22705-WES-1257

0046210

TELEDYNE ISOTOPES
50 VAN BUREN AVENUE
PO BOX 1235
WESTWOOD NJ 07675-1235
(201) 664-7070

WESTON/WESTINGHOUSE/HANFORD

Case Narrative/Cover Sheet for Reports of Analysis and Lab Data

Date 10/8/93

TI #'s 22705 - 22722

WO # 4-3231

OCT 1993 RECEIVED SDLA

Comments:

There were no unusual occurrences with these samples.

Total uranium was analyzed by gamma spectroscopy and is assumed to be in equilibrium with its parent.

Contents:

	Procedure #'s	Bench & Work Sheet Pages	Calibration Pages	Tracers/ Carrier Pages
Reports of Analysis		29		
Sr-90	PRO-032-38	21	76	2
Gamma	PRO-042-5	36	18	
Total U		-		
Tc-99	PRO-032-78	20	52	1
C-O-C		2		
Other		-		

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"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature." A. J. Hogan

Spike Activity for TI #22721

Nuclide	Activity pCi/l	Acceptable Range
Technetium-99	98.5	79. - 118.
Strontium-90	40.	34. - 46.
Cobalt-60	2.5 E 04	1.7 - 3.2 E 04
Cesium-137	2.16 E 04	1.51 - 2.81 E 04

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22705	9308L516-001	B08YF7	07/30				SR-90	2.3 +-0.5 E-02		09/10		10.33 *	3
							TC-99	L.T. 4. E-01		10/01			3
							TC-99 -	8.1 +-22.2E-02		10/01			3
							SR-90	L.T. 5. E-03		09/10			3
							BE-7	2.02+-0.41E 00		08/30			4
							BE-7	L.T. 8. E-01		08/30			4
							K-40	4.18+-0.52E 00		08/30			4
							K-40	L.T. 2. E 00		08/30			4
							MN-54	L.T. 4. E-02		08/30			4
							MN-54 -	9.1 +-25.9E-03		08/30			4
							CO-58	L.T. 5. E-02		08/30			4
							CO-58 -	3.9 +- 3.6E-02		08/30			4
							FE-59	L.T. 1. E-01		08/30			4
							FE-59 -	4.4 +- 8.1E-02		08/30			4
							CO-60	L.T. 3. E-02		08/30			4
							CO-60 -	1.7 +- 2.3E-02		08/30			4
							ZN-65	L.T. 9. E-02		08/30			4
							ZN-65 -	2.8 +- 5.8E-02		08/30			4
							ZR-95	L.T. 6. E-02		08/30			4
							ZR-95	2.1 +- 3.6E-02		08/30			4
							RU-103	L.T. 7. E-02		08/30			4
							RU-103 -	1.1 +- 4.1E-02		08/30			4
							RU-106	L.T. 5. E-01		08/30			4
							RU-106	1.5 +- 2.6E-01		08/30			4
							I-131	L.T. 5. E-01		08/30			4
							I-131 -	3.1 +- 3.3E-01		08/30			4
							CS-134	L.T. 5. E-02		08/30			4
							CS-134 -	7.4 +-27.9E-03		08/30			4
							CS-137	L.T. 5. E-02		08/30			4
							CS-137	1.8 +- 2.7E-02		08/30			4
							BA-140	L.T. 2. E-01		08/30			4
							BA-140 -	8.9 +-117.E-03		08/30			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22705	9308L516-001	B08YF7	07/30				CE-141	L.T. 9. E-02		08/30			4
							CE-141 -	3.2 +-56.6E-03		08/30			4
							CE-144	L.T. 2. E-01		08/30			4
							CE-144	2.7 +-143.E-03		08/30			4
							EU-152	L.T. 1. E-01		08/30			4
							EU-152 -	2.2 +- 8.4E-02		08/30			4
							EU-154	L.T. 1. E-01		08/30			4
							EU-154 -	1.2 +- 8.0E-02		08/30			4
							EU-155	L.T. 1. E-01		08/30			4
							EU-155 -	2.4 +- 0.8E-01		08/30			4
							RA-226	L.T. 8. E-01		08/30			4
							RA-226 -	1.5 +- 4.7E-01		08/30			4
							TH-228	L.T. 8. E-02		08/30			4
							TH-228	2.5 +- 4.3E-02		08/30			4
							TH-234	L.T. 9. E-01		08/30			4
							TH-234 -	3.4 +- 4.8E-01		08/30			4
							TOTAL-U	L.T. 9. E-01		08/30			4
							TOTAL-U-	3.44+-4.75E-01		08/30			4
22706	9308L516-002	B08YG1	07/30				SR-90	2.2 +-0.2 E-01		09/10		14.90 *	3
							TC-99	L.T. 6. E-01		10/01			3
							TC-99	0.0 +-3.71E-01		10/01			3
							SR-90	L.T. 1. E-02		09/10			3
							BE-7	L.T. 7. E-01		08/30			4
							BE-7	1.3 +- 4.2E-01		08/30			4
							K-40	4.71+-0.47E 01		08/30			4
							K-40	L.T. 4. E 00		08/30			4
							MN-54	L.T. 6. E-02		08/30			4
							MN-54 -	5.4 +- 4.1E-02		08/30			4
							CO-58	L.T. 9. E-02		08/30			4
							CO-58 -	1.6 +-52.0E-03		08/30			4
							FE-59	L.T. 2. E-01		08/30			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22706	9308L516-002	B08YG1	07/30				FE-59	3.1 +-13.7E-02		08/30			4
							CO-60	L.T. 7. E-02		08/30			4
							CO-60	1.8 +- 4.1E-02		08/30			4
							ZN-65	L.T. 2. E-01		08/30			4
							ZN-65 -	4.7 +-10.7E-02		08/30			4
							ZR-95	L.T. 8. E-02		08/30			4
							ZR-95 -	1.4 +- 5.2E-02		08/30			4
							RU-103	L.T. 9. E-02		08/30			4
							RU-103 -	1.2 +- 5.4E-02		08/30			4
							RU-106	L.T. 6. E-01		08/30			4
							RU-106 -	3.4 +- 3.6E-01		08/30			4
							I-131	L.T. 8. E-01		08/30			4
							I-131	3.2 +-46.0E-02		08/30			4
							CS-134	L.T. 8. E-02		08/30			4
							CS-134	1.4 +- 4.6E-02		08/30			4
							CS-137	L.T. 6. E-02		08/30			4
							CS-137 -	8.3 +-39.2E-03		08/30			4
							BA-140	L.T. 3. E-01		08/30			4
							BA-140 -	3.5 +-15.8E-02		08/30			4
							CE-141	L.T. 1. E-01		08/30			4
							CE-141 -	2.2 +- 7.3E-02		08/30			4
							CE-144	L.T. 3. E-01		08/30			4
							CE-144 -	3.1 +-19.0E-02		08/30			4
							EU-152	L.T. 2. E-01		08/30			4
							EU-152 -	1.4 +- 1.1E-01		08/30			4
							EU-154	L.T. 3. E-01		08/30			4
							EU-154	3.7 +-15.0E-02		08/30			4
							EU-155	L.T. 2. E-01		08/30			4
							EU-155 -	3.0 +- 1.0E-01		08/30			4
							RA-226	L.T. 9. E-01		08/30			4
							RA-226 -	3.3 +- 5.5E-01		08/30			4
							TH-228	L.T. 1. E-01		08/30			4

TELEDYNE ISOTOPES

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TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22706	9308L516-002	B08YG1	07/30				TH-228	5.3 +- 5.6E-02		08/30			4
							TH-234	L.T. 1. E 00		08/30			4
							TH-234 -	7.4 +-58.0E-02		08/30			4
							TOTAL-U	L.T. 1. E 00		08/30			4
							TOTAL-U-	7.41+-58.0E-02		08/30			4
22707	9308L516-003	B08YG3	07/30				SR-90	7.7 +-1.6 E-02		09/12			3
							TC-99	L.T. 4. E-01		10/01			3
							TC-99 -	1.9 +-23.8E-02		10/01			3
							SR-90	L.T. 1. E-02		09/12			3
							BE-7	L.T. 9. E-01		08/30			4
							BE-7	7.4 +- 5.1E-01		08/30			4
							K-40	5.80+-0.58E 01		08/30			4
							K-40	L.T. 5. E 00		08/30			4
							MN-54	L.T. 8. E-02		08/30			4
							MN-54 -	2.5 +- 5.1E-02		08/30			4
							CO-58	L.T. 9. E-02		08/30			4
							CO-58 -	2.0 +- 5.7E-02		08/30			4
							FE-59	L.T. 3. E-01		08/30			4
							FE-59	8.2 +-16.0E-02		08/30			4
							CO-60	L.T. 8. E-02		08/30			4
							CO-60	3.2 +- 4.4E-02		08/30			4
							ZN-65	L.T. 2. E-01		08/30			4
							ZN-65 -	2.2 +-11.5E-02		08/30			4
							ZR-95	L.T. 1. E-01		08/30			4
							ZR-95 -	7.0 +-58.8E-03		08/30			4
							RU-103	L.T. 1. E-01		08/30			4
							RU-103 -	4.4 +- 6.4E-02		08/30			4
							RU-106	L.T. 7. E-01		08/30			4
							RU-106	1.5 +- 4.2E-01		08/30			4
							I-131	L.T. 8. E-01		08/30			4
							I-131 -	4.1 +- 5.1E-01		08/30			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22707	9308L516-003	B08YG3	07/30				CS-134	L.T. 9. E-02		08/30			4
							CS-134	1.5 +-52.3E-03		08/30			4
							CS-137	L.T. 8. E-02		08/30			4
							CS-137 -	5.3 +-48.0E-03		08/30			4
							BA-140	L.T. 3. E-01		08/30			4
							BA-140 -	2.5 +-19.3E-02		08/30			4
							CE-141	L.T. 2. E-01		08/30			4
							CE-141	6.3 +- 9.4E-02		08/30			4
							CE-144	L.T. 4. E-01		08/30			4
							CE-144	2.1 +-23.4E-02		08/30			4
							EU-152	L.T. 2. E-01		08/30			4
							EU-152 -	1.7 +- 1.3E-01		08/30			4
							EU-154	L.T. 4. E-01		08/30			4
							EU-154 -	9.3 +-19.2E-02		08/30			4
							EU-155	L.T. 2. E-01		08/30			4
							EU-155 -	5.3 +- 1.3E-01		08/30			4
							RA-226	L.T. 1. E 00		08/30			4
							RA-226 -	7.8 +-71.7E-02		08/30			4
							TH-228	L.T. 1. E-01		08/30			4
							TH-228	8.7 +- 7.0E-02		08/30			4
							TH-234	L.T. 1. E 00		08/30			4
							TH-234 -	1.0 +- 0.8E 00		08/30			4
							TOTAL-U	L.T. 1. E 00		08/30			4
							TOTAL-U-	1.03+-0.77E 00		08/30			4
22708	9308L516-004	B08YG9	08/02				SR-90	7.6 +-1.7 E-02		09/10		6.62 *	3
							TC-99	L.T. 5. E-01		10/01			3
							TC-99	1.4 +-3.35E-01		10/01			3
							SR-90	L.T. 1. E-02		09/10			3
							BE-7	L.T. 9. E-01		08/30			4
							BE-7 -	8.4 +-57.4E-02		08/30			4
							K-40	2.87+-0.64E 00		08/30			4

