START 9613495.2946

W0086-ITC-081

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INTERNATIONAL TECHNOLOGY CORPORATION

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Analytical Data Package Prepared For

Westinghouse Hanford

Radiochemical Analysis By

IT Analytical Services
Richland Laboratory

RECEIVED SDLA

Sample Delivery Group Number: W0086

WHC IDENTIFICATION NUMBER	ITAS RICHLAND ID NUMBER
B0C372	40608501
B0C375	40608502
B0C376	40608503
B0C377	40608504
B0C374	40608505
B0C373	40608506

OCT 1996 RECEIVED EDMC

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CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

July 18, 1994

Attention: J.A.Lerch

SAF Number	:	94-207
Date SDG Closed	:	June 3, 1994
Number of Samples	:	Six (6)
Sample Type	:	Soil
SDG Number	:	W0086
Data Deliverable	:	Stand Alone

I. Introduction

On June 3, 1994, six soil matrix samples were received by ITAS-Richland for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the WHC specific IDs:

ITAS-Richland ID	WHC ID	Matrix	Date of Receipt
406085-01A	B0C372	Soil	6/03/94
406085-02A	B0C375	Soil	6/03/94
406085-03A	B0C376	Soil	6/03/94
406085-04A	B0C377	Soil	6/03/94
406085-05A	B0C374	Soil	6/03/94
406085-06A	B0C373	Soil	6/03/94

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II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Alpha Spectroscopy
Thorium-230/232 by method ITAS-RD-3210
Uranium-234, 235, 238 by method ITAS-RD-3234
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219

III. Quality Control

The analytical results for each analysis performed under SDG W0086 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in the same units as sample results.

IV. Comments

Results from the initial radioactivity screening of these samples classified them as Category I.

The samples were received without instruction as to which analyses were requested. The samples were logged for analyses listed in SAF 94-207 per WHC ROD 94-0146 received June 9, 1994.

Sample HEIS numbers were changed after receipt of the samples per WHC ROD 94-0160 (received June 21, 1994). Because the request for the change in the sample numbers was received more than two weeks after the receipt of the samples, not all of the paperwork reflect the requested changes, however, the final report and electronic data files do contain the modified sample numbers.

Alpha Spectroscopy

Thorium-230/232 by method ITAS-RD-3210
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0C374) results are within contractual limits.

Uranium-234, 235, 238 by method ITAS-RD-3234
Sample B0C374 did not meet the target detection limit of 0.1 pCi/g due to a low tracer yield. The sample was recounted for 500 minutes and the target detection limit was met. The U-235 recovery of the LCS is lower than acceptable limits. The LCS is accepted based on acceptable U-234 and U-238 recoveries. The batch blank, sample and sample duplicate (duplicate of sample B0C374) results are within contractual limits.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
Insufficient sample mass was received to fill a 200 ml counting geometry for samples B0C372, the duplicate of B0C372, B0C375, and B0C374. Where sample mass was insufficient to fill a 200 ml counting geometry, the samples were counted in a 25 ml counting geometry. Separate quality control samples (an LCS and a blank) were analyzed with the 25 ml geometry samples using the smaller volume containers. Detection limits for samples counted in 25 ml counting geometries were adjusted for the sample size analyzed. Cd-109 was detected in all the samples and quality control samples, however, the Cd-109 results are not reported because they are suspected false positive results caused by x-ray lines produced by energy reflection from the detector shielding. The U-238DLP recovery for the LCS is greater than acceptable limits. The LCS is accepted based on acceptable recoveries for K-40, Cs-137, and Ra-226, and the 2 sigma error around the U-238DLP result. The batch blank, sample and sample duplicate (duplicate of sample B0C372) results are within contractual limits.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Suzanne Gaines

Suzanne Gaines
Project Manager

9613495.2951

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0086
LAB SAMPLE ID:	40608501	MATRIX:	SOIL
CLIENT ID:	B0C372	DATE RECEIVED:	6/3/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TH228	1.36E+00	2.27E-01	2.76E-01	5.31E-02	pCi/g	103.50%	RD3210
TH230	4.28E-01	7.91E-02	9.32E-02	9.89E-03	pCi/g	103.50%	RD3210
TH232	4.68E-01	8.27E-02	9.87E-02	1.47E-02	pCi/g	103.50%	RD3210
U-234	5.21E-01	1.63E-01	1.87E-01	5.12E-02	pCi/g	32.70%	RD3234
U-235	-2.04E-03	2.88E-03	2.91E-03	5.82E-02	pCi/g	32.70%	RD3234
U-238DA	5.45E-01	1.67E-01	1.92E-01	6.35E-02	pCi/g	32.70%	RD3234
CO-60	2.90E-02	2.36E-02	2.38E-02	4.27E-02	pCi/g	N/A	RD3219
CS-137DA	3.34E-03	1.35E-02	1.35E-02	2.24E-02	pCi/g	N/A	RD3219
EU-152	-3.70E-02	8.99E-02	9.00E-02	1.48E-01	pCi/g	N/A	RD3219
EU-154	1.54E-02	6.39E-02	6.39E-02	1.07E-01	pCi/g	N/A	RD3219
EU-155	3.01E-02	3.54E-02	3.55E-02	6.05E-02	pCi/g	N/A	RD3219
K-40	1.09E+01	6.73E-01	1.28E+00	N/A	pCi/g	N/A	RD3219
RA-224DA	1.10E+00	9.62E-02	1.46E-01	N/A	pCi/g	N/A	RD3219
RA-226DA	3.77E-01	5.91E-02	7.01E-02	N/A	pCi/g	N/A	RD3219
RA-228DA	6.23E-01	1.49E-01	1.62E-01	N/A	pCi/g	N/A	RD3219
U-238DLP	5.65E-01	4.52E-01	4.55E-01	N/A	pCi/g	N/A	RD3219

