
2	477.50	238.87	1.3	37.	39.	24.2	PB-212
3	573.61	275.33	1.1	18.	38.	24.2	PB-214
4	703.87	331.21	1.3	4.	70.	12.8	BI-211, PB-214
5	1315.47	608.74	1.6	4.	27.	22.6	XE-135, BI-214
6	2920.53	1439.61	0.8	0.	36.	16.7	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

Sample: LLS sift w/4.75

Collected on 04-AUG-94 at 14:23:24

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Nuclide	Activity Concentration in PCI /gram			
	Measured	Error	Decay corrected	Error
PA-241	LLD<4.03E-01		LLD<4.03E-01	
PA-234	LLD<3.94E+00		LLD<3.94E+00	
PA-230	LLD<4.60E+01		LLD<4.60E+01	
PA-133	LLD<6.04E-01		LLD<6.04E-01	
PA-109	LLD<5.65E+00		LLD<5.65E+00	
PA-57	LLD<2.52E-01		LLD<2.52E-01	
PA-234	LLD<9.91E-01		LLD<9.91E-01	
CE-144	LLD<1.92E+00		LLD<1.92E+00	
TC-99M	LLD<2.80E-01		LLD<2.80E-01	
CE-141	LLD<3.97E-01		LLD<3.97E-01	
KR-85M	LLD<3.48E-01		LLD<3.48E-01	
XE-131M	LLD<1.13E+01		LLD<1.13E+01	
BA-139	LLD<1.52E+00		LLD<1.52E+00	
CE-139	LLD<3.08E-01		LLD<3.08E-01	
U-235	LLD<5.26E-01		LLD<5.26E-01	
RA-226	LLD<8.55E+00		LLD<8.55E+00	
PA-141	LLD<5.18E-01		LLD<5.18E-01	
KA-89	LLD<2.60E+00		LLD<2.60E+00	
TE-132	1.34E-01 +- 4.46E-02		1.34E-01 +- 4.46E-02	
XE-133M	LLD<2.05E+00		LLD<2.05E+00	
PA-227	LLD<2.46E+00		LLD<2.46E+00	
PA-212	8.76E-01 +- 2.17E-01		8.76E-01 +- 2.17E-01	
PA-224	LLD<6.87E+00		LLD<6.87E+00	
XE-135	LLD<2.36E-01		LLD<2.36E-01	
XE-138	LLD<7.42E-01		LLD<7.42E-01	
SE-75	LLD<3.25E-01		LLD<3.25E-01	
AP-239	LLD<1.88E+00		LLD<1.88E+00	
IG-203	LLD<3.05E-01		LLD<3.05E-01	
TC-192	LLD<2.09E-01		LLD<2.09E-01	
CR-51	LLD<1.78E+00		LLD<1.78E+00	
SI-211	1.62E+01 +- 2.09E+00		1.62E+01 +- 2.09E+00	
PA-214	1.90E+00 +- 2.44E-01		1.90E+00 +- 2.44E-01	
PA-133	LLD<6.81E-01		LLD<6.81E-01	
I-131	LLD<2.97E-01		LLD<2.97E-01	
SN-113	LLD<2.90E-01		LLD<2.90E-01	
KR-87	LLD<4.50E-01		LLD<4.50E-01	
PA-211	LLD<9.13E+00		LLD<9.13E+00	
CU-198	LLD<2.23E-01		LLD<2.23E-01	
GB-125	LLD<6.15E-01		LLD<6.15E-01	
SI-212	LLD<7.04E+01		LLD<7.04E+01	
SE-7	LLD<2.33E+00		LLD<2.33E+00	
PA-181	LLD<2.90E-01		LLD<2.90E-01	
PA-103	LLD<2.33E-01		LLD<2.33E-01	
KR-85	LLD<7.01E+01		LLD<7.01E+01	
CR-85	LLD<3.07E-01		LLD<3.07E-01	
I-133	LLD<2.94E-01		LLD<2.94E-01	