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TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22708	9308L516-004	B08YG9	08/02				K-40	L.T. 2. E 00		08/30			4
							MN-54	L.T. 8. E-02		08/30			4
							MN-54 -	1.3 +- 5.0E-02		08/30			4
							CO-58	L.T. 1. E-01		08/30			4
							CO-58 -	2.8 +- 6.0E-02		08/30			4
							FE-59	L.T. 2. E-01		08/30			4
							FE-59 -	6.8 +-13.9E-02		08/30			4
							CO-60	L.T. 8. E-02		08/30			4
							CO-60	4.7 +- 4.5E-02		08/30			4
							ZN-65	L.T. 2. E-01		08/30			4
							ZN-65	1.0 +- 1.1E-01		08/30			4
							ZR-95	L.T. 1. E-01		08/30			4
							ZR-95 -	4.3 +- 6.1E-02		08/30			4
							RU-103	L.T. 1. E-01		08/30			4
							RU-103 -	9.5 +-75.4E-03		08/30			4
							RU-106	L.T. 7. E-01		08/30			4
							RU-106 -	1.6 +- 4.6E-01		08/30			4
							I-131	L.T. 8. E-01		08/30			4
							I-131 -	5.7 +- 5.1E-01		08/30			4
							CS-134	L.T. 9. E-02		08/30			4
							CS-134	2.1 +- 5.1E-02		08/30			4
							CS-137	2.61+-0.26E 00		08/30			4
							CS-137	L.T. 3. E-01		08/30			4
							BA-140	L.T. 3. E-01		08/30			4
							BA-140	3.6 +-18.1E-02		08/30			4
							CE-141	L.T. 2. E-01		08/30			4
							CE-141 -	4.9 +-10.2E-02		08/30			4
							CE-144	L.T. 4. E-01		08/30			4
							CE-144 -	2.1 +- 2.7E-01		08/30			4
							EU-152	L.T. 3. E-01		08/30			4
							EU-152 -	2.5 +- 1.6E-01		08/30			4
							EU-154	L.T. 2. E-01		08/30			4

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S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22708	9308L516-004	B08YG9	08/02				EU-154 -	1.9 +-13.0E-02		08/30			4
							EU-155	L.T. 2. E-01		08/30			4
							EU-155 -	1.4 +- 1.4E-01		08/30			4
							RA-226	L.T. 2. E 00		08/30			4
							RA-226	5.7 +- 8.9E-01		08/30			4
							TH-228	L.T. 1. E-01		08/30			4
							TH-228	4.3 +- 8.2E-02		08/30			4
							TH-234	L.T. 1. E 00		08/30			4
							TH-234	1.2 +- 8.2E-01		08/30			4
							TOTAL-U	L.T. 1. E 00		08/30			4
							TOTAL-U	1.23+-8.17E-01		08/30			4
22709	9308L516-005	B08YH0	08/02				SR-90	3.3 +-0.3 E-01		09/10			3
							TC-99	L.T. 4. E-01		10/01			3
							TC-99 -	3.9 +-22.4E-02		10/01			3
							SR-90	L.T. 2. E-02		09/10			3
							BE-7	L.T. 8. E-01		08/31			4
							BE-7	3.6 +- 4.4E-01		08/31			4
							K-40	1.66+-0.17E 01		08/31			4
							K-40	L.T. 3. E 00		08/31			4
							MN-54	L.T. 6. E-02		08/31			4
							MN-54	3.0 +-38.7E-03		08/31			4
							CO-58	L.T. 8. E-02		08/31			4
							CO-58 -	1.1 +- 4.9E-02		08/31			4
							FE-59	L.T. 2. E-01		08/31			4
							FE-59	6.8 +-11.6E-02		08/31			4
							CO-60	L.T. 7. E-02		08/31			4
							CO-60	2.7 +- 4.0E-02		08/31			4
							ZN-65	L.T. 2. E-01		08/31			4
							ZN-65 -	1.5 +- 9.5E-02		08/31			4
							ZR-95	L.T. 9. E-02		08/31			4
							ZR-95	5.0 +- 5.0E-02		08/31			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22709	9308L516-005	B08YH0	08/02				RU-103	L.T. 9. E-02		08/31			4
							RU-103 -	2.2 +- 5.8E-02		08/31			4
							RU-106	L.T. 6. E-01		08/31			4
							RU-106 -	3.6 +- 3.7E-01		08/31			4
							I-131	L.T. 7. E-01		08/31			4
							I-131 -	1.1 +- 4.2E-01		08/31			4
							CS-134	L.T. 8. E-02		08/31			4
							CS-134	3.1 +-45.9E-03		08/31			4
							CS-137	L.T. 7. E-02		08/31			4
							CS-137	1.4 +-43.4E-03		08/31			4
							BA-140	L.T. 3. E-01		08/31			4
							BA-140 -	4.8 +-17.9E-02		08/31			4
							CE-141	L.T. 1. E-01		08/31			4
							CE-141 -	3.6 +- 8.1E-02		08/31			4
							CE-144	L.T. 3. E-01		08/31			4
							CE-144	4.0 +-209.E-03		08/31			4
							EU-152	L.T. 2. E-01		08/31			4
							EU-152 -	3.1 +-12.1E-02		08/31			4
							EU-154	L.T. 2. E-01		08/31			4
							EU-154	3.6 +-12.2E-02		08/31			4
							EU-155	L.T. 2. E-01		08/31			4
							EU-155 -	3.6 +- 1.2E-01		08/31			4
							RA-226	L.T. 1. E 00		08/31			4
							RA-226 -	1.6 +- 6.9E-01		08/31			4
							TH-228	L.T. 1. E-01		08/31			4
							TH-228	3.0 +- 6.3E-02		08/31			4
							TH-234	L.T. 1. E 00		08/31			4
							TH-234 -	4.1 +- 7.1E-01		08/31			4
							TOTAL-U	L.T. 1. E 00		08/31			4
							TOTAL-U-	4.12+-7.14E-01		08/31			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 9
4-3231	LL-1140-F4	08/11/93	09/13/93	