Number of Results: 16

682A-6-93

IT ANALYTICAL SERVICES
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(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0086
LAB SAMPLE ID:	40608502	MATRIX:	SOIL
CLIENT ID:	B0C375	DATE RECEIVED:	6/3/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TH228	3.08E+00	4.20E-01	5.84E-01	3.86E-02	pCi/g	64.90%	RD3210
TH230	1.41E+00	1.83E-01	2.61E-01	2.39E-02	pCi/g	64.90%	RD3210
TH232	1.37E+00	1.81E-01	2.56E-01	1.61E-02	pCi/g	64.90%	RD3210
U-234	1.51E+00	2.76E-01	3.78E-01	6.72E-02	pCi/g	33.10%	RD3234
U-235	7.15E-02	6.18E-02	6.30E-02	6.72E-02	pCi/g	33.10%	RD3234
U-238DA	1.21E+00	2.47E-01	3.22E-01	6.27E-02	pCi/g	33.10%	RD3234
CO-60	4.44E-03	3.41E-02	3.41E-02	5.82E-02	pCi/g	N/A	RD3219
CS-137DA	2.20E-01	3.58E-02	4.20E-02	N/A	pCi/g	N/A	RD3219
EU-152	1.54E-01	1.27E-01	1.28E-01	2.33E-01	pCi/g	N/A	RD3219
EU-154	2.09E-02	8.53E-02	8.53E-02	1.44E-01	pCi/g	N/A	RD3219
EU-155	6.41E-02	6.56E-02	6.59E-02	1.04E-01	pCi/g	N/A	RD3219
K-40	1.47E+01	9.02E-01	1.73E+00	N/A	pCi/g	N/A	RD3219
RA-224DA	2.71E+00	1.53E-01	3.11E-01	N/A	pCi/g	N/A	RD3219
RA-226DA	8.16E-01	9.32E-02	1.24E-01	N/A	pCi/g	N/A	RD3219
RA-228DA	1.83E+00	2.08E-01	2.77E-01	N/A	pCi/g	N/A	RD3219
U-238DLP	1.21E+00	1.09E+00	1.10E+00	N/A	pCi/g	N/A	RD3219

Number of Results: 16

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IT ANALYTICAL SERVICES
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(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0086
LAB SAMPLE ID:	40608503	MATRIX:	SOIL
CLIENT ID:	B0C376	DATE RECEIVED:	6/3/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TH228	2.29E+00	3.17E-01	4.22E-01	5.85E-02	pCi/g	82.60%	RD3210
TH230	8.51E-01	1.25E-01	1.62E-01	2.08E-02	pCi/g	82.60%	RD3210
TH232	1.07E+00	1.40E-01	1.91E-01	1.83E-02	pCi/g	82.60%	RD3210
U-234	5.44E-01	1.49E-01	1.72E-01	6.31E-02	pCi/g	16.70%	RD3234
U-235	8.60E-02	6.03E-02	6.18E-02	5.65E-02	pCi/g	16.70%	RD3234
U-238DA	6.82E-01	1.66E-01	1.99E-01	6.87E-02	pCi/g	16.70%	RD3234
CO-60	-3.08E-02	3.52E-02	3.54E-02	5.55E-02	pCi/g	N/A	RD3219
CS-137DA	2.00E-01	4.66E-02	5.07E-02	N/A	pCi/g	N/A	RD3219
EU-152	3.02E-02	1.32E-01	1.32E-01	2.28E-01	pCi/g	N/A	RD3219
EU-154	-2.67E-02	9.41E-02	9.41E-02	1.50E-01	pCi/g	N/A	RD3219
EU-155	1.05E-01	8.83E-02	8.89E-02	1.49E-01	pCi/g	N/A	RD3219
K-40	1.86E+01	9.32E-01	2.08E+00	N/A	pCi/g	N/A	RD3219
RA-224DA	2.82E+00	1.61E-01	3.24E-01	N/A	pCi/g	N/A	RD3219
RA-226DA	7.71E-01	1.03E-01	1.28E-01	N/A	pCi/g	N/A	RD3219
RA-228DA	1.58E+00	2.13E-01	2.65E-01	N/A	pCi/g	N/A	RD3219
U-238DLP	1.12E+00	1.36E+00	1.36E+00	2.13E+00	pCi/g	N/A	RD3219

Number of Results: 16

9613495.2954

IT ANALYTICAL SERVICES
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(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0086
LAB SAMPLE ID:	40608504	MATRIX:	SOIL
CLIENT ID:	B0C377	DATE RECEIVED:	6/3/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TH228	3.78E+00	4.61E-01	6.77E-01	7.01E-02	pCi/g	64.50%	RD3210
TH230	1.16E+00	1.65E-01	2.25E-01	2.69E-02	pCi/g	64.50%	RD3210
TH232	1.45E+00	1.85E-01	2.65E-01	1.59E-02	pCi/g	64.50%	RD3210
U-234	1.10E+00	2.39E-01	3.06E-01	7.27E-02	pCi/g	32.30%	RD3234
U-235	3.45E-02	4.48E-02	4.52E-02	6.87E-02	pCi/g	32.30%	RD3234
U-238DA	1.11E+00	2.40E-01	3.08E-01	7.96E-02	pCi/g	32.30%	RD3234
CO-60	-1.71E-02	2.34E-02	2.34E-02	3.76E-02	pCi/g	N/A	RD3219
CS-137DA	-1.42E-02	1.56E-02	1.57E-02	2.53E-02	pCi/g	N/A	RD3219
EU-152	1.96E-01	8.11E-02	8.35E-02	1.61E-01	pCi/g	N/A	RD3219
EU-154	5.46E-02	5.30E-02	5.33E-02	9.50E-02	pCi/g	N/A	RD3219
EU-155	1.26E-01	5.87E-02	6.00E-02	9.63E-02	pCi/g	N/A	RD3219
K-40	1.97E+01	7.13E-01	2.09E+00	N/A	pCi/g	N/A	RD3219
RA-224DA	3.08E+00	1.18E-01	3.30E-01	N/A	pCi/g	N/A	RD3219
RA-226DA	1.16E+00	7.77E-02	1.39E-01	N/A	pCi/g	N/A	RD3219
RA-228DA	2.00E+00	1.72E-01	2.64E-01	N/A	pCi/g	N/A	RD3219
U-238DLP	1.47E+00	6.14E-01	6.31E-01	N/A	pCi/g	N/A	RD3219