LA-117	LLD<5.81E-01	LLD<5.97E-01
LA-118	LLD<5.81E-01	LLD<5.81E-01
LA-119	LLD<5.81E-01	LLD<5.81E-01
LA-120	LLD<5.81E-01	LLD<5.81E-01
LA-121	LLD<5.81E-01	LLD<5.81E-01
LA-122	LLD<5.81E-01	LLD<5.81E-01
LA-123	LLD<5.81E-01	LLD<5.81E-01
LA-124	LLD<2.35E-01	LLD<2.35E-01
LA-125	LLD<5.74E-01	LLD<5.74E-01
LA-126	LLD<9.41E-01	LLD<9.41E-01
LA-127	LLD<2.17E+00	LLD<2.17E+00
LA-128	LLD<5.15E-01	LLD<5.15E-01
LA-129	LLD<3.54E-01	LLD<3.54E-01
LA-130	LLD<3.59E-01	LLD<3.59E-01
LA-131	LLD<3.54E-01	LLD<3.54E-01
LA-132	LLD<2.51E-01	LLD<2.51E-01
LA-133	LLD<8.87E-01	LLD<8.87E-01
LA-134	LLD<2.20E-01	LLD<2.20E-01
LA-135	LLD<5.72E-01	LLD<5.72E-01
LA-136	LLD<3.15E-01	LLD<3.15E-01
LA-137	LLD<1.61E+00	LLD<1.61E+00
LA-138	LLD<2.57E-01	LLD<2.57E-01
LA-139	LLD<2.19E-01	LLD<2.19E-01
LA-140	LLD<2.80E-01	LLD<2.80E-01
LA-141	LLD<2.54E-01	LLD<2.54E-01
LA-142	LLD<2.84E-01	LLD<2.84E-01
LA-143	LLD<2.37E+02	LLD<2.37E+02
LA-144	LLD<2.30E-01	LLD<2.30E-01
LA-145	LLD<1.58E+00	LLD<1.58E+00
LA-146	LLD<3.41E+00	LLD<3.41E+00
LA-147	LLD<3.31E+00	LLD<3.31E+00
LA-148	LLD<1.13E+00	LLD<1.13E+00
LA-149	LLD<8.82E-01	LLD<8.82E-01
LA-150	LLD<4.24E-01	LLD<4.24E-01
LA-151	LLD<1.04E+00	LLD<1.04E+00
LA-152	LLD<4.89E-01	LLD<4.89E-01
LA-153	LLD<1.42E+00	LLD<1.42E+00
LA-154	LLD<7.38E-01	LLD<7.38E-01
LA-155	LLD<6.59E-01	LLD<6.59E-01
LA-156	LLD<4.15E-01	LLD<4.15E-01
LA-157	LLD<3.27E-01	LLD<3.27E-01
LA-158	LLD<8.09E-02	LLD<8.09E-02
LA-159	LLD<3.07E-01	LLD<3.07E-01
LA-160	LLD<4.19E-01	LLD<4.19E-01
LA-161	LLD<4.95E-01	LLD<4.95E-01
LA-162	1.08E+01 +- 1.80E+00	1.08E+01 +- 1.80E+00
LA-163	LLD<1.85E+00	LLD<1.85E+00
LA-164	LLD<1.16E+00	LLD<1.16E+00
LA-165	LLD<4.48E-01	LLD<4.48E-01
LA-166	LLD<1.00E-01	LLD<1.00E-01
LA-167	LLD<3.76E-01	LLD<3.76E-01
LA-168	LLD<5.69E-01	LLD<5.69E-01

Total	2.99E+01 +- 2.77E+00	2.99E+01 +- 2.77E+00

Error Quotation at 1.00 Sigma
Confidence Level at 95.0%

PEAKS NOT USED IN ANALYSIS

Peak Channel	Energy keV	Net Area Counts	Energy keV	Net Area Counts	Ratio/Total
219 47	508.74	27.	23.6	3.44E+00	

* * * * *
 * GAMMA SPECTRUM ANALYSIS *
 * * * * *

SANBERRA SPECTRAN-AT V4.03

Shift Direction: Reverse, P-

04-AUG-94 17:12:59

ANALYSIS PARAMETERS

XDA Unit Number: 1 / ADC Unit Number: 1.0
 Detector Number: 1 / Geometry Number: 1
 Spectrum Size: 4096 channels.
 First channel for Search: 0
 Adaptive smoothing performed.
 Number of Background Channels: 4 on each side of peak.
 Peak Confidence Factor: 95.0%
 Multiplet Sensitivity: 3
 Identification Energy Window: ± 1.00 keV.
 Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
 Multiplet Analysis Performed.