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE		ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22710	9308L516-006	B08YH1	08/02				SR-90		6.4 +-2.9 E-02		09/22			3
							TC-99		L.T. 4. E-01		10/06			3
							TC-99		1.7 +-2.5 E-01		10/06			3
							SR-90		L.T. 3. E-02		09/22			3
							BE-7		L.T. 1. E 00		08/31			4
							BE-7	-	1.4 +- 9.0E-01		08/31			4
							K-40		9.38+-1.49E 00		08/31			4
							K-40		L.T. 5. E 00		08/31			4
							MN-54		L.T. 1. E-01		08/31			4
							MN-54	-	1.4 +- 9.1E-02		08/31			4
							CO-58		L.T. 2. E-01		08/31			4
							CO-58	-	1.2 +-10.4E-02		08/31			4
							FE-59		L.T. 4. E-01		08/31			4
							FE-59	-	3.3 +-23.0E-02		08/31			4
							CO-60		L.T. 1. E-01		08/31			4
							CO-60		4.7 +-77.2E-03		08/31			4
							ZN-65		L.T. 3. E-01		08/31			4
							ZN-65		1.0 +- 1.7E-01		08/31			4
							ZR-95		L.T. 2. E-01		08/31			4
							ZR-95	-	1.6 +-10.5E-02		08/31			4
							RU-103		L.T. 2. E-01		08/31			4
							RU-103	-	3.9 +-12.2E-02		08/31			4
							RU-106		L.T. 1. E 00		08/31			4
							RU-106	-	1.6 +- 8.3E-01		08/31			4
							I-131		L.T. 2. E 00		08/31			4
							I-131		7.2 +- 9.2E-01		08/31			4
							CS-134		L.T. 2. E-01		08/31			4
							CS-134		4.6 +- 9.4E-02		08/31			4
							CS-137		1.54+-0.80E-01		08/31			4
							CS-137		L.T. 2. E-01		08/31			4
							BA-140		L.T. 7. E-01		08/31			4
							BA-140		4.1 +- 3.8E-01		08/31			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22710	9308L516-006	B08YH1	08/02				CE-141	L.T. 3. E-01		08/31			4
							CE-141 -	2.0 +-16.1E-02		08/31			4
							CE-144	L.T. 7. E-01		08/31			4
							CE-144	3.5 +-42.0E-02		08/31			4
							EU-152	L.T. 4. E-01		08/31			4
							EU-152 -	1.1 +- 2.5E-01		08/31			4
							EU-154	L.T. 4. E-01		08/31			4
							EU-154	8.1 +-24.8E-02		08/31			4
							EU-155	L.T. 4. E-01		08/31			4
							EU-155 -	7.1 +- 2.2E-01		08/31			4
							RA-226	L.T. 2. E 00		08/31			4
							RA-226 -	8.8 +-136.E-02		08/31			4
							TH-228	L.T. 2. E-01		08/31			4
							TH-228	5.0 +-13.4E-02		08/31			4
							TH-234	L.T. 2. E 00		08/31			4
							TH-234 -	1.0 +- 1.3E 00		08/31			4
							TOTAL-U	L.T. 2. E 00		08/31			4
							TOTAL-U-	1.00+-1.32E 00		08/31			4
22711	9308L516-007	B08YH2	08/02				SR-90	4.1 +-0.1 E 00		09/10		7.85 *	3
							TC-99	L.T. 5. E-01		10/01			3
							TC-99 -	2.2 +-28.9E-02		10/01			3
							SR-90	L.T. 2. E-02		09/10			3
							BE-7	1.31+-0.64E 00		08/31			4
							BE-7	L.T. 1. E 00		08/31			4
							K-40	1.18+-0.12E 01		08/31			4
							K-40	L.T. 3. E 00		08/31			4
							MN-54	L.T. 1. E-01		08/31			4
							MN-54 -	1.9 +- 5.9E-02		08/31			4
							CO-58	L.T. 1. E-01		08/31			4
							CO-58 -	5.8 +- 6.8E-02		08/31			4
							FE-59	L.T. 3. E-01		08/31			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 11
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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22711	9308L516-007	B08YH2	08/02				FE-59	4.9 +-15.4E-02		08/31			4
							CO-60	L.T. 1. E-01		08/31			4
							CO-60	3.8 +- 5.4E-02		08/31			4
							ZN-65	L.T. 2. E-01		08/31			4
							ZN-65 -	5.5 +-128.E-03		08/31			4
							ZR-95	L.T. 1. E-01		08/31			4
							ZR-95	2.1 +- 7.4E-02		08/31			4
							RU-103	L.T. 1. E-01		08/31			4
							RU-103	4.0 +- 8.1E-02		08/31			4
							RU-106	L.T. 9. E-01		08/31			4
							RU-106	3.1 +- 5.5E-01		08/31			4
							I-131	L.T. 1. E 00		08/31			4
							I-131 -	1.5 +-62.5E-02		08/31			4
							CS-134	L.T. 1. E-01		08/31			4
							CS-134 -	5.0 +- 6.4E-02		08/31			4
							CS-137	L.T. 1. E-01		08/31			4
							CS-137	7.3 +- 6.3E-02		08/31			4
							BA-140	L.T. 4. E-01		08/31			4
							BA-140 -	2.2 +- 2.5E-01		08/31			4
							CE-141	L.T. 2. E-01		08/31			4
							CE-141	4.9 +-12.5E-02		08/31			4
							CE-144	L.T. 5. E-01		08/31			4
							CE-144	8.6 +-32.2E-02		08/31			4
							EU-152	L.T. 3. E-01		08/31			4
							EU-152 -	3.1 +- 1.8E-01		08/31			4
							EU-154	L.T. 5. E-01		08/31			4
							EU-154 -	2.3 +- 2.3E-01		08/31			4
							EU-155	L.T. 3. E-01		08/31			4
							EU-155 -	8.8 +- 1.8E-01		08/31			4
							RA-226	L.T. 2. E 00		08/31			4
							RA-226	9.4 +-10.2E-01		08/31			4
							TH-228	L.T. 2. E-01		08/31			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22711	9308L516-007	B08YH2	08/02				TH-228	9.2 +- 9.6E-02		08/31			4
							TH-234	L.T. 2. E 00		08/31			4
							TH-234 -	2.0 +-10.7E-01		08/31			4
							TOTAL-U-	1.99+-10.7E-01		08/31			4
22712	9308L516-008	B08YH7	08/02				SR-90	1.7 +-0.1 E 00		09/10		15.33 *	3
							TC-99	L.T. 5. E-01		10/01			3
							TC-99	5.1 +-33.9E-02		10/01			3
							SR-90	L.T. 3. E-02		09/10			3
							BE-7	L.T. 2. E 00		08/31			4
							BE-7	3.3 +-122.E-02		08/31			4
							K-40	4.62+-0.46E 01		08/31			4
							K-40	L.T. 8. E 00		08/31			4
							MN-54	L.T. 2. E-01		08/31			4
							MN-54 -	1.1 +-11.2E-02		08/31			4
							CO-58	L.T. 2. E-01		08/31			4
							CO-58 -	6.1 +-14.9E-02		08/31			4
							FE-59	L.T. 5. E-01		08/31			4
							FE-59	1.2 +-32.0E-02		08/31			4
							CO-60	L.T. 2. E-01		08/31			4
							CO-60 -	4.2 +-10.5E-02		08/31			4
							ZN-65	L.T. 4. E-01		08/31			4
							ZN-65 -	1.2 +- 2.7E-01		08/31			4
							ZR-95	L.T. 2. E-01		08/31			4
							ZR-95	3.6 +-14.7E-02		08/31			4
							RU-103	L.T. 3. E-01		08/31			4
							RU-103	9.0 +-16.7E-02		08/31			4
							RU-106	L.T. 2. E 00		08/31			4
							RU-106 -	4.6 +-10.8E-01		08/31			4
							I-131	L.T. 2. E 00		08/31			4
							I-131	1.1 +-11.9E-01		08/31			4
							CS-134	L.T. 2. E-01		08/31			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 13
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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22712	9308L516-008	B08YH7	08/02				CS-134	1.4 +- 1.3E-01		08/31			4
							CS-137	L.T. 2. E-01		08/31			4
							CS-137	2.0 +- 1.3E-01		08/31			4
							BA-140	L.T. 7. E-01		08/31			4
							BA-140 -	2.1 +- 4.5E-01		08/31			4
							CE-141	L.T. 4. E-01		08/31			4
							CE-141	8.3 +-237.E-03		08/31			4
							CE-144	L.T. 1. E 00		08/31			4
							CE-144	4.0 +- 6.1E-01		08/31			4
							EU-152	L.T. 6. E-01		08/31			4
							EU-152 -	4.4 +-34.8E-02		08/31			4
							EU-154	L.T. 5. E-01		08/31			4
							EU-154 -	4.5 +- 3.7E-01		08/31			4
							EU-155	L.T. 5. E-01		08/31			4
							EU-155 -	3.5 +- 3.0E-01		08/31			4
							RA-226	L.T. 3. E 00		08/31			4
							RA-226 -	1.1 +-19.9E-01		08/31			4
							TH-228	L.T. 3. E-01		08/31			4
							TH-228	8.3 +-17.6E-02		08/31			4
							TH-234	L.T. 3. E 00		08/31			4
							TH-234 -	2.0 +-17.9E-01		08/31			4
							TOTAL-U	L.T. 3. E 00		08/31			4
							TOTAL-U-	2.04+-17.9E-01		08/31			4
22713	9308L516-009	B08YH8	08/02				SR-90	4.8 +-0.2 E 00		09/12			3
							TC-99	L.T. 5. E-01		10/01			3
							TC-99	0.0 +-3.0 E-01		10/01			3
							SR-90	L.T. 3. E-02		09/12			3
							BE-7	6.57+-3.79E-01		09/02			4
							BE-7	L.T. 7. E-01		09/02			4
							K-40	5.26+-0.53E 01		09/02			4
							K-40	L.T. 4. E 00		09/02			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22713	9308L516-009	B08YH8	08/02				MN-54	L.T. 6. E-02		09/02			4
							MN-54	1.1 +-35.7E-03		09/02			4
							CO-58	L.T. 8. E-02		09/02			4
							CO-58	1.7 +- 4.7E-02		09/02			4
							FE-59	L.T. 2. E-01		09/02			4
							FE-59 -	4.0 +-12.4E-02		09/02			4
							CO-60	L.T. 6. E-02		09/02			4
							CO-60 -	6.0 +-37.1E-03		09/02			4
							ZN-65	L.T. 2. E-01		09/02			4
							ZN-65	8.3 +-94.8E-03		09/02			4
							ZR-95	L.T. 8. E-02		09/02			4
							ZR-95	3.1 +- 4.6E-02		09/02			4
							RU-103	L.T. 8. E-02		09/02			4
							RU-103	1.8 +- 5.0E-02		09/02			4
							RU-106	L.T. 5. E-01		09/02			4
							RU-106 -	1.9 +- 3.3E-01		09/02			4
							I-131	L.T. 7. E-01		09/02			4
							I-131	1.5 +- 4.2E-01		09/02			4
							CS-134	L.T. 7. E-02		09/02			4
							CS-134	1.9 +- 4.1E-02		09/02			4
							CS-137	3.83+-0.56E-01		09/02			4
							CS-137	L.T. 1. E-01		09/02			4
							BA-140	L.T. 3. E-01		09/02			4
							BA-140	8.6 +-14.1E-02		09/02			4
							CE-141	L.T. 1. E-01		09/02			4
							CE-141	7.6 +- 6.9E-02		09/02			4
							CE-144	L.T. 3. E-01		09/02			4
							CE-144 -	1.7 +-17.4E-02		09/02			4
							EU-152	L.T. 2. E-01		09/02			4
							EU-152	8.0 +-96.9E-03		09/02			4
							EU-154	L.T. 2. E-01		09/02			4
							EU-154 -	2.3 +- 1.3E-01		09/02			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22713	9308L516-009	B08YH8	08/02				EU-155	L.T. 2. E-01		09/02			4
							EU-155 -	3.1 +- 0.9E-01		09/02			4
							RA-226	L.T. 9. E-01		09/02			4
							RA-226 -	5.3 +-53.8E-02		09/02			4
							TH-228	L.T. 1. E-01		09/02			4
							TH-228	1.2 +- 0.5E-01		09/02			4
							TH-234	L.T. 1. E 00		09/02			4
							TH-234	2.5 +- 5.7E-01		09/02			4
							TOTAL-U	L.T. 1. E 00		09/02			4
							TOTAL-U	2.50+-5.71E-01		09/02			4
22714	9308L516-010	B08YH9	08/02				SR-90	2.5 +-0.6 E-01		09/16		11.18 *	3
							TC-99	L.T. 4. E-01		10/01			3
							TC-99	2.4 +-2.8 E-01		10/01			3
							SR-90	L.T. 5. E-02		09/16			3
							BE-7	3.94+-0.71E 00		09/02			4
							BE-7	L.T. 1. E 00		09/02			4
							K-40	7.61+-0.90E 00		09/02			4
							K-40	L.T. 2. E 00		09/02			4
							MN-54	L.T. 7. E-02		09/02			4
							MN-54	1.3 +- 4.2E-02		09/02			4
							CO-58	L.T. 8. E-02		09/02			4
							CO-58 -	1.4 +- 5.1E-02		09/02			4
							FE-59	L.T. 2. E-01		09/02			4
							FE-59 -	2.7 +-12.2E-02		09/02			4
							CO-60	L.T. 7. E-02		09/02			4
							CO-60	4.5 +-40.7E-03		09/02			4
							ZN-65	L.T. 1. E-01		09/02			4
							ZN-65 -	2.9 +- 8.5E-02		09/02			4
							ZR-95	L.T. 7. E-02		09/02			4
							ZR-95 -	2.0 +- 4.6E-02		09/02			4
							RU-103	L.T. 1. E-01		09/02			4

TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M ÷	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% ÷	LAB.
22714	9308L516-010	B08YH9	08/02				RU-103 -	1.4 +- 6.2E-02		09/02			4
							RU-106	L.T. 6. E-01		09/02			4
							RU-106 -	1.0 +- 3.9E-01		09/02			4
							I-131	L.T. 9. E-01		09/02			4
							I-131 -	2.7 +-53.2E-02		09/02			4
							CS-134	L.T. 7. E-02		09/02			4
							CS-134 -	3.3 +- 4.7E-02		09/02			4
							CS-137	7.77+-0.78E-01		09/02			4
							CS-137	L.T. 2. E-01		09/02			4
							BA-140	L.T. 3. E-01		09/02			4
							BA-140	0.0 +- 1.9E-01		09/02			4
							CE-141	L.T. 2. E-01		09/02			4
							CE-141	1.8 +-92.0E-03		09/02			4
							CE-144	L.T. 4. E-01		09/02			4
							CE-144 -	5.9 +-22.9E-02		09/02			4
							EU-152	L.T. 2. E-01		09/02			4
							EU-152	0.0 +- 1.3E-01		09/02			4
							EU-154	L.T. 2. E-01		09/02			4
							EU-154 -	7.1 +-11.1E-02		09/02			4
							EU-155	L.T. 2. E-01		09/02			4
							EU-155 -	3.6 +- 1.2E-01		09/02			4
							RA-226	L.T. 1. E 00		09/02			4
							RA-226	3.7 +-737.E-03		09/02			4
							TH-228	L.T. 1. E-01		09/02			4
							TH-228	1.4 +- 0.7E-01		09/02			4
							TH-234	L.T. 1. E 00		09/02			4
							TH-234 -	5.5 +- 7.3E-01		09/02			4
							TOTAL-U	L.T. 1. E 00		09/02			4
							TOTAL-U-	5.53+-7.27E-01		09/02			4

TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22716	9308L516-011	B08YJ5	08/04				FE-59	1.9 +-14.2E-02		09/02			4
							CO-60	3.01+-0.71E-01		09/02			4
							CO-60	L.T. 2. E-01		09/02			4
							ZN-65	L.T. 2. E-01		09/02			4
							ZN-65	1.0 +-11.9E-02		09/02			4
							ZR-95	L.T. 1. E-01		09/02			4
							ZR-95	9.1 +- 7.0E-02		09/02			4
							RU-103	L.T. 2. E-01		09/02			4
							RU-103	0.0 +- 9.2E-02		09/02			4
							RU-106	L.T. 9. E-01		09/02			4
							RU-106 -	1.4 +- 5.6E-01		09/02			4
							I-131	L.T. 1. E 00		09/02			4
							I-131	2.8 +- 6.7E-01		09/02			4
							CS-134	L.T. 1. E-01		09/02			4
							CS-134 -	3.3 +- 6.0E-02		09/02			4
							CS-137	8.04+-0.80E 00		09/02			4
							CS-137	L.T. 6. E-01		09/02			4
							BA-140	L.T. 4. E-01		09/02			4
							BA-140	2.0 +- 2.1E-01		09/02			4
							CE-141	L.T. 2. E-01		09/02			4
							CE-141 -	4.0 +-11.1E-02		09/02			4
							CE-144	L.T. 5. E-01		09/02			4
							CE-144 -	5.7 +-28.9E-02		09/02			4
							EU-152	L.T. 3. E-01		09/02			4
							EU-152 -	5.2 +-18.8E-02		09/02			4
							EU-154	L.T. 4. E-01		09/02			4
							EU-154 -	2.5 +- 2.0E-01		09/02			4
							EU-155	L.T. 3. E-01		09/02			4
							EU-155 -	7.9 +- 1.5E-01		09/02			4
							RA-226	L.T. 2. E 00		09/02			4
							RA-226	4.3 +-98.2E-02		09/02			4
							TH-228	L.T. 2. E-01		09/02			4

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22716	9308L516-011	B08YJ5	08/04				TH-228	9.9 +- 9.4E-02		09/02			4
							TH-234	L.T. 2. E 00		09/02			4
							TH-234 -	7.0 +- 9.3E-01		09/02			4
							TOTAL-U	L.T. 2. E 00		09/02			4
							TOTAL-U-	7.02+-9.35E-01		09/02			4
22717	9308L516-012	B08YJ6	08/04				SR-90	1.3 +-0.2 E-01		09/11		10.02 *	3
							TC-99	L.T. 6. E-01		10/01			3
							TC-99 -	2.2 +-3.30E-01		10/01			3
							SR-90	L.T. 2. E-02		09/11			3
							BE-7	L.T. 1. E 00		09/02			4
							BE-7 -	2.4 +- 7.9E-01		09/02			4
							K-40	2.60+-0.62E 00		09/02			4
							K-40	L.T. 2. E 00		09/02			4
							MN-54	L.T. 9. E-02		09/02			4
							MN-54	3.7 +-51.8E-03		09/02			4
							CO-58	L.T. 1. E-01		09/02			4
							CO-58 -	4.6 +-64.6E-03		09/02			4
							FE-59	L.T. 2. E-01		09/02			4
							FE-59	6.0 +-139.E-03		09/02			4
							CO-60	L.T. 9. E-02		09/02			4
							CO-60	4.3 +- 5.0E-02		09/02			4
							ZN-65	L.T. 2. E-01		09/02			4
							ZN-65	5.1 +-10.7E-02		09/02			4
							ZR-95	L.T. 1. E-01		09/02			4
							ZR-95	3.1 +- 6.9E-02		09/02			4
							RU-103	L.T. 2. E-01		09/02			4
							RU-103	6.8 +- 9.8E-02		09/02			4
							RU-106	L.T. 9. E-01		09/02			4
							RU-106 -	7.5 +-55.1E-02		09/02			4
							I-131	L.T. 1. E 00		09/02			4
							I-131 -	2.2 +- 7.0E-01		09/02			4

TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22717	9308L516-012	B08YJ6	08/04				CS-134	L.T. 9. E-02		09/02			4
							CS-134 -	2.2 +- 5.7E-02		09/02			4
							CS-137	8.62+-0.86E 00		09/02			4
							CS-137	L.T. 6. E-01		09/02			4
							BA-140	L.T. 4. E-01		09/02			4
							BA-140	1.0 +- 2.2E-01		09/02			4
							CE-141	L.T. 2. E-01		09/02			4
							CE-141	3.6 +-11.7E-02		09/02			4
							CE-144	L.T. 5. E-01		09/02			4
							CE-144	1.0 +-30.8E-02		09/02			4
							EU-152	L.T. 3. E-01		09/02			4
							EU-152 -	2.6 +- 1.9E-01		09/02			4
							EU-154	L.T. 2. E-01		09/02			4
							EU-154 -	3.6 +-14.3E-02		09/02			4
							EU-155	L.T. 3. E-01		09/02			4
							EU-155 -	1.5 +- 1.5E-01		09/02			4
							RA-226	L.T. 2. E 00		09/02			4
							RA-226	6.5 +-10.4E-01		09/02			4
							TH-228	L.T. 2. E-01		09/02			4
							TH-228	5.3 +- 9.8E-02		09/02			4
							TH-234	L.T. 2. E 00		09/02			4
							TH-234 -	5.9 +- 9.1E-01		09/02			4
							TOTAL-U	L.T. 2. E 00		09/02			4
							TOTAL-U-	5.92+-9.08E-01		09/02			4
22718	9308L516-013	B08YJ7	08/04				SR-90	3.0 +-0.4 E-01		09/11		7.80 *	3
							TC-99	L.T. 4. E-01		10/01			3
							TC-99 -	6.0 +-25.8E-02		10/01			3
							SR-90	L.T. 2. E-02		09/11			3
							BE-7	L.T. 2. E 00		09/03			4
							BE-7	2.0 +-10.4E-01		09/03			4
							K-40	1.60+-0.19E 01		09/03			4

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22718	9308L516-013	B08YJ7	08/04				K-40	L.T. 5. E 00		09/03			4
							MN-54	L.T. 1. E-01		09/03			4
							MN-54 -	1.7 +- 8.8E-02		09/03			4
							CO-58	L.T. 2. E-01		09/03			4
							CO-58 -	1.0 +- 1.1E-01		09/03			4
							FE-59	L.T. 4. E-01		09/03			4
							FE-59	5.7 +-25.1E-02		09/03			4
							CO-60	L.T. 1. E-01		09/03			4
							CO-60 -	2.4 +- 8.4E-02		09/03			4
							ZN-65	L.T. 3. E-01		09/03			4
							ZN-65 -	8.7 +-20.2E-02		09/03			4
							ZR-95	L.T. 2. E-01		09/03			4
							ZR-95	4.1 +-110.E-03		09/03			4
							RU-103	L.T. 2. E-01		09/03			4
							RU-103	2.4 +-12.9E-02		09/03			4
							RU-106	L.T. 1. E 00		09/03			4
							RU-106 -	2.4 +- 8.3E-01		09/03			4
							I-131	L.T. 2. E 00		09/03			4
							I-131 -	2.5 +- 9.8E-01		09/03			4
							CS-134	L.T. 1. E-01		09/03			4
							CS-134 -	6.4 +- 9.1E-02		09/03			4
							CS-137	3.55+-0.35E 00		09/03			4
							CS-137	L.T. 5. E-01		09/03			4
							BA-140	L.T. 6. E-01		09/03			4
							BA-140 -	8.7 +-37.4E-02		09/03			4
							CE-141	L.T. 3. E-01		09/03			4
							CE-141 -	6.2 +-16.9E-02		09/03			4
							CE-144	L.T. 7. E-01		09/03			4
							CE-144	8.9 +-443.E-03		09/03			4
							EU-152	L.T. 4. E-01		09/03			4
							EU-152 -	2.6 +- 2.7E-01		09/03			4
							EU-154	L.T. 4. E-01		09/03			4

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22718	9308L516-013	B08YJ7	08/04				EU-154	0.0 +- 2.3E-01		09/03			4
							EU-155	L.T. 4. E-01		09/03			4
							EU-155 -	6.6 +- 2.3E-01		09/03			4
							RA-226	L.T. 2. E 00		09/03			4
							RA-226	2.0 +-13.9E-01		09/03			4
							TH-228	L.T. 3. E-01		09/03			4
							TH-228	2.0 +- 1.4E-01		09/03			4
							TH-234	L.T. 2. E 00		09/03			4
							TH-234 -	7.6 +-13.4E-01		09/03			4
							TOTAL-U	L.T. 2. E 00		09/03			4
							TOTAL-U-	7.59+-13.4E-01		09/03			4
22719	9308L516-014	B08YJ8	08/04				SR-90	4.2 +-0.2 E 00		09/16		6.65 *	3
							TC-99	L.T. 6. E-01		10/01			3
							TC-99 -	2.7 +-34.3E-02		10/01			3
							SR-90	L.T. 3. E-02		09/16			3
							BE-7	L.T. 2. E 00		09/03			4
							BE-7	9.6 +- 8.6E-01		09/03			4
							K-40	7.81+-1.26E 00		09/03			4
							K-40	L.T. 4. E 00		09/03			4
							MN-54	L.T. 1. E-01		09/03			4
							MN-54	2.6 +- 7.5E-02		09/03			4
							CO-58	L.T. 1. E-01		09/03			4
							CO-58 -	7.2 +- 9.5E-02		09/03			4
							FE-59	L.T. 3. E-01		09/03			4
							FE-59 -	1.4 +- 2.0E-01		09/03			4
							CO-60	L.T. 1. E-01		09/03			4
							CO-60	4.0 +-61.2E-03		09/03			4
							ZN-65	L.T. 3. E-01		09/03			4
							ZN-65	0.0 +- 1.6E-01		09/03			4
							ZR-95	L.T. 2. E-01		09/03			4
							ZR-95	8.3 +- 9.9E-02		09/03			4

TELEDYNE ISOTOPES

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MRS JOSIF EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22719	9308L516-014	B08YJ8	08/04				RU-103	L.T. 2. E-01		09/03			4
							RU-103 -	1.4 +-11.3E-02		09/03			4
							RU-106	L.T. 1. E 00		09/03			4
							RU-106	1.8 +- 7.4E-01		09/03			4
							I-131	L.T. 1. E 00		09/03			4
							I-131 -	5.1 +- 8.7E-01		09/03			4
							CS-134	L.T. 1. E-01		09/03			4
							CS-134 -	4.9 +- 8.9E-02		09/03			4
							CS-137	2.39+-0.95E-01		09/03			4
							CS-137	L.T. 2. E-01		09/03			4
							BA-140	L.T. 7. E-01		09/03			4
							BA-140	2.4 +- 4.1E-01		09/03			4
							CE-141	L.T. 2. E-01		09/03			4
							CE-141 -	1.2 +- 1.5E-01		09/03			4
							CE-144	L.T. 7. E-01		09/03			4
							CE-144	6.9 +-39.7E-02		09/03			4
							EU-152	L.T. 4. E-01		09/03			4
							EU-152 -	1.5 +- 2.4E-01		09/03			4
							EU-154	L.T. 6. E-01		09/03			4
							EU-154 -	8.5 +-30.2E-02		09/03			4
							EU-155	L.T. 4. E-01		09/03			4
							EU-155 -	1.1 +- 0.2E 00		09/03			4
							RA-226	L.T. 2. E 00		09/03			4
							RA-226	7.3 +-12.7E-01		09/03			4
							TH-228	L.T. 3. E-01		09/03			4
							TH-228	3.7 +- 1.3E-01		09/03			4
							TH-234	L.T. 2. E 00		09/03			4
							TH-234 -	3.6 +-13.0E-01		09/03			4
							TOTAL-U	L.T. 2. E 00		09/03			4
							TOTAL-U-	3.57+-13.0E-01		09/03			4