Number of Results: 16

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IT ANALYTICAL SERVICES
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(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0086
LAB SAMPLE ID:	40608505	MATRIX:	SOIL
CLIENT ID:	B0C374	DATE RECEIVED:	6/3/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TH228	2.87E+00	3.88E-01	5.36E-01	5.28E-02	pCi/g	73.10%	RD3210
TH230	1.05E+00	1.52E-01	2.03E-01	2.49E-02	pCi/g	73.10%	RD3210
TH232	1.19E+00	1.62E-01	2.23E-01	2.72E-02	pCi/g	73.10%	RD3210
U-234	7.57E-01	1.54E-01	1.89E-01	7.93E-02	pCi/g	22.00%	RD3234
U-235	1.51E-02	2.70E-02	2.71E-02	5.56E-02	pCi/g	22.00%	RD3234
U-238DA	8.43E-01	1.60E-01	2.01E-01	4.27E-02	pCi/g	22.00%	RD3234
CO-60	-4.69E-03	3.83E-02	3.83E-02	6.28E-02	pCi/g	N/A	RD3219
CS-137DA	4.57E-01	5.00E-02	6.78E-02	N/A	pCi/g	N/A	RD3219
EU-152	-3.45E-02	1.64E-01	1.64E-01	2.75E-01	pCi/g	N/A	RD3219
EU-154	-5.12E-02	1.01E-01	1.01E-01	1.69E-01	pCi/g	N/A	RD3219
EU-155	8.08E-02	6.74E-02	6.79E-02	1.17E-01	pCi/g	N/A	RD3219
K-40	1.29E+01	1.14E+00	1.72E+00	N/A	pCi/g	N/A	RD3219
RA-224DA	1.94E+00	1.56E-01	2.49E-01	N/A	pCi/g	N/A	RD3219
RA-226DA	7.22E-01	9.43E-02	1.19E-01	N/A	pCi/g	N/A	RD3219
RA-228DA	1.60E+00	2.82E-01	3.24E-01	N/A	pCi/g	N/A	RD3219
U-238DLP	7.11E-01	1.40E+00	1.40E+00	N/A	pCi/g	N/A	RD3219

Number of Results: 16

682A-6-93

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0086
LAB SAMPLE ID:	40608506	MATRIX:	SOIL
CLIENT ID:	B0C373	DATE RECEIVED:	6/3/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
TH228	1.96E+00	3.30E-01	4.08E-01	7.42E-02	pCi/g	79.70%	RD3210
TH230	5.62E-01	1.02E-01	1.23E-01	1.85E-02	pCi/g	79.70%	RD3210
TH232	6.13E-01	1.06E-01	1.30E-01	1.85E-02	pCi/g	79.70%	RD3210
U-234	5.91E-01	1.57E-01	1.83E-01	5.19E-02	pCi/g	40.00%	RD3234
U-235	5.04E-02	4.66E-02	4.73E-02	4.75E-02	pCi/g	40.00%	RD3234
U-238DA	5.59E-01	1.53E-01	1.77E-01	5.55E-02	pCi/g	40.00%	RD3234
CO-60	-1.36E-02	2.47E-02	2.48E-02	4.05E-02	pCi/g	N/A	RD3219
CS-137DA	4.97E-03	1.47E-02	1.47E-02	2.52E-02	pCi/g	N/A	RD3219
EU-152	3.45E-02	8.80E-02	8.81E-02	1.56E-01	pCi/g	N/A	RD3219
EU-154	1.19E-01	6.10E-02	6.21E-02	1.13E-01	pCi/g	N/A	RD3219
EU-155	8.23E-03	5.32E-02	5.32E-02	8.90E-02	pCi/g	N/A	RD3219
K-40	1.27E+01	6.14E-01	1.41E+00	N/A	pCi/g	N/A	RD3219
RA-224DA	1.73E+00	1.23E-01	2.12E-01	N/A	pCi/g	N/A	RD3219
RA-226DA	4.69E-01	6.27E-02	7.83E-02	N/A	pCi/g	N/A	RD3219
RA-228DA	9.56E-01	1.44E-01	1.73E-01	N/A	pCi/g	N/A	RD3219
U-238DLP	1.52E-01	7.14E-01	7.14E-01	N/A	pCi/g	N/A	RD3219

Number of Results: 16

682A-6-93

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

DUPLICATE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0086
LAB SAMPLE ID:	F0608501	MATRIX:	SOIL
CLIENT ID:	B0C372	DATE RECEIVED:	6/3/94
ORIG LAB SAMPLE ID:	40608501		

ISOTOPE	DUP RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
CO-60	-4.38E-04	2.52E-02	2.52E-02	4.26E-02	pCi/g	N/A	RD3219	2.90E-02	206.13%
CS-137DA	-6.91E-03	1.68E-02	1.69E-02	2.67E-02	pCi/g	N/A	RD3219	3.34E-03	574.23%
EU-152	3.60E-02	1.00E-01	1.00E-01	1.77E-01	pCi/g	N/A	RD3219	-3.70E-02	4600.00%
EU-154	3.38E-02	6.70E-02	6.71E-02	1.15E-01	pCi/g	N/A	RD3219	1.54E-02	74.80%
EU-155	3.36E-02	4.64E-02	4.65E-02	7.35E-02	pCi/g	N/A	RD3219	3.01E-02	10.99%
K-40	9.70E+00	7.57E-01	1.23E+00	N/A	pCi/g	N/A	RD3219	1.09E+01	11.65%
RA-224DA	1.06E+00	1.23E-01	1.63E-01	N/A	pCi/g	N/A	RD3219	1.10E+00	3.70%
RA-226DA	4.61E-01	6.27E-02	7.78E-02	N/A	pCi/g	N/A	RD3219	3.77E-01	20.05%
RA-228DA	5.71E-01	1.92E-01	2.00E-01	N/A	pCi/g	N/A	RD3219	6.23E-01	8.71%
U-238DLP	6.61E-01	5.54E-01	5.57E-01	N/A	pCi/g	N/A	RD3219	5.65E-01	15.66%