Regular Output.
 Analysis of Spectrum saved in Disk File SD0152
 Measured by: kc

Sample Description: Dock/East Gravel
 Geometry Description: 500 ML MARINELLI
 Sample Size: $6.6500E+02$ gram / Conversion Factor: $1.0000E+00$
 Standard Size: $8.8840E+02$ GRAM
 Analysis Library file: ANL000

COLLECT started on 04-AUG-94 at 16:53:24

COLLECT Live Time: 600. seconds
 Real Time: 600. seconds
 Dead Time: 00.00 %

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 04-AUG-94
 Efficiency Calibration performed 02-JUN-94

P E A K A N A L Y S I S

PK	Centroid channel	Energy keV	FWHM keV	Background counts	Net Area counts	Error %	Nuclides
1*	477.70	238.92	1.0	27.	140.	10.4	PB-212
2	589.76	294.95	1.6	22.	24.	36.7	PB-214
3	703.57	351.62	1.1	24.	49.	21.8	BI-211, PB-214
4	1166.62	582.74	2.3	5.	35.	19.7	TL-208
5	1215.42	609.72	2.0	7.	35.	20.0	XE-135, BI-214
6	1823.02	910.75	0.9	4.	21.	26.6	AC-228
7	2921.33	1459.64	1.4	0.	121.	9.1	K-40

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%

1 Multiplets processed.

* - Multiplet Analysis Terminated because of no CHI-SQ improvement

Sample: Rock - 2101 Gravel

Date: collected on 04-AUG-94 at 16:53:24

Decayed to 0. days, 0.0000 hours BEFORE the start of COLLECT.

RADIONUCLIDE ANALYSIS REPORT

Radionuclide	Activity Concentration in ROI /gram	Decay corrected	Error
Measured	Error		
AM-241	LLD<4.35E-01	LLD<4.35E-01	
TH-234	LLD<3.83E+00	LLD<3.83E+00	
TH-230	LLD<4.75E+01	LLD<4.75E+01	
XE-133	LLD<6.03E-01	LLD<6.03E-01	
CD-109	LLD<5.36E+00	LLD<5.36E+00	
CD-57	LLD<2.27E-01	LLD<2.27E-01	
PA-234	LLD<9.34E-01	LLD<9.34E-01	
CE-144	LLD<1.85E+00	LLD<1.85E+00	
TD-99M	LLD<2.58E-01	LLD<2.58E-01	
CE-141	LLD<4.55E-01	LLD<4.55E-01	
KR-85M	LLD<3.38E-01	LLD<3.38E-01	
XE-131M	LLD<1.11E+01	LLD<1.11E+01	
BA-139	LLD<1.47E+00	LLD<1.47E+00	
CE-139	LLD<2.98E-01	LLD<2.98E-01	
U-235	LLD<4.37E-01	LLD<4.37E-01	
RA-226	LLD<7.50E+00	LLD<7.50E+00	
BA-141	LLD<5.63E-01	LLD<5.63E-01	
KR-89	LLD<2.70E+00	LLD<2.70E+00	
TE-132	LLD<3.14E-01	LLD<3.14E-01	
XE-133M	LLD<2.13E+00	LLD<2.13E+00	
PB-212	1.70E+00 +- 1.77E-01	1.70E+00 +- 1.77E-01	
RA-224	LLD<7.63E+00	LLD<7.63E+00	
XE-135	LLD<2.46E-01	LLD<2.46E-01	
XE-138	LLD<7.92E-01	LLD<7.92E-01	
SE-75	LLD<3.55E-01	LLD<3.55E-01	
NP-239	LLD<1.53E+00	LLD<1.53E+00	
HG-203	LLD<2.29E-01	LLD<2.29E-01	
IR-192	LLD<2.47E-01	LLD<2.47E-01	
CR-51	LLD<1.96E+00	LLD<1.96E+00	
BI-211	9.06E+00 +- 1.98E+00	9.06E+00 +- 1.98E+00	
PB-214	1.06E+00 +- 2.31E-01	1.06E+00 +- 2.31E-01	
BA-133	LLD<4.66E-01	LLD<4.66E-01	
I-131	LLD<2.56E-01	LLD<2.56E-01	
SN-113	LLD<3.25E-01	LLD<3.25E-01	
KR-87	LLD<4.12E-01	LLD<4.12E-01	
PB-211	LLD<6.83E+00	LLD<6.83E+00	
AU-198	LLD<2.04E-01	LLD<2.04E-01	
SB-125	LLD<7.69E-01	LLD<7.69E-01	
BI-212	LLD<6.12E+01	LLD<6.12E+01	
BE-7	LLD<1.88E+00	LLD<1.88E+00	
HF-181	LLD<2.77E-01	LLD<2.77E-01	
RU-103	LLD<2.32E-01	LLD<2.32E-01	
KR-85	LLD<6.70E+01	LLD<6.70E+01	
SR-85	LLD<2.93E-01	LLD<2.93E-01	
I-133	LLD<2.72E-01	LLD<2.72E-01	
BA-140	LLD<8.03E-01	LLD<8.03E-01	