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

257

Client: WESTON/WESTINGHOUSE
Est. Final Proj. Sampling Date:
Work Order #: 6668-02-01-9999
Project Contact/Phone #:
AD Project Manager: Josie Edwards
QC: CLP Del: CLP TAT: 56 Days
Date Rec'd: Date Due:
Account #:

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC					INORG	
VOA	BNA	Pest/PCB	Herb	Radio-chem	Metal	CN

WESTON Analytics Use Only: RFW#9308-516

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Radio-chem (SEE BELOW)	
	B08UF7			Solid	7/30/93		✓	-001
	B08UG1						✓	-002
	B08UG3						✓	-003
	B08UG9				8/2/93		✓	-004
	B08UH0						✓	-005
	B08UH1						✓	-006
	B08UH2						✓	-007
	B08UH7						✓	-008
	B08UH8						✓	-009
	B08UH9						✓	-010

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Radiochem=Gamma SPEC, SR-90, TOTAL U; TC-99

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
	Schedan	8/1-93	1202

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___ 381-596a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON MANAGERS DESIGNERS CONSULTANTS

253

Client: WESTON/WESTinghouse
Est. Final Proj. Sampling Date:
Work Order #: 6168 0201-9999
Project Contact/Phone #:
AD Project Manager: Josie Edwards
QC: CLP Del: CLP TAT: 56 Days
Date Rec'd: Date Due:
Account #:

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC					INORG	
VOA	BNA	Pest/PCB	Herb	Radio-Chem	Metal	CN

WESTON Analytics Use Only

RFW#9308L516

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Radio-Chem (SEE BELOW)	
	B08VJ5			Solid	8/4/93		✓	-011
	B08VJ6						✓	-012
	B08VJ7						✓	-013
	B08VJ8						✓	-014

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Radio-Chem = Gamma SPEC, SR-90, TOTAL U; TC-99

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___ Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
					A. Bodey	8-11-93	1400

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___ 381-596a

Westinghouse Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 1

2. Preprinted No. 051904

QA Log No.

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg./Spec./Other No.	7. Rev.
N/A	200 BIOTA	soils / rodent	SAF # 93-216	N/A

8. Program/Project/Other: 200 BIOTA

9. Safety Class: N/A

10. ASME Code Items ☐ Yes ☐ No (If yes, notify authorized inspector)

11. Supplier Name/Address

12. Notification of Potential Occurence Required ☐ Yes ☒ No

13. Code: Lot/Heat/Serial: N/A

14. Lot Size

15. Sample: BOBYMU 5 5 5 5 9

16. Qty. Acc.

17. Inspection Criteria ☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other WHC-.....

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
1)	THE LIST OF SAMPLES ON THE WHC SAR WAS INCOMPLETE. THE SAR LISTED ONLY ICP/GFAA METALS TO BE ANALYZED. BASED ON THE SAF AND OTHER SARS FOR PREVIOUS SAMPLES, HG AND CN SHOULD HAVE BEEN LISTED WITH ICP/GFAA METALS. IN ADDITION, GAMMA SPEC INCLUDING SR-90 U., AND TC-99 SHOULD HAVE BEEN INCLUDED ON THE SAR ALSO. THE COGNIZANT ENGINEER (JON LUCAS) FOR THIS PROJECT AGREED THAT THE ADDITIONAL ANALYSES SHOULD HAVE BEEN INCLUDED ON THE SAR. IN CASE OF A LIMITED QUANTITY OF SAMPLE, JON LUCAS STATED THAT PRIORITY SHOULD BE GIVEN TO THE RAD ANALYSES.	JOSIE EDWARDS AT WESTON WAS INSTRUCTED TO INCLUDE THE ADDITIONAL ANALYSES, BUT TO PLACE A PRIORITY ON ALL RAD ANALYSES IN CASE OF SAMPLE SHORTAGE. BMB 9/20/93

CANCELLED

20. Originator's Signature: [signature] Date: 9-17-93

21. Cognizant QA Manager's Signature: [signature] FOR JON LUCAS Date: 9-17-93

23. Design Document Change Required? ☐ Yes, Doc. No. _____ ☐ No

24. Corrective Action Required? ☐ Yes, No. _____ ☐ No

Disp. App.

25. Cognizant Engineer	Date	26. Technical Rep.	Date	Signature/Org.	Date
QA Engineer	Date	Signature/Org.	Date	Signature/Org.	Date

Close

27. Accept _____ Reject _____ Follow on NCR _____ QA/C Personnel _____ Date

A-7310-104 (10/91)

VALIDATION SUMMARY

Golder Associates Inc.

4104-148th Avenue, NE
Redmond, WA 98052
Telephone (206) 883-0777
Fax (206) 882-5498

Golder Associates

March 24, 1994

MAR 1994 RECEIVED TQO

Our ref: 923-E416
S/O/2912

Westinghouse Hanford Company
Hanford Analytical Services Management
345 Hills, MSIN H4-29
Richland, Washington 99352

ATTENTION: Ms. Jeanette Duncan

RE: TRANSMITTAL OF COMMENT RESPONSES FOR THE 200 AREA BIOTA DATA VALIDATION PROJECT, TASK ORDER S-94-16, PURCHASE ORDER M073750

Dear Ms. Duncan:

This letter transmits comment responses for the 200 Area Biota Data Validation Project, for the following analytical data packages:

- 9308L516-WES-1217
- 9308L515-WES-1224
- 22705-WES-1257
- 9309L885-WES-1284
- 27605-WES-1357
- 27601-WES-1328

Comment responses are provided on the attached pages. If you have any questions regarding the enclosed, please contact us.

Sincerely,

GOLDER ASSOCIATES INC.

Kent M. Angelos
Project Manager

Enclosures

cc: P.K. Brockman
C. Jensen

Golder Associates Inc.

4104-148th Avenue, NE
Redmond, WA 98052
Telephone (206) 883-0777
Fax (206) 882-5498

Golder Associates

February 14, 1994

Our ref: 923-E416
S/O/2834

Westinghouse Hanford Company
Hanford Analytical Services Management
345 Hills, MSIN H4-29
Richland, Washington 99352

ATTENTION: Ms. Jeanette Duncan

RE: 200 AREA BIOTA DATA VALIDATION, TRANSMITTAL OF DATA VALIDATION PACKAGES, TASK ORDER S-94-16

Dear Ms. Duncan:

Enclosed are the following analytical data packages for the 200 Area Biota data validation project:

- 22705-WES-1257
- 27605-WES-1367

Three copies of the data verification and validation documentation is located in the front of each data package. Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kent M. Angelos
Task Leader

KMA/ah 2834.ltr whc-2

Enclosures

cc: P.K. Brockman, SAIC-Kennewick

FEB 1994
RECEIVED
TQO

RECEIVED
FEB 15 1994
VALIDATION DOCUMENTATION
SDLA

MEMORANDUM

TO: 200 Area Biota Project QA Record April 12, 1994

FR: Susan Winter, Golder Associates Inc.

RE: RADIOCHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE: 22705-WES-1257 (923-E416, Filename 27605RAD.BIO)

INTRODUCTION

This memo presents the results of data validation on data package 22705-WES-1257 consisting of fourteen (14) solid (vegetation) samples for radiochemistry analysis. The samples were analyzed by the Teledyne Isotopes laboratory using WHC approved methods. A list of samples validated is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B08YF7	07/30/93	SOLID (Vegetation)	SEE NOTE 1
B08YG1	07/30/93	SOLID (Vegetation)	
B08YG3	07/30/93	SOLID (Vegetation)	
B08YG9*	08/02/93	SOLID (Vegetation)	
B08YH0	08/02/93	SOLID (Vegetation)	
B08YH1*	08/02/93	SOLID (Vegetation)	
B08YH2	08/02/93	SOLID (Vegetation)	
B08YH7	08/02/93	SOLID (Vegetation)	
B08YH8	08/02/93	SOLID (Vegetation)	
B08YH9	08/02/93	SOLID (Vegetation)	
B08YJ5*	08/04/93	SOLID (Vegetation)	
B08YJ6	08/04/93	SOLID (Vegetation)	
B08YJ7	08/04/93	SOLID (Vegetation)	
B08YJ8	08/04/93	SOLID (Vegetation)	

* Indicates sample which received 100% validation.
Note 1. All samples were analyzed for technetium-99, strontium-90, total uranium, and gamma spectroscopy.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Revised 4/12/94

-001

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. A total of fourteen samples were validated in this data package with a total of 350 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Chemical Yield

- Technetium-99 chemical yield for samples B08YG1 and the laboratory blank spike (TI# 22721) were less than 30% but greater than 10%. Therefore, the associated sample results have been qualified as estimated (J/UJ).

Gamma Spectroscopy

- The laboratory blank and laboratory control sample were analyzed in a different geometry than some of the samples included in this data package. Attachments 2 and 5 a summary of the samples affected, data qualifications, and supporting documentation.

DATA REPORTING

- Sample results reported as less than (L.T.) by the laboratory have been qualified as undetected (U) on the laboratory results form (see Attachment 3).

- Secondary results reported by the laboratory have been crossed out, initialed and dated to clarify reported laboratory results (see Attachment 3).

Revised 4/6/94 002

REFERENCES

WHC 1993a, Validation of 200 Area Biota Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-16, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Radiochemical Analyses, WHC-SD-EN-SPP-001, Rev. 1, 1993. Westinghouse Hanford Company, Richland, Washington.