Number of Results: 10

682A-6-93

9613495.2958

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

DUPLICATE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0086
LAB SAMPLE ID:	F0608505	MATRIX:	SOIL
CLIENT ID:	B0C374	DATE RECEIVED:	6/3/94
ORIG LAB SAMPLE ID:	40608505		

ISOTOPE	DUP RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
TH228	2.52E+00	3.43E-01	4.64E-01	5.31E-02	pCi/g	83.10%	RD3210	2.87E+00	12.99%
TH230	8.85E-01	1.31E-01	1.71E-01	1.31E-02	pCi/g	83.10%	RD3210	1.05E+00	17.05%
TH232	1.00E+00	1.39E-01	1.87E-01	1.31E-02	pCi/g	83.10%	RD3210	1.19E+00	17.35%
U-234	5.42E-01	1.81E-01	2.08E-01	9.58E-02	pCi/g	27.90%	RD3234	7.57E-01	33.10%
U-235	2.74E-02	4.23E-02	4.26E-02	6.80E-02	pCi/g	27.90%	RD3234	1.51E-02	57.88%
U-238DA	6.94E-01	2.04E-01	2.42E-01	8.42E-02	pCi/g	27.90%	RD3234	8.43E-01	19.39%

Number of Results: 6

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9613495.2959

LOG #: RD-94-_____ page 1 of 2

ITAS-Richland
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): WHC 40086

NCM INITIATED BY (Name/Date): mmm 7-4-94

PARAMETER(S): Uro

SAMPLE NUMBER(S) AFFECTED: 406085 03,05

MATRIX: soil

AREA: ☐ SHIP/REC ☒ RADIOCHEM ☐ COUNTING ☐ BIOASSAY ☐ DATA VERIF ☐ REPORTING ☐ OTHER:

NONCONFORMANCE [check appropriate item(s)]:

1. ☐ Not enough sample received for proper analysis.
2. ☐ Holding time exceeded by _____ days due to:
   - 2.1. ☐ CATEGORY I: Out of Laboratory Control
     - ☐ Holding time expired at receipt.
   - 2.2. ☐ CATEGORY II: Laboratory Dependent
     - ☐ work backlog ☐ instrument failure
     - ☐ communication ☐ other (see #10)
   - 2.3. ☐ CATEGORY III: Laboratory Reruns
     - 2.3.1. ☐ *QA/QC:*
       - ☐ surrogates ☐ internal standards
       - ☐ spike recoveries ☐ blank contamination
     - 2.3.2. ☐ *CONFIRMATION:*
       - ☐ second column ☐ contamination check
       - ☐ other (see #10)
     - 2.3.3. ☐ *DILUTION:*
       - ☐ over calibration ☐ under calibration
       - ☐ other (see #10)
     - 2.3.4. ☐ *OTHER: (see #10)*
3. ☐ Sample lost during extraction/analysis: no re-prep or re-analysis possible.
4. ☐ QC data reported to client outside of:
   - ☐ method limits ☐ internal limits
   - ☐ QAPP limits ☐ contract limits
   - ☐ regulatory limits ☐ blank criteria
5. ☐ Incorrect procedure(s) used. (See #10)
6. ☐ Invalid instrument calibration. (See #10)
7. ☐ Incorrect/incomplete data reported to client. (See #10)
8. ☐ Reported detection limit(s) higher than:
   - ☐ method limits ☐ QAPP limits
   - ☐ contract limits ☐ other (see #10)

   Due to:
   - ☐ sample matrix ☐ insufficient sample
   - ☐ instrumentation ☐ other (see #10)
9. ☐ Other (specify): Tr yd < 20%
10. ☐ Comments/Explanation:

NOTIFICATION [check appropriate item(s)]:

1. ☐ Client notified by (name and date):_____
   - ☐ in writing ☐ by FAX
   - ☐ by phone ☐ Other (explain)
2. ☐ Client's name _____ and response:
   - ☐ process "as is" ☐ resample
   - ☐ on hold til ____ ☐ Other (explain)

PROJECT MANAGER (signature & date): Suzy Davis 7/7/94

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

9613495.2960

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IT CORPORATION LOG #: RD-94-_____ page 2 of 2

CORRECTIVE ACTION

☐ ROOT CAUSE: INITIALS/DATE MMM 7-4-94

tr yds < 20%. QC tr yds in 60 to 70% range, sample tr yds in 20 & 30% range - possible matrix effect.

☐ CORRECTIVE ACTION: INITIALS/DATE MMM 7-4-94

4060 9503 was counted 500 min. Result is > CL and MDA was met. 4060 8505 is within 3.5 g F060 8505. The result is < CL & the MDA was met.

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO:

☐ ACTIONS TO PREVENT RECURRENCE: INITIALS/DATE _____

FIRST LEVEL SUPERVISOR: M Kellogg DATE: 7-4-94

RESPONSIBLE MANAGER: W Mackel DATE: 7/14/94

QC REVIEW

☐ NONCONFORMANCE ☒ DEFICIENCY ☐ RERUN

☐ FURTHER ACTION REQUIRED:

ASSIGNED TO:

QC COORDINATOR: Jodie Gri DATE: 7/14/94

CORRECTIVE ACTION VERIFICATION

☒ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON:

NCM CLOSURE

QC COORDINATOR: Jodie Gri DATE: 7/14/94

0022

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☒ PROJECT FILE

9613495.2961

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INTERNATIONAL TECHNOLOGY CORPORATION