7-91M	LLD<1.48E-01	LLD<1.48E-01
11-107	LLD<2.71E-01	LLD<2.71E-01
12-108	LLD<3.25E-01	LLD<3.25E-01
23-104	LLD<1.70E-01	LLD<1.70E-01
25-174	LLD<5.28E-01	LLD<5.28E-01
21-214	LLD<6.94E-01	LLD<6.94E-01
40-106	LLD<2.38E+00	LLD<2.38E+00
1A-142	LLD<4.19E-01	LLD<4.19E-01
95-110M	LLD<2.77E-01	LLD<2.77E-01
43-107	LLD<3.03E-01	LLD<3.03E-01
25-127	LLD<3.27E-01	LLD<3.27E-01
1-153	LLD<7.63E-01	LLD<7.63E-01
4-147	LLD<8.88E-01	LLD<8.88E-01
74-97	LLD<2.77E-01	LLD<2.77E-01
25-95	LLD<4.37E-01	LLD<4.37E-01
N3-75	LLD<2.97E-01	LLD<2.97E-01
TL-210	LLD<1.56E+00	LLD<1.56E+00
13-58	LLD<2.32E-01	LLD<2.32E-01
25-136	LLD<2.48E-01	LLD<2.48E-01
MN-54	LLD<2.75E-01	LLD<2.75E-01
20-56	LLD<2.18E-01	LLD<2.18E-01
1-134	LLD<2.68E-01	LLD<2.68E-01
TL-207	LLD<3.01E+02	LLD<3.01E+02
Y-88	LLD<3.70E-01	LLD<3.70E-01
AC-228	LLD<1.38E+00	LLD<1.38E+00
EU-152	LLD<3.22E+00	LLD<3.22E+00
PA-234M	LLD<3.11E+00	LLD<3.11E+00
SR-91	LLD<1.29E+00	LLD<1.29E+00
RB-89	LLD<8.05E-01	LLD<8.05E-01
FE-59	LLD<6.47E-01	LLD<6.47E-01
ZN-65	LLD<8.45E-01	LLD<8.45E-01
SC-46	LLD<4.24E-01	LLD<4.24E-01
TA-182	LLD<1.12E+00	LLD<1.12E+00
1-135	LLD<1.18E+00	LLD<1.18E+00
CL-39	LLD<9.64E-01	LLD<9.64E-01
NA-22	LLD<4.25E-01	LLD<4.25E-01
AR-41	LLD<5.10E-01	LLD<5.10E-01
20-60	LLD<3.98E-01	LLD<3.98E-01
NA-24	LLD<3.70E-01	LLD<3.70E-01
SR-92	LLD<2.07E-01	LLD<2.07E-01
25-138	LLD<4.46E-01	LLD<4.46E-01
K-40	2.93E+01 +- 2.68E+00	2.93E+01 +- 2.68E+00
KR-88	LLD<2.61E+00	LLD<2.61E+00
TL-209	LLD<2.42E-01	LLD<2.42E-01
LA-140	LLD<3.92E-01	LLD<3.92E-01
AL-26	LLD<8.10E-02	LLD<8.10E-02
MN-56	LLD<3.04E-01	LLD<3.04E-01
RE-58	LLD<1.97E+00	LLD<1.97E+00
<hr/>		
Total	4.11E+01 +- 3.34E+00	4.11E+01 +- 3.34E+00