Revised 4/11/94

GLOSSARY OF RADIOCHEMISTRY DATA REPORTING QUALIFIERS

U - Indicates the constituent was analyzed for, but was not detected at a concentration above the minimum detectable activity (MDA). The concentration reported is the MDA corrected for sample aliquot size, dilution factors and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and was not detected at a concentration above the MDA. Due to a quality control deficiency identified during data validation, the concentration reported may not accurately reflect the sample MDA. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. The concentration reported is qualified as estimated due to a quality control deficiency identified during data validation. The associated data should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported is qualified as unusable due to a quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported is qualified as unusable due to a quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

SDG: 22705-WES-1257	VALIDATOR:	DATE: April 11, 1994	PAGE 1 OF 1
COMMENTS: RADIOCHEMISTRY			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
TECHNETIUM-99	UJ	B08YG1	CHEMICAL YIELD <30% BUT >10%
TECHNETIUM-99	J	BLANK SPIKE (TI# 22721)	CHEMICAL YIELD <30% BUT >10%
ALL ANALYTES ANALYZED BY GAMMA SPECTROSCOPY	J - DETECTS UJ - NONDETECTS	B08YG1 B08YG9 B08YH1 B08YH7 B08YJ5 B08YJ6 B08YJ7 B08YJ8 B08YJ8 DUPLICATE	BLANK AND LCS SAMPLES WERE ANALYZED IN A DIFFERENT GEOMETRY THAN THE SAMPLE

Revised 4/11/94

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 22705-WES-1257

	Samp#	B08YF7		B08YG1		B08YG3		B08YG9		B08YH0		B08YH1	
	Date	7-30-93		7-30-93		7-30-93		8-2-93		8-2-93		8-2-93	
	Location	216-U-11		216-U-11		216-U-11		216-B-3		216-B-3		216-B-3	
	Type	S. WHEATGRASS		RUSSIAN THIS.		RUSSIAN THIS.		CATTAIL		BULRUSH		CATTAIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
STRONTIUM-90	pCi/g	0.023		0.220		0.077		0.076		0.330		0.064	
TECHNETIUM-99	pCi/g	0.400	U	0.600	UJ	0.400	U	0.500	U	0.400	U	0.400	U
BERYLLIUM-7	pCi/g	2.020		0.700	UJ	0.900	U	0.900	UJ	0.800	U	1.000	UJ
POTASSIUM-40	pCi/g	4.180		47.100	J	58.000		2.870	J	16.600		9.380	J
MANGANESE-54	pCi/g	0.040	U	0.060	UJ	0.080	U	0.080	UJ	0.060	U	0.100	UJ
COBALT-58	pCi/g	0.050	U	0.090	UJ	0.090	U	0.100	UJ	0.080	U	0.200	UJ
IRON-59	pCi/g	0.100	U	0.200	UJ	0.300	U	0.200	UJ	0.200	U	0.400	UJ
COBALT-60	pCi/g	0.030	U	0.070	UJ	0.080	U	0.080	UJ	0.070	U	0.100	UJ
ZINC-65	pCi/g	0.090	U	0.200	UJ	0.200	U	0.200	UJ	0.200	U	0.300	UJ
ZIRCONIUM-95	pCi/g	0.060	U	0.080	UJ	0.100	U	0.100	UJ	0.090	U	0.200	UJ
RUTHENIUM-103	pCi/g	0.070	U	0.090	UJ	0.100	U	0.100	UJ	0.090	U	0.200	UJ
RUTHENIUM-106	pCi/g	0.500	U	0.600	UJ	0.700	U	0.700	UJ	0.600	U	1.000	UJ
IODINE-131	pCi/g	0.500	U	0.800	UJ	0.800	U	0.800	UJ	0.700	U	2.000	UJ
CESIUM-134	pCi/g	0.050	U	0.080	UJ	0.090	U	0.090	UJ	0.080	U	0.200	UJ
CESIUM-137	pCi/g	0.050	U	0.060	UJ	0.080	U	2.610	J	0.070	U	0.200	UJ
BARIUM-140	pCi/g	0.200	U	0.300	UJ	0.300	U	0.300	UJ	0.300	U	0.700	UJ
CERIUM-141	pCi/g	0.090	U	0.100	UJ	0.200	U	0.200	UJ	0.100	U	0.300	UJ
CERIUM-144	pCi/g	0.200	U	0.300	UJ	0.400	U	0.400	UJ	0.300	U	0.700	UJ
EUROPIUM-152	pCi/g	0.100	U	0.200	UJ	0.200	U	0.300	UJ	0.200	U	0.400	UJ
EUROPIUM-154	pCi/g	0.100	U	0.300	UJ	0.400	U	0.200	UJ	0.200	U	0.400	UJ
EUROPIUM-155	pCi/g	0.100	U	0.200	UJ	0.200	U	0.200	UJ	0.200	U	0.400	UJ
RADIUM-226	pCi/g	0.800	U	0.900	UJ	1.000	U	2.000	UJ	1.000	U	2.000	UJ
THORIUM-228	pCi/g	0.080	U	0.100	UJ	0.100	U	0.100	UJ	0.100	U	0.200	UJ
THORIUM-234	pCi/g	0.900	U	1.000	UJ	1.000	U	1.000	UJ	1.000	U	2.000	UJ
TOTAL URANIUM	pCi/g	0.900	U	1.000	UJ	1.000	U	1.000	UJ	1.000	U	2.000	UJ

Revised 4/11/94

Verified 4/11/94

008

Validated Data Summary, Data Package: 22705-WES-1257

	Samp#	B08YH2		B08YH7		B08YH8		B08YH9		B08YJ5		B08YJ6	
	Date	8-2-93		8-2-93		8-2-93		8-2-93		8-4-93		8-4-93	
	Location	216-B-3		216-A-24		216-A-24		216-A-24		216-T-4		216-T-4	
	Type	WILLOW		RUSSIAN THIS.		RUSSIAN THIS.		CH./S. GRASS		CATTAIL		CATTAIL	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
STRONTIUM-90	pCi/g	4.100		1.700		4.800		0.250		0.280		0.130	
TECHNETIUM-99	pCi/g	0.500	U	0.500	U	0.500	U	0.400	U	0.500	U	0.600	U
BERYLLIUM-7	pCi/g	1.310		2.000	UJ	0.700	U	3.940		1.000	UJ	1.000	UJ
POTASSIUM-40	pCi/g	11.800		46.200	J	52.600		7.610		7.100	J	2.600	J
MANGANESE-54	pCi/g	0.100	U	0.200	UJ	0.060	U	0.070	U	0.080	UJ	0.090	UJ
COBALT-58	pCi/g	0.100	U	0.200	UJ	0.080	U	0.080	U	0.100	UJ	0.100	UJ
IRON-59	pCi/g	0.300	U	0.500	UJ	0.200	U	0.200	U	0.200	UJ	0.200	UJ
COBALT-60	pCi/g	0.100	U	0.200	UJ	0.060	U	0.070	U	0.301	J	0.090	UJ
ZINC-65	pCi/g	0.200	U	0.400	UJ	0.200	U	0.100	U	0.200	UJ	0.200	UJ
ZIRCONIUM-95	pCi/g	0.100	U	0.200	UJ	0.080	U	0.070	U	0.100	UJ	0.100	UJ
RUTHENIUM-103	pCi/g	0.100	U	0.300	UJ	0.080	U	0.100	U	0.200	UJ	0.200	UJ
RUTHENIUM-106	pCi/g	0.900	U	2.000	UJ	0.500	U	0.600	U	0.900	UJ	0.900	UJ
IODINE-131	pCi/g	1.000	U	2.000	UJ	0.700	U	0.900	U	1.000	UJ	1.000	UJ
CESIUM-134	pCi/g	0.100	U	0.200	UJ	0.070	U	0.070	U	0.100	UJ	0.090	UJ
CESIUM-137	pCi/g	0.100	U	0.200	UJ	0.383		0.777		8.040	J	8.620	J
BARIUM-140	pCi/g	0.400	U	0.700	UJ	0.300	U	0.300	U	0.400	UJ	0.400	UJ
CERIUM-141	pCi/g	0.200	U	0.400	UJ	0.100	U	0.200	U	0.200	UJ	0.200	UJ
CERIUM-144	pCi/g	0.500	U	1.000	UJ	0.300	U	0.400	U	0.500	UJ	0.500	UJ
EUROPIUM-152	pCi/g	0.300	U	0.600	UJ	0.200	U	0.200	U	0.300	UJ	0.300	UJ
EUROPIUM-154	pCi/g	0.500	U	0.500	UJ	0.200	U	0.200	U	0.400	UJ	0.200	UJ
EUROPIUM-155	pCi/g	0.300	U	0.500	UJ	0.200	U	0.200	U	0.300	UJ	0.300	UJ
RADIUM-226	pCi/g	2.000	U	3.000	UJ	0.900	U	1.000	U	2.000	UJ	2.000	UJ
THORIUM-228	pCi/g	0.200	U	0.300	UJ	0.100	U	0.140		0.200	UJ	0.200	UJ
THORIUM-234	pCi/g	2.000	U	3.000	UJ	1.000	U	1.000	U	2.000	UJ	2.000	UJ
TOTAL URANIUM	pCi/g	2.000	U	3.000	UJ	1.000	U	1.000	U	2.000	UJ	2.000	UJ

Revised 4/11/94

Verified 4/11/94

009

Validated Data Summary, Data Package: 22705-WES-1257

	Samp#	B08YJ7		B08YJ8	
	Date	8-4-93		8-4-93	
	Location	216-T-4		216-T-4	
	Type	BULRUSH		WILLOW	
	Comments	---		---	
Parameter	Units	Result	Q	Result	Q
STRONTIUM-90	pCi/g	0.300		4.200	
TECHNETIUM-99	pCi/g	0.400	U	0.600	U
BERYLLIUM-7	pCi/g	2.000	UJ	2.000	UJ
POTASSIUM-40	pCi/g	16.000	J	7.810	J
MANGANESE-54	pCi/g	0.100	UJ	0.100	UJ
COBALT-58	pCi/g	0.200	UJ	0.100	UJ
IRON-59	pCi/g	0.400	UJ	0.300	UJ
COBALT-60	pCi/g	0.100	UJ	0.100	UJ
ZINC-65	pCi/g	0.300	UJ	0.300	UJ
ZIRCONIUM-95	pCi/g	0.200	UJ	0.200	UJ
RUTHENIUM-103	pCi/g	0.200	UJ	0.200	UJ
RUTHENIUM-106	pCi/g	1.000	UJ	1.000	UJ
IODINE-131	pCi/g	2.000	UJ	1.000	UJ
CESIUM-134	pCi/g	0.100	UJ	0.100	UJ
CESIUM-137	pCi/g	3.550	J	0.239	J
BARIUM-140	pCi/g	0.600	UJ	0.700	UJ
CERIUM-141	pCi/g	0.300	UJ	0.200	UJ
CERIUM-144	pCi/g	0.700	UJ	0.700	UJ
EUROPIUM-152	pCi/g	0.400	UJ	0.400	UJ
EUROPIUM-154	pCi/g	0.400	UJ	0.600	UJ
EUROPIUM-155	pCi/g	0.400	UJ	0.400	UJ
RADIUM-226	pCi/g	2.000	UJ	2.000	UJ
THORIUM-228	pCi/g	0.300	UJ	0.370	J
THORIUM-234	pCi/g	2.000	UJ	2.000	UJ
TOTAL URANIUM	pCi/g	2.000	UJ	2.000	UJ