LOG #: RD-94-_____ page 1 of 2

ITAS-Richland
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): WHC W0086

NCM INITIATED BY (Name/Date): Joel T Kempema 7-7-94

PARAMETER(S): Gamma

SAMPLE NUMBER(S) AFFECTED: All Client samples in SDG-W0086

MATRIX: Soil

AREA: ☐ SHIP/REC ☒ RADIOCHEM ☐ COUNTING ☐ BIOASSAY ☐ DATA VERIF ☐ REPORTING ☐ OTHER:

NONCONFORMANCE [check appropriate item(s)]:

1. ☐ Not enough sample received for proper analysis.
2. ☐ Holding time exceeded by _____ days due to:
   - 2.1. ☐ CATEGORY I: Out of Laboratory Control
     - ☐ Holding time expired at receipt.
   - 2.2. ☐ CATEGORY II: Laboratory Dependent
     - ☐ work backlog ☐ instrument failure
     - ☐ communication ☐ other (see #10)
   - 2.3. ☐ CATEGORY III: Laboratory Reruns
     - 2.3.1. ☐ QA/QC:
       - ☐ surrogates ☐ internal standards
       - ☐ spike recoveries ☐ blank contamination
     - 2.3.2. ☐ CONFIRMATION:
       - ☐ second column ☐ contamination check
       - ☐ other (see #10)
     - 2.3.3. ☐ DILUTION:
       - ☐ over calibration ☐ under calibration
       - ☐ other (see #10)
     - 2.3.4. ☐ OTHER: (see #10)
3. ☐ Sample lost during extraction/analysis: no re-prep or re-analysis possible.
4. ☐ QC data reported to client outside of:
   - ☐ method limits ☐ internal limits
   - ☐ QAPP limits ☐ contract limits
   - ☐ regulatory limits ☐ blank criteria
5. ☐ Incorrect procedure(s) used. (See #10)
6. ☐ Invalid instrument calibration. (See #10)
7. ☐ Incorrect/incomplete data reported to client. (See #10)
8. ☒ Reported detection limit(s) higher than:
   - ☐ method limits ☐ QAPP limits
   - ☒ contract limits ☐ other (see #10)

   Due to:
   - ☐ sample matrix ☒ insufficient sample
   - ☐ instrumentation ☒ other (see #10)
9. ☒ Other (specify): Cd 109 peaks in all samples including QC attributable to x rays from Cd in Cave liners
10. ☒ Comments/Explanation: Analysis for Co58 + Fe59 not feasable due to age of samples vs. half life
    MDAs for Eu152 + occasionally Eu154 Eu155 are greater than CL

NOTIFICATION [check appropriate item(s)]:

1. ☐ Client notified by (name and date): _____
   - ☐ in writing ☐ by FAX
   - ☐ by phone ☐ Other (explain)
2. ☐ Client's name _____ and response:
   - ☐ process "as is" ☐ resample
   - ☐ on hold til ____ ☐ Other (explain)

PROJECT MANAGER (signature & date): Sergi Davies 7/14/94

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

9613495.2962

524

IT CORPORATION

LOG #: RD-94-_____ page 2 of 2

CORRECTIVE ACTION

☒ ROOT CAUSE: INITIALS/DATE JK 7-7-94

Eu 152, 154, 155 MDAs ~~attributable to~~ JK 7-7-94 attributable to insufficient sample which is also the reason for running QC in 2 size/geometries to match sample sizes

☒ CORRECTIVE ACTION: INITIALS/DATE JK 7-7-94

data accepted - discuss in case narrative

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO:

☐ ACTIONS TO PREVENT RECURRENCE: INITIALS/DATE

FIRST LEVEL SUPERVISOR: Joel T Kaufman DATE: 7-7-94

RESPONSIBLE MANAGER: W McKell DATE: 7/14/94

QC REVIEW

☐ NONCONFORMANCE ☒ DEFICIENCY ☐ RERUN

☐ FURTHER ACTION REQUIRED:

ASSIGNED TO:

QC COORDINATOR: Jodie Cor DATE: 7/14/94

CORRECTIVE ACTION VERIFICATION

☒ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON:

NCM CLOSURE

QC COORDINATOR: Jodie Cor DATE: 7/14/94

0025

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☒ PROJECT FILE

9613495.2963

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: S.W. Petersen

Company Contact: S.W. Petersen Telephone: 376-1273

Project Designation/Sampling Locations: Sitewide background for natural rad. in soils Collection Date: 1991

Ice Chest No.: NA Field Logbook No.: NA

Bill of Lading/Airbill No.: NA Offsite Property No.:

Method of Shipment: Automobile

Shipped to: IT Labs, Richland, WA

Possible Sample Hazards/Remarks: Uncontaminated, background soil samples

Sample Identification

Sitewide background, natural radionuclides in soil		
B01414	B01470	[redacted]
B01418	B01473	[redacted]
B01419	B01480	[redacted]
B01420	B01482 10/8/91	[redacted]
B01422	B01484	B014K0 9/30/90
B01425	B01487	B014K4 9/17
B01429	B01489	B014K5 9/18
B01433	B01490	B014K7 9/25
B01443	B01491	B01B71 11/20/91
B01447	B01494 10/9/91	B01B78
B01448	B014C2 10/11/91	01 B01B79
B01451	B014C3	2 B06141 1/27/92
B01458	B014C8	3 B06146
B01462	B014F1 10/15/91	[redacted]
B01463	B014F6	4 B06153 2/4/92
B01465	B014G1 10/21/91	5 B06137 1/27/92
B01468	B014G2	6 B01CN1 6/12/91

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
[signature]	[signature]	6-3-94 13:25
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

SDG W0086

A-6000-407 (1)

9613495.2964

Contractor Westinghouse Hanford Co.	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) W94-0-0573 #34

PART I – TO BE COMPLETED BY ORIGINATOR

Department RCRA Permitting	Section	Unit
The following items are to be shipped from	☒ Contractor	☐ Vendor
Routing vehicle	☒ Contractor	☐ Vendor

Shipped to IT Analytical Services 2800 George Wash Way Richland, WA 99352	Off-site Custodian Tammy Heidelberg
	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
46	½ pint jars of soil	

☐ Classified ☐ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

Samples require analyses not presently available on site.