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

Results saved in File SD0152

PEAKS NOT USED IN ANALYSIS

Channel	Area	Net Area counts	Error %	Counts/sec
1175.42	582.74	35.	19.7	1.04E+01
1218.42	608.72	35.	20.0	1.08E+01
1623.03	910.75	21.	26.6	9.46E+00

GAMMA SPECTRUM ANALYSIS

CANBERRA SPECTRAN-AT V4.2a

Cabot Corporation, Revere, PA

18-AUG-94 13:16:20

ANALYSIS PARAMETERS

MCA Unit Number: 1 / ADC Unit Number: 1.0
Detector Number: 1 / Geometry Number: 1
Spectrum Size: 4096 channels.
First channel for Search: 0
Adaptive smoothing performed.
Number of Background Channels: 4 on each side of peak.
Peak Confidence Factor: 95.0%
Multiplet Sensitivity: 3
Identification Energy Window: ± 1.00 keV.
Error Quotation: 1.00 sigma uncertainty.

LLD Calculation Performed.
Multiplet Analysis Performed.

Regular Output.

Analysis of Spectrum saved in Disk File SD0153
Measured by: kc

Sample Description: Salt Leach
Geometry Description: 500 ML MARINELLI
Sample Size: $5.2360\text{E}+02$ gram / Conversion Factor: $1.0000\text{E}+00$
Standard Size: $8.8840\text{E}+02$ GRAM
Analysis Library file: ANL000

COLLECT started on 18-AUG-94 at 13:01:51

COLLECT Live Time: 600. seconds
Real Time: 600. seconds
Dead Time: 00.00 %

Decayed to 0.0000 hours BEFORE the start of COLLECT

Energy Calibration performed 10-AUG-94
Efficiency Calibration performed 02-JUN-94

PEAK ANALYSIS



Centroid channel	Energy keV	FWHM keV	Backgnd counts	Net Area counts	Error %	Nuclides
---------------------	---------------	-------------	-------------------	--------------------	------------	----------

No significant peak detected --

Error Quotation at 1.00 sigma
Peak Confidence Level at 95.0%



Sample: Salt Beach
Data collected on 18-AUG-94 at 13:01:51
Decayed to 0. days, 0.0000 hours BEFORE the start of collect.

R A D I O N U C L I D E A N A L Y S I S R E P O R T

Activity Concentration in FCI /gram

Decay Error corrected Error

241-AM	LDD<1.67E-01				
234-TH	LDD<1.60E+00				
230-TH	LDD<1.32E+01				
133-XE	LDD<2.75E-01				
109-CO	LDD<2.34E+00				
27-PO	LDD<1.18E-01				
234-PO	LDD<4.65E-01				
144-CE	LDD<8.77E-01				
99M-TC	LDD<1.26E-01				
141-CE	LDD<1.87E-01				
85M-KR	LDD<1.17E-01				
131M-XE	LDD<6.26E+00				
139-BA	LDD<8.04E-01				
139-CE	LDD<1.63E-01				
235-U	LDD<2.32E-01				
226-RA	LDD<3.83E+00				
141-BA	LDD<3.11E-01				
39-K	LDD<1.11E+00				
132-TE	LDD<1.19E-01				
133M-XE	LDD<1.21E+00				
212-PB	LDD<2.99E-01				
224-RA	LDD<3.33E+00				
135-XE	LDD<1.23E-01				
138-XE	LDD<3.61E-01				
75-SE	LDD<1.92E-01				
239-NP	LDD<6.88E-01				
203-HS	LDD<1.34E-01				
192-IR	LDD<1.33E-01				
51-CR	LDD<1.30E+00				
211-31	LDD<2.65E+00				
214-PB	LDD<3.10E-01				
133-BA	LDD<1.50E-01				
131-1	LDD<1.27E-01				
113-6N	LDD<1.91E-01				
87-KR	LDD<3.92E-01				
211-PB	LDD<6.44E-01				
198-6U	LDD<1.49E-01				
125-58	LDD<4.52E-01				
212-31	LDD<3.12E+01				
7-BE	LDD<1.34E+00				
181-HF	LDD<1.99E-01				
103-RU	LDD<1.18E-01				
85-KS	LDD<5.12E+01				
95-1	LDD<2.24E-01				
133-1	LDD<9.65E-02				
140-BA	LDD<3.38E-01				