Revised 4/11/94

Verified 4/11/94

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SDG 22705-WES-1257

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22705	9308L516-001	B08YF7	07/30				SR-90	2.3 +-0.5 E-02		09/10		10.33 *	3
							TC-99	L.T. 4. E-01		10/01			3
							~~TC-99~~	~~8.1 +- 22.2E-02~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 5. E-03~~		~~09/10~~			3
							BE-7	2.02+-0.41E 00		08/30			4
							~~BE-7~~	~~L.T. 8. E-01~~		~~08/30~~			4
							K-40	4.18+-0.52E 00		08/30			4
							~~K-40~~	~~L.T. 2. E-00~~		~~08/30~~			4
							MN-54	L.T. 4. E-02		08/30	U		4
							~~MN-54~~	~~9.1 +- 25.9E-03~~		~~08/30~~			4
							CO-58	L.T. 5. E-02		08/30	U		4
							~~CO-58~~	~~3.9 +- 3.6E-02~~		~~08/30~~			4
							FE-59	L.T. 1. E-01		08/30	U		4
							~~FE-59~~	~~4.4 +- 8.1E-02~~		~~08/30~~			4
							CO-60	L.T. 3. E-02		08/30	U		4
							~~CO-60~~	~~1.7 +- 2.3E-02~~		~~08/30~~			4
							ZN-65	L.T. 9. E-02		08/30	U		4
							~~ZN-65~~	~~2.8 +- 5.8E-02~~		~~08/30~~			4
							ZR-95	L.T. 6. E-02		08/30	U		4
							~~ZR-95~~	~~2.1 +- 3.6E-02~~		~~08/30~~			4
							RU-103	L.T. 7. E-02		08/30	U		4
							~~RU-103~~	~~1.1 +- 4.1E-02~~		~~08/30~~			4
							RU-106	L.T. 5. E-01		08/30	U		4
							~~RU-106~~	~~1.5 +- 2.6E-01~~		~~08/30~~			4
							I-131	L.T. 5. E-01		08/30	U		4
							~~I-131~~	~~3.1 +- 3.3E-01~~		~~08/30~~			4
							CS-134	L.T. 5. E-02		08/30	U		4
							~~CS-134~~	~~7.4 +- 27.9E-03~~		~~08/30~~			4
							CS-137	L.T. 5. E-02		08/30	U		4
							~~CS-137~~	~~1.8 +- 2.7E-02~~		~~08/30~~			4
							BA-140	L.T. 2. E-01		08/30	U		4
							~~BA-140~~	~~8.9 +- 117.E-03~~		~~08/30~~			4

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TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

SOLIDS

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22705	9308L516-001	B08YF7	07/30				CE-141	L.T. 9. E-02		08/30	u		4
							~~CE-141~~	~~3.2 +- 56.6E-03~~		~~08/30~~			4
							CE-144	L.T. 2. E-01		08/30	u		4
							~~CE-144~~	~~2.7 +- 143.E-03~~		~~08/30~~			4
							EU-152	L.T. 1. E-01		08/30	u		4
							~~EU-152~~	~~2.2 +- 8.4E-02~~		~~08/30~~			4
							EU-154	L.T. 1. E-01		08/30	u		4
							~~EU-154~~	~~1.2 +- 8.0E-02~~		~~08/30~~			4
							EU-155	L.T. 1. E-01		08/30	u		4
							~~EU-155~~	~~2.4 +- 9.8E-01~~		~~08/30~~			4
							RA-226	L.T. 8. E-01		08/30	u		4
							~~RA-226~~	~~1.5 +- 4.7E-01~~		~~08/30~~			4
							TH-228	L.T. 8. E-02		08/30	u		4
							~~TH-228~~	~~2.5 +- 4.3E-02~~		~~08/30~~			4
							TH-234	L.T. 9. E-01		08/30	u		4
							~~TH-234~~	~~3.4 +- 4.8E-01~~		~~08/30~~			4
							TOTAL-U	L.T. 9. E-01		08/30	u		4
							~~TOTAL-U~~	~~3.44+-4.75E-01~~		~~08/30~~			4
22706	9308L516-002	B08YG1	07/30				SR-90	2.2 +-0.2 E-01		09/10		14.90 *	3
							TC-99	L.T. 6. E-01		10/01 ~~ub~~	US		3
							~~TC-99~~	~~0.0 +-3.71E-01~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 1. E-02~~		~~09/10~~			3
							BE-7	L.T. 7. E-01		08/30	US		4
							~~BE-7~~	~~1.3 +- 4.2E-01~~		~~08/30~~			4
							K-40	4.71+-0.47E 01		08/30	S		4
							~~K-40~~	~~L.T. 4. E 00~~		~~08/30~~			4
							MN-54	L.T. 6. E-02		08/30	US		4
							~~MN-54~~	~~5.4 +- 4.1E-02~~		~~08/30~~			4
							CO-58	L.T. 9. E-02		08/30	US		4
							~~CO-58~~	~~1.6 +- 52.0E-03~~		~~08/30~~			4
							FE-59	L.T. 2. E-01		08/30	US		4

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TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22706	9308L516-002	B08YG1	07/30				~~PE-59~~	~~3.1 +- 13.7E-02~~		~~08/30~~			4
							CO-60	L.T. 7. E-02		08/30	U J		4
							~~CO-60~~	~~1.8 +- 4.1E-02~~		~~08/30~~			4
							ZN-65	L.T. 2. E-01		08/30	U J		4
							~~ZN-65~~	~~4.7 +- 10.7E-02~~		~~08/30~~			4
							ZR-95	L.T. 8. E-02		08/30	U J		4
							~~ZR-95~~	~~1.4 +- 5.2E-02~~		~~08/30~~			4
							RU-103	L.T. 9. E-02		08/30	U J		4
							~~RU-103~~	~~1.2 +- 5.4E-02~~		~~08/30~~			4
							RU-106	L.T. 6. E-01		08/30	U J		4
							~~RU-106~~	~~3.4 +- 3.6E-01~~		~~08/30~~			4
							I-131	L.T. 8. E-01		08/30	U J		4
							~~I-131~~	~~3.2 +- 46.0E-02~~		~~08/30~~			4
							CS-134	L.T. 8. E-02		08/30	U J		4
							~~CS-134~~	~~1.4 +- 4.6E-02~~		~~08/30~~			4
							CS-137	L.T. 6. E-02		08/30	U J		4
							~~CS-137~~	~~8.3 +- 39.2E-03~~		~~08/30~~			4
							BA-140	L.T. 3. E-01		08/30	U J		4
							~~BA-140~~	~~3.5 +- 15.8E-02~~		~~08/30~~			4
							CE-141	L.T. 1. E-01		08/30	U J		4
							~~CE-141~~	~~2.2 +- 7.3E-02~~		~~08/30~~			4
							CE-144	L.T. 3. E-01		08/30	U J		4
							~~CE-144~~	~~3.1 +- 19.0E-02~~		~~08/30~~			4
							EU-152	L.T. 2. E-01		08/30	U J		4
							~~EU-152~~	~~1.4 +- 1.1E-01~~		~~08/30~~			4
							EU-154	L.T. 3. E-01		08/30	U J		4
							~~EU-154~~	~~3.7 +- 15.0E-02~~		~~08/30~~			4
							EU-155	L.T. 2. E-01		08/30	U J		4
							~~EU-155~~	~~3.0 +- 1.0E-01~~		~~08/30~~			4
							RA-226	L.T. 9. E-01		08/30	U J		4
							~~RA-226~~	~~3.3 +- 5.5E-01~~		~~08/30~~			4
							TH-228	L.T. 1. E-01		08/30	U J		4

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TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	TIME	STOP DATE	TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22706	9308L516-002	B08YG1	07/30				~~TH-228~~	~~5.3 +- 5.6E-02~~		~~08/30~~			4
							TH-234	L.T. 1. E 00		08/30			4
							~~TH-234 -~~	~~7.4 +- 58.0E-02~~		~~08/30~~			4
							TOTAL-U	L.T. 1. E 00		08/30			4
							~~TOTAL-U-~~	~~7.41+-58.0E-02~~		~~08/30~~			4
22707	9308L516-003	B08YG3	07/30				SR-90	7.7 +-1.6 E-02		09/12			3
							TC-99	L.T. 4. E-01		10/01			3
							~~TC-99 -~~	~~1.9 +-23.8E-02~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 1. E-02~~		~~09/12~~			3
							BE-7	L.T. 9. E-01		08/30			4
							~~BE-7~~	~~7.4 +- 5.1E-01~~		~~08/30~~			4
							K-40	5.80+-0.58E 01		08/30			4
							~~K-40~~	~~L.T. 5. E 00~~		~~08/30~~			4
							MN-54	L.T. 8. E-02		08/30			4
							~~MN-54 -~~	~~2.5 +- 5.1E-02~~		~~08/30~~			4
							CO-58	L.T. 9. E-02		08/30			4
							~~CO-58 -~~	~~2.0 +- 5.7E-02~~		~~08/30~~			4
							FE-59	L.T. 3. E-01		08/30			4
							~~FE-59~~	~~8.2 +-16.0E-02~~		~~08/30~~			4
							CO-60	L.T. 8. E-02		08/30			4
							~~CO-60~~	~~3.2 +- 4.4E-02~~		~~08/30~~			4
							ZN-65	L.T. 2. E-01		08/30			4
							~~ZN-65 -~~	~~2.2 +-11.5E-02~~		~~08/30~~			4
							ZR-95	L.T. 1. E-01		08/30			4
							~~ZR-95 -~~	~~7.0 +-58.8E-03~~		~~08/30~~			4
							RU-103	L.T. 1. E-01		08/30			4
							~~RU-103 -~~	~~4.4 +- 6.4E-02~~		~~08/30~~			4
							RU-106	L.T. 7. E-01		08/30			4
							~~RU-106~~	~~1.5 +- 4.2E-01~~		~~08/30~~			4
							I-131	L.T. 8. E-01		08/30			4
							~~I-131 -~~	~~4.1 +- 5.1E-01~~		~~08/30~~			4

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TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22707	9308L516-003	B08YG3	07/30				CS-134	L.T. 9. E-02		08/30	U		4
							~~CS-134~~	~~1.5 +- 52.3E-03~~		~~08/30~~			4
							CS-137	L.T. 8. E-02		08/30	U		4
							~~CS-137~~	~~5.3 +- 48.0E-03~~		~~08/30~~			4
							BA-140	L.T. 3. E-01		08/30	U		4
							~~BA-140~~	~~2.5 +- 19.3E-02~~		~~08/30~~			4
							CE-141	L.T. 2. E-01		08/30	U		4
							~~CE-141~~	~~6.3 +- 9.4E-02~~		~~08/30~~			4
							CE-144	L.T. 4. E-01		08/30	U		4
							~~CE-144~~	~~2.1 +- 23.4E-02~~		~~08/30~~			4
							EU-152	L.T. 2. E-01		08/30	U		4
							~~EU-152~~	~~1.7 +- 1.3E-01~~		~~08/30~~			4
							EU-154	L.T. 4. E-01		08/30	U		4
							~~EU-154~~	~~9.3 +- 19.2E-02~~		~~08/30~~			4
							EU-155	L.T. 2. E-01		08/30	U		4
							~~EU-155~~	~~5.3 +- 1.3E-01~~		~~08/30~~			4
							RA-226	L.T. 1. E 00		08/30	U		4
							~~RA-226~~	~~7.8 +- 71.7E-02~~		~~08/30~~			4
							TH-228	L.T. 1. E-01		08/30	U		4
							~~TH-228~~	~~8.7 +- 7.0E-02~~		~~08/30~~			4
							TH-234	L.T. 1. E 00		08/30	U		4
							~~TH-234~~	~~1.0 +- 0.8E 00~~		~~08/30~~			4
							TOTAL-U	L.T. 1. E 00		08/30	U		4
							~~TOTAL-U~~	~~1.03+- 0.77E 00~~		~~08/30~~			4
22708	9308L516-004	B08YG9	08/02				SR-90	7.6 +-1.7 E-02		09/10		6.62 *	3
							TC-99	L.T. 5. E-01		10/01	U		3
							~~TC-99~~	~~1.4 +- 3.35E-01~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 1. E-02~~		~~09/10~~			3
							BE-7	L.T. 9. E-01		08/30	UJ		4
							~~BE-7~~	~~8.4 +- 57.4E-02~~		~~08/30~~			4
							K-40	2.87+-0.64E 00		08/30	J		4