RECEIVED
JUN 3 1994
PROPERTY RECORDS

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release Will Meier		RM Survey No. 168607	Date 6-3-94
Location of Property (Area & Bldg.) 200 E 2101-M	Contact Lisa Gray		Phone 376-3052
Date Ready for Shipment	Cost Code to be Charged EA6B4	Approximate Date This Property will be Returned	N/A
Originated By Scott N Petersen	Date 6-3-94	Authorized By R C Brunck	Date 6-3-94
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date 6/3/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date 6-3-94 13:25				

0028

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:	
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Yellow – Retain	Green – Property Control Custodian (Issuing Office) Pink – Originator

54-3000-479 (09/89)

- 9613495.2965

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 6-3-94 13:25 Client Name WHC

Project/Client # 94-207 Batch or Case #

Cooler ID (if noted on the outside of cooler) no cooler / Box

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☐ No ☒
3. Custody Seals dated and signed? Yes ☐ No ☒
4. Chain of Custody record is taped on inside of cooler lid? Yes ☐ No ☒
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☐ No ☒
7. Number of sample containers in cooler: 21
8. Samples have: ____ tape ____ hazard labels
   X custody seals X appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☐ No ☐

Sample temperature Room Temp

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature Karen Ashtenburg Karen Ashtenburg Date/Time 6-3-94 13:25

FORM NO. LS-042, Rev.0, 2/94

- 9613495.2966

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

-(1- Per Shipping Container)-

Date/Time Received 6-3-94 Client Name WHC

Project/Client # 94-207 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) no cooler / Box

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☐ No ☒
3. Custody Seals dated and signed? Yes ☐ No ☒
4. Chain of Custody record is taped on inside of cooler lid? Yes ☐ No ☒
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☐ No ☒
7. Number of sample containers in cooler: 25
8. Samples have: ____ tape ____ hazard labels
   X custody seals X appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☐ No ☒

Sample temperature Room Temp.

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) na
    Request for analysis #(s) na
    Airbill # na Carrier na
12. Have any anomalies been identified above? Yes ☐ No ☐
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature Karen Kathlenberg / Karen Kathlenberg Date/Time 6-3-94 13:25

FORM NO. LS-042, Rev.0, 2/94

9613495.2967

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0146
Record of Disposition No.

DATE: June 9, 1994

LABORATORY: IT

PROJECT TITLE/NO.: Sitewide Background / 94-207

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

B01414 B01418 B01419 B01420 B01422 B01425 B01529 B01433 B01443 B01447 B01448 B01451
B01458 B01462 B01463 B01465 B01468 B01470 B01473 B01480 B01482 B01484 B01487 B01489
B01490 B01491 B01494 B014C2 B014C3 B014C8 B014F1 B014F6 B014G1 B014G2 B014K0 B014K4
B014K5 B014K7 B01B71 B01B78 B01B79 B06141 B06146 B06153 B06137 B01CN1

DESCRIPTION OF EVENT:

A list of the required analyses did not accompany the COC documentation.

DISPOSITION OF SAMPLES:

With consent from the customer, IT was instructed to perform all the analyses listed on SAF 94-207 for the samples listed above.

APPROVAL SIGNATURES:

Jon W. Ball / 6/9/94
HASM Project Coordinator (Print/Sign Name) **Date**

Scott W. Petersen 6/10/94
Technical Representative (Print/Sign Name) **Date**

N/A
Quality Assurance (Print/Sign Name) **Date**

ORIGINAL - McCLAND FILE

003

9613495.2968

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0160
Record of Disposition No.

DATE: 06/21/94	LABORATORY: IT
PROJECT TITLE/NO.: Sitewide Background / SAF# 94-207	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:

B01414 B01418 B01419 B01420 B01422 B01425 B01429 B01433 B01443 B01447 B01448 B01451
B01458 B01462 B01463 B01465 B01468 B01470 B01473 B01480 B01482 B01484 B01487 B01489
B01490 B01491 B01494 B014C2 B014C3 B014C8 B014F1 B014F6 B014G1 B014G2 B014K0 B014K4
B014K5 B014K7 B01B71 B01B78 B01B79 B06141 B06146 B06153 B06137 B01CN1

DESCRIPTION OF EVENT:

The above listed sample numbers were used for a previous sampling event. In order to track analytical results, the samples must have a new, unique identifier.

DISPOSITION OF SAMPLES:

See attached for the list of new sample numbers. All analytical results will be reported under these new HEIS numbers.

APPROVAL SIGNATURES:

J.W. Ball Michael David Sar — 6/21/94
HASM Project Coordinator (Print/Sign Name) — Date

S.W. Petersen S.W. Petersen — 6/23/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

ORIGINAL - RICHLAND

Attachment
ROD-94-0160

Sample Received	New Number
B01414	B0C2W8
B01418	B0C2W9
B01419	B0C2X0
B01420	B0C2X1
B01422	B0C2X2
B01425	B0C2X3
B01429	B0C2X4
B01433	B0C2X5
B01443	B0C2X6
B01447	B0C2X7
B01448	B0C2X8
B01451	B0C2X9
B01458	B0C2Y0
B01462	B0C2Y1
B01463	B0C2Y2
B01465	B0C2Y3
B01468	B0C2Y4
B01470	B0C2Y5
B01473	B0C2Y6
B01480	B0C2Y7
B01482	B0C378
B01484	B0C379
B01487	B0C380
B01489	B0C381
B01490	B0C382
B01491	B0C383
B01494	B0C384
B014C2	B0C385
B014C3	B0C386
B014C8	B0C387
B014F1	B0C388
B014F6	B0C389
B014G1	B0C390
B014G2	B0C391
B014K0	B0C392
B014K4	B0C393
B014K5	B0C394
B014K7	B0C395
B01B71	B0C396
B01B78	B0C397
B01B79	B0C372
B06137	B0C374
B06141	B0C375
B06146	B0C376
B06153	B0C377
B01CN1	B0C373