7--1M	LLD<4.46E-01	LLD<4.46E-01
31-207	LLD<4.13E-02	LLD<4.13E-02
70-202	LLD<2.75E-01	LLD<2.75E-01
10-101	LLD<1.39E-01	LLD<1.39E-01
30-184	LLD<1.68E-01	LLD<1.68E-01
10-101	LLD<4.09E-01	LLD<4.09E-01
10-101	LLD<4.47E-01	LLD<4.47E-01
LA-142	LLD<2.52E-01	LLD<2.52E-01
AB-110M	LLD<2.43E-01	LLD<2.43E-01
AB-97	LLD<2.45E-01	LLD<2.45E-01
CB-137	LLD<2.21E-01	LLD<2.21E-01
1-132	LLD<1.97E-01	LLD<1.97E-01
2-137	LLD<6.24E-01	LLD<6.24E-01
78-97	LLD<2.26E-01	LLD<2.26E-01
12-95	LLD<2.58E-01	LLD<2.58E-01
83-95	LLD<5.31E-02	LLD<5.31E-02
TL-210	LLD<2.98E-01	LLD<2.98E-01
CB-58	LLD<1.67E-01	LLD<1.67E-01
CB-136	LLD<1.25E-01	LLD<1.25E-01
MM-54	LLD<1.27E-01	LLD<1.27E-01
CB-56	LLD<1.92E-01	LLD<1.92E-01
1-134	LLD<2.24E-01	LLD<2.24E-01
TL-207	LLD<4.81E+01	LLD<4.81E+01
Y-88	LLD<6.52E-02	LLD<6.52E-02
AC-228	LLD<1.09E+00	LLD<1.09E+00
EU-152	LLD<2.27E+00	LLD<2.27E+00
PA-234M	LLD<2.10E+00	LLD<2.10E+00
SR-91	LLD<4.62E-01	LLD<4.62E-01
RB-89	LLD<1.46E-01	LLD<1.46E-01
FE-59	LLD<1.27E-01	LLD<1.27E-01
ZN-65	LLD<6.07E-01	LLD<6.07E-01
10-101	LLD<2.26E-01	LLD<2.26E-01
10-101	LLD<8.03E-01	LLD<8.03E-01
I-135	LLD<2.79E-01	LLD<2.79E-01
CL-39	LLD<1.70E-01	LLD<1.70E-01
NA-22	LLD<8.04E-02	LLD<8.04E-02
AR-41	LLD<8.46E-02	LLD<8.46E-02
CB-60	LLD<1.84E-01	LLD<1.84E-01
NA-24	LLD<1.88E-01	LLD<1.88E-01
SR-92	LLD<9.69E-02	LLD<9.69E-02
CS-138	LLD<4.75E-01	LLD<4.75E-01
K-40	LLD<8.32E-01	LLD<8.32E-01
KR-88	LLD<1.90E+00	LLD<1.90E+00
TL-209	LLD<3.08E-01	LLD<3.08E-01
LA-140	LLD<9.89E-02	LLD<9.89E-02
AL-26	LLD<2.80E-01	LLD<2.80E-01
MN-56	LLD<1.60E+00	LLD<1.60E+00
RB-88	LLD<5.85E-01	LLD<5.85E-01
Total	0.00E-01 +- 0.00E-01	0.00E-01 +- 0.00E-01

Error Quotation at 1.00 Sigma
LLD Confidence Level at 95.0%

is saved in File SD0153