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

B01491 is Category II.
all others are Cat. I.
JRN 6 June 94

Customer Code	Recieved Date		Screening Prep Date		Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	60394		60494		6-5	25	2	223	240

Customer ID WHC/SOIL	pH <2 Rcvd/Reiq	Residue Wght mG	Vol. Anal. mG	mL	Sample Size Gm	L	SMPLE CNT DATA Hldr Num.	Total Counts Alpha	Beta	Net Sample Counts/Minute Alpha	Beta	DPM / Aliqout Alpha	Beta	uCi per Sample Alpha	Beta	2 Sigma Error uCi per Sample Alpha	Beta	pCi/(Gm or L) Alpha	Beta	Category 1 Yes/No	Aliquot to Cat 1 Gm or L Alpha	Beta
B01484		83.8	84		375.0		53	4	52	0.15	1.15	1.4E+00	2.7E+00	2.8E-03	5.4E-03	3.3E-06	2.3E-06	7.5E+00	1.4E+01	Yes	1.3E+03	6.9E+03
B01487		97.3	97		355.0		54	3	55	0.11	1.27	1.1E+00	3.1E+00	1.8E-03	5.1E-03	2.5E-06	2.0E-06	5.1E+00	1.4E+01	Yes	1.9E+03	7.0E+03
B01489		85.3	85		345.0		55	4	51	0.15	1.11	1.4E+00	2.6E+00	2.6E-03	4.8E-03	3.0E-06	3.7E-06	7.5E+00	1.4E+01	Yes	1.3E+03	7.3E+03
B01490		88.7	89		400.0		56	5	84	0.19	1.63	1.8E+00	3.9E+00	3.7E-03	7.8E-03	3.9E-06	5.7E-06	9.2E+00	2.0E+01	Yes	1.1E+03	5.1E+03
B01491		99.1	99		420.0		57	16	94	0.63	2.83	6.6E+00	6.5E+00	1.3E-02	1.2E-02	7.7E-06	3.6E-06	3.0E+01	3.0E+01	No	3.3E+02	3.4E+03
B01494		71.8	72		370.0		58	8	82	0.31	1.55	2.7E+00	3.5E+00	6.2E-03	8.0E-03	5.1E-06	3.9E-06	1.7E+01	2.2E+01	Yes	6.0E+02	4.6E+03
B014C2		93.8	94		375.0		59	4	75	0.15	2.07	1.5E+00	5.0E+00	2.6E-03	9.1E-03	3.1E-06	9.3E-06	7.0E+00	2.4E+01	Yes	1.4E+03	4.1E+03
B014C3		58.6	59		425.0		60	5	64	0.19	1.63	1.4E+00	3.7E+00	4.7E-03	1.2E-02	4.9E-06	1.0E-05	1.1E+01	2.8E+01	Yes	9.1E+02	3.6E+03
B014C8		59.3	59		345.0		61	8	55	0.31	1.27	2.4E+00	2.7E+00	6.4E-03	7.2E-03	5.3E-08	3.4E-06	1.8E+01	2.1E+01	Yes	5.4E+02	4.8E+03
B014F1		91.1	91		305.0		62	11	104	0.43	3.23	4.2E+00	7.6E+00	6.3E-03	1.2E-02	4.6E-06	5.3E-06	2.1E+01	3.8E+01	Yes	4.8E+02	2.6E+03
B014F6		77.2	77		285.0		63	9	80	0.35	2.27	3.1E+00	5.2E+00	5.2E-03	8.7E-03	4.1E-06	4.4E-06	1.8E+01	3.0E+01	Yes	5.5E+02	3.3E+03
B014G1		93.5	94		345.0		79	8	83	0.31	2.39	3.1E+00	5.7E+00	5.1E-03	9.4E-03	4.3E-06	5.0E-06	1.5E+01	2.7E+01	Yes	6.8E+02	3.7E+03
B014G2		88.6	89		355.0		80	0	79	-0.01	2.23	-2E-01	5.6E+00	-4E-04	1.0E-02	-7E-07	7.2E-05	-1E+00	2.8E+01	Yes	-1E+04	3.5E+03
B014K0		68.8	69		525.0		81	7	57	0.27	1.35	2.3E+00	3.0E+00	7.8E-03	1.0E-02	6.9E-06	5.4E-06	1.5E+01	2.0E+01	Yes	6.7E+02	5.1E+03
B014K4		96.9	97		680.0		82	2	64	0.07	1.63	6.6E-01	4.0E+00	2.1E-03	1.3E-02	3.8E-06	2.5E-05	3.1E+00	1.9E+01	Yes	3.2E+03	5.3E+03
B014K5		64.8	65		730.0		83	5	40	0.19	0.67	1.6E+00	1.4E+00	7.9E-03	7.2E-03	8.1E-06	3.9E-06	1.1E+01	9.9E+00	Yes	9.2E+02	1.0E+04
B014K7		65.6	66		550.0		84	2	46	0.07	0.91	5.6E-01	2.1E+00	2.1E-03	7.9E-03	3.6E-06	1.3E-05	3.8E+00	1.4E+01	Yes	2.6E+03	6.9E+03
B01B71		78.5	79		285.0		85	9	96	0.35	2.91	3.1E+00	6.8E+00	5.1E-03	1.1E-02	4.0E-06	6.3E-06	1.8E+01	3.9E+01	Yes	5.6E+02	2.6E+03
B01B78		81.0	81		360.0		86	10	81	0.39	2.31	3.6E+00	5.3E+00	7.2E-03	1.1E-02	5.4E-06	4.8E-06	2.0E+01	2.9E+01	Yes	5.0E+02	3.4E+03
01 B01B79		82.9	83		325.0		87	8	63	0.31	1.59	2.9E+00	3.6E+00	5.1E-03	6.4E-03	4.2E-06	2.9E-06	1.6E+01	2.0E+01	Yes	6.4E+02	5.1E+03
2 B06141		78.5	79		225.0		88	12	83	0.47	2.39	4.2E+00	5.4E+00	5.5E-03	6.9E-03	3.8E-06	2.7E-06	2.4E+01	3.1E+01	Yes	4.1E+02	3.3E+03
3 B06146		90.0	90		210.0		89	11	90	0.43	2.67	4.2E+00	6.2E+00	4.4E-03	6.5E-03	3.2E-06	2.8E-06	2.1E+01	3.1E+01	Yes	4.8E+02	3.2E+03
4 B06153		99.8	100		585.0		90	7	96	0.27	2.91	2.8E+00	7.1E+00	7.3E-03	1.9E-02	6.6E-06	1.2E-05	1.2E+01	3.2E+01	Yes	8.1E+02	3.1E+03
5 B06137		90.9	91		145.0		93	11	77	0.43	2.15	4.3E+00	4.9E+00	3.1E-03	3.5E-03	2.2E-06	1.3E-06	2.1E+01	2.4E+01	Yes	4.7E+02	4.1E+03
6 B01CN1		97.9	98		470.0		94	8	70	0.31	1.87	3.2E+00	4.4E+00	6.9E-03	9.5E-03	5.8E-06	4.4E-06	1.5E+01	2.0E+01	Yes	6.8E+02	4.9E+03
TOTAL	uCi													1.2E-01	2.2E-01							

406085

0034

96134195.2970

9613495.2971

Due 7-8-94

*** THISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

7-Jun-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0086

MATRIX : SOIL

BATCH NUMBER 6-085

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0608518	ES42337			
	L0608515	EQUI042			
1)	40608501	ES42338	WHC	B01B79	BOC372
2)	40608502	2339	WHC	B06141	375
3)	40608503	2340	WHC	B06146	376
4)	40608504	2341	WHC	B06153	377
5)	40608505	2342	WHC	B06137	374
	F0608505	2343			
6)	40608506	2344	WHC	B01CN1	373

JH 6/21/94

ACTIONS (Initial & Date)

1) INITIATED JH 6/7/94

2) PREP LAB RECEIVED 6/11/94 [illegible]

3) SAMPLE REMAINDER STORED N/A

4) SEPARATION LAB RECEIVED R03221 6-23-94 AR

5) COUNTING/MEASUREMENT LAB KC 6-29-94

6) DATA REVIEWED AND ANALYTICAL PREP STORED [illegible] 7-1-94

Sample ID's Changed per WHC ROD 94-0160.

JH 6/21/94

Col-1 6-23-94

Col 2 6-24-94 AR

Copy 6-27-94

0035

9613495.2972

Dup 7-8-94

*** UISO ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

7-Jun-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0086

MATRIX : SOIL

BATCH NUMBER 6-085

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L0608518	ESI 16256			
	L0608515	EQIE071			
1)	40608501	ESI 16257	WHC	B01B79	
2)	40608502	16258	WHC	B06141	
3)	40608503	16259	WHC	B06146	
4)	40608504	16260	WHC	B06153	
5)	40608505	16261	WHC	B06137	
	F0608505	16262			
6)	40608506	16263	WHC	B01CN1	

ACTIONS (Initial & Date)

1) INITIATED JA 6/7/94

2) PREP LAB RECEIVED 6/11/94 Bor

3) SAMPLE REMAINDER STORED RD3221 6/14/94 Bm

4) SEPARATION LAB RECEIVED 6/15/94 Ev

5) COUNTING/MEASUREMENT LAB A 6/28/94

6) DATA REVIEWED AND ANALYTICAL PREP STORED mmA 7-4-94

0036

$7/6

9613495.2973

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE 7-8-94

REANALYSIS / RECOUNT

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

ANALYSIS Uro

CUSTOMER WHC

MATRIX soil

NAME/DATE mmk / 7-14-94

SAMPLE DELIVERY GROUP W0085 W0086

BATCH NUMBER

ITAS ID	CUSTOMER ID	COMMENTS
1) 40608404	6	vect 500
2) 40608505	3	"
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		

REANALYSIS

REFERENCED QC

ITAS ID - BLANK

ITAS ID - SPIKE

CLIENT CODE

ACTIONS (Initial & Date)

PREP LAB RECEIVED

SAMPLE REMAINDER

RETURNED TO SCG ☐ (CHECK ONE)

NO SAMPLE REMAINING ☐

SEPARATION LAB

COUNTING/MEASUREMENT

DATA REVIEWED

ANALYTICAL PREP STORED

RECOUNT

ACTIONS (Initial & Date)

COUNTING/MEASUREMENT 7/14/94 OP

DATA REVIEWED mmk 7-15-94

ANALYTICAL PREP STORED mmk 7-15-9

ADDITIONAL COMMENTS:

RC-048 12/92 REV 2

0037

9413195.2973

Due 7-8-94

*** GAMMA ***

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

7-Jun-1994
Page 1

CUSTOMER: WHC

SAMPLE DELIVERY GROUP W0086

MATRIX : SOIL

BATCH NUMBER 6-085

	ITAS ID	DUP	ACCOUNT	CUSTOMER ID	COMMENTS
	L06085 1MX		FINE OTTAWA SAND		
	L06085 2X		FINE OTTAWA SAND		
	L06085 1M		CAL 790		
	L06085 2M		CAL 491		
1)	40608501		WHC	B01B79	BOC 372
	F06085U1	Duplicate			
2)	40608502		WHC	B06141	BOC 375
3)	40608503		WHC	B06146	BOC 376
4)	40608504		WHC	B06153	BOC 377
5)	40608505		WHC	B06137	BOC 374
6)	40608506		WHC	B01CN1	BOC 373

JH 6/29/94

ACTIONS (Initial & Date)

) INITIATED JH 6/7/94

) PREP LAB RECEIVED 6/7/94

) SAMPLE REMAINDER STORED 6/1/94

) SEPARATION LAB RECEIVED N/A

5) COUNTING/MEASUREMENT LAB SK 6-11-94

6) DATA REVIEWED AND ANALYTICAL PREP STORED JK 7-7-94

Sample ID Changed per WHC ROD 94-0160.

JH.

0058