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TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22708	9308L516-004	B08YG9	08/02				~~K-40~~	~~L.T. 2. E-00~~		~~08/30~~			4
							MN-54	L.T. 8. E-02		08/30	UJ		4
							~~MN-54~~	~~1.3 +- 5.0E-02~~		~~08/30~~			4
							CO-58	L.T. 1. E-01		08/30	UJ		4
							~~CO-58~~	~~2.8 +- 6.0E-02~~		~~08/30~~			4
							FE-59	L.T. 2. E-01		08/30	UJ		4
							~~FE-59~~	~~6.8 +- 13.9E-02~~		~~08/30~~			4
							CO-60	L.T. 8. E-02		08/30	UJ		4
							~~CO-60~~	~~4.7 +- 4.5E-02~~		~~08/30~~			4
							ZN-65	L.T. 2. E-01		08/30	UJ		4
							~~ZN-65~~	~~1.0 +- 1.1E-01~~		~~08/30~~			4
							ZR-95	L.T. 1. E-01		08/30	UJ		4
							~~ZR-95~~	~~4.3 +- 6.1E-02~~		~~08/30~~			4
							RU-103	L.T. 1. E-01		08/30	UJ		4
							~~RU-103~~	~~9.5 +- 75.4E-03~~		~~08/30~~			4
							RU-106	L.T. 7. E-01		08/30	UJ		4
							~~RU-106~~	~~1.6 +- 4.6E-01~~		~~08/30~~			4
							I-131	L.T. 8. E-01		08/30	UJ		4
							~~I-131~~	~~5.7 +- 5.1E-01~~		~~08/30~~			4
							CS-134	L.T. 9. E-02		08/30	UJ		4
							~~CS-134~~	~~2.1 +- 5.1E-02~~		~~08/30~~			4
							CS-137	2.61+-0.26E 00		08/30	J		4
							~~CS-137~~	~~L.T. 3. E-01~~		~~08/30~~			4
							BA-140	L.T. 3. E-01		08/30	UJ		4
							~~BA-140~~	~~3.6 +- 18.1E-02~~		~~08/30~~			4
							CE-141	L.T. 2. E-01		08/30	UJ		4
							~~CE-141~~	~~4.9 +- 10.2E-02~~		~~08/30~~			4
							CE-144	L.T. 4. E-01		08/30	UJ		4
							~~CE-144~~	~~2.1 +- 2.7E-01~~		~~08/30~~			4
							EU-152	L.T. 3. E-01		08/30	UJ		4
							~~EU-152~~	~~2.5 +- 1.6E-01~~		~~08/30~~			4
							EU-154	L.T. 2. E-01		08/30	UJ		4

Revised 4/11/94

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22708	9308L516-004	B08YG9	08/02				~~EU-154~~	~~1.9 +- 13.0E-02~~		~~08/30~~			4
							EU-155	L.T. 2. E-01		08/30			4
							~~EU-155~~	~~1.4 +- 1.4E-01~~		~~08/30~~			4
							RA-226	L.T. 2. E 00		08/30			4
							~~RA-226~~	~~5.7 +- 8.9E-01~~		~~08/30~~			4
							TH-228	L.T. 1. E-01		08/30			4
							~~TH-228~~	~~4.3 +- 8.2E-02~~		~~08/30~~			4
							TH-234	L.T. 1. E 00		08/30			4
							~~TH-234~~	~~1.2 +- 8.2E-01~~		~~08/30~~			4
							TOTAL-U	L.T. 1. E 00		08/30			4
							~~TOTAL-U~~	~~1.23+- 8.17E-01~~		~~08/30~~			4
22709	9308L516-005	B08YH0	08/02				SR-90	3.3 +-0.3 E-01		09/10			3
							TC-99	L.T. 4. E-01		10/01			3
							~~TC-99~~	~~3.9 +- 22.4E-02~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 2. E-02~~		~~09/10~~			3
							BE-7	L.T. 8. E-01		08/31			4
							~~BE-7~~	~~3.6 +- 4.4E-01~~		~~08/31~~			4
							K-40	1.66+-0.17E 01		08/31			4
							~~K-40~~	~~L.T. 3. E-00~~		~~08/31~~			4
							MN-54	L.T. 6. E-02		08/31			4
							~~MN-54~~	~~3.0 +- 38.7E-03~~		~~08/31~~			4
							CO-58	L.T. 8. E-02		08/31			4
							~~CO-58~~	~~1.1 +- 4.9E-02~~		~~08/31~~			4
							FE-59	L.T. 2. E-01		08/31			4
							~~FE-59~~	~~6.8 +-11.6E-02~~		~~08/31~~			4
							CO-60	L.T. 7. E-02		08/31			4
							~~CO-60~~	~~2.7 +- 4.0E-02~~		~~08/31~~			4
							ZN-65	L.T. 2. E-01		08/31			4
							~~ZN-65~~	~~1.5 +- 9.5E-02~~		~~08/31~~			4
							ZR-95	L.T. 9. E-02		08/31			4
							~~ZR-95~~	~~5.0 +- 5.0E-02~~		~~08/31~~			4

Revised 4/12/94

4/12/94

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 8
4-3231	LL-1140-F4	08/11/93	09/13/93	

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22709	9308L516-005	B08YH0	08/02				RU-103	L.T. 9. E-02		08/31	U		4
							~~RU-103~~	~~2.2 +- 5.8E-02~~		~~08/31~~			4
							RU-106	L.T. 6. E-01		08/31	U		4
							~~RU-106~~	~~3.6 +- 3.7E-01~~		~~08/31~~			4
							I-131	L.T. 7. E-01		08/31	U		4
							~~I-131~~	~~1.1 +- 4.2E-01~~		~~08/31~~			4
							CS-134	L.T. 8. E-02		08/31	U		4
							~~CS-134~~	~~3.1 +- 45.9E-03~~		~~08/31~~			4
							CS-137	L.T. 7. E-02		08/31	U		4
							~~CS-137~~	~~1.4 +- 43.4E-03~~		~~08/31~~			4
							BA-140	L.T. 3. E-01		08/31	U		4
							~~BA-140~~	~~4.8 +- 17.9E-02~~		~~08/31~~			4
							CE-141	L.T. 1. E-01		08/31	U		4
							~~CE-141~~	~~3.6 +- 8.1E-02~~		~~08/31~~			4
							CE-144	L.T. 3. E-01		08/31	U		4
							~~CE-144~~	~~4.0 +- 209.E-03~~		~~08/31~~			4
							EU-152	L.T. 2. E-01		08/31	U		4
							~~EU-152~~	~~3.1 +- 12.1E-02~~		~~08/31~~			4
							EU-154	L.T. 2. E-01		08/31	U		4
							~~EU-154~~	~~3.6 +- 12.2E-02~~		~~08/31~~			4
							EU-155	L.T. 2. E-01		08/31	U		4
							~~EU-155~~	~~3.6 +- 1.2E-01~~		~~08/31~~			4
							RA-226	L.T. 1. E 00		08/31	U		4
							~~RA-226~~	~~1.6 +- 6.9E-01~~		~~08/31~~			4
							TH-228	L.T. 1. E-01		08/31	U		4
							~~TH-228~~	~~3.0 +- 6.3E-02~~		~~08/31~~			4
							TH-234	L.T. 1. E 00		08/31	U		4
							~~TH-234~~	~~4.1 +- 7.1E-01~~		~~08/31~~			4
							TOTAL-U	L.T. 1. E 00		08/31	U		4
							~~TOTAL-U~~	~~4.12+- 7.14E-01~~		~~08/31~~			4

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22710	9308L516-006	B08YH1	08/02				SR-90	6.4 +-2.9 E-02		09/22			3
							TC-99	L.T. 4. E-01		10/06	U		3
							~~TC-99~~	~~1.7 +-2.5 E-01~~		~~10/06~~			3
							~~SR-90~~	~~L.T. 3. E-02~~		~~09/22~~			3
							BE-7	L.T. 1. E 00		08/31	U		4
							~~BE-7~~	~~1.4 +- 9.0E-01~~		~~08/31~~			4
							K-40	9.38+-1.49E 00		08/31	U		4
							~~K-40~~	~~L.T. 5. E-00~~		~~08/31~~			4
							MN-54	L.T. 1. E-01		08/31	U		4
							~~MN-54~~	~~1.4 +- 9.1E-02~~		~~08/31~~			4
							CO-58	L.T. 2. E-01		08/31	U		4
							~~CO-58~~	~~1.2 +-10.4E-02~~		~~08/31~~			4
							FE-59	L.T. 4. E-01		08/31	U		4
							~~FE-59~~	~~3.3 +-23.0E-02~~		~~08/31~~			4
							CO-60	L.T. 1. E-01		08/31	U		4
							~~CO-60~~	~~4.7 +-77.2E-03~~		~~08/31~~			4
							ZN-65	L.T. 3. E-01		08/31	U		4
							~~ZN-65~~	~~1.0 + 1.7E-01~~		~~08/31~~			4
							ZR-95	L.T. 2. E-01		08/31	U		4
							~~ZR-95~~	~~1.6 +-10.5E-02~~		~~08/31~~			4
							RU-103	L.T. 2. E-01		08/31	U		4
							~~RU-103~~	~~3.9 +-12.2E-02~~		~~08/31~~			4
							RU-106	L.T. 1. E 00		08/31	U		4
							~~RU-106~~	~~1.6 +- 8.3E-01~~		~~08/31~~			4
							I-131	L.T. 2. E 00		08/31	U		4
							~~I-131~~	~~7.2 +- 9.2E-01~~		~~08/31~~			4
							CS-134	L.T. 2. E-01		08/31	U		4
							~~CS-134~~	~~4.6 +- 9.4E-02~~		~~08/31~~			4
							~~CS-137~~	~~1.54+ 0.80E-01~~		~~08/31~~			4
							CS-137	L.T. 2. E-01		08/31	U		4
							BA-140	L.T. 7. E-01		08/31	U		4
							~~BA-140~~	~~4.1 +- 3.8E-01~~		~~08/31~~			4

4/9/94

Revised 4/11/94

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MPS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22710	9308L516-006	B08YH1	08/02				CE-141	L.T. 3. E-01		08/31	U J		4
							~~CE-141~~	~~2.0 +- 16.1E-02~~		~~08/31~~			4
							CE-144	L.T. 7. E-01		08/31	U J		4
							~~CE-144~~	~~3.5 +- 42.0E-02~~		~~08/31~~			4
							EU-152	L.T. 4. E-01		08/31	U J		4
							~~EU-152~~	~~1.1 +- 2.5E-01~~		~~08/31~~			4
							EU-154	L.T. 4. E-01		08/31	U J		4
							~~EU-154~~	~~8.1 +- 24.8E-02~~		~~08/31~~			4
							EU-155	L.T. 4. E-01		08/31	U J		4
							~~EU-155~~	~~7.1 +- 2.2E-01~~		~~08/31~~			4
							RA-226	L.T. 2. E 00		08/31	U J		4
							~~RA-226~~	~~8.8 +- 136.E-02~~		~~08/31~~			4
							TH-228	L.T. 2. E-01		08/31	U J		4
							~~TH-228~~	~~5.0 +- 13.4E-02~~		~~08/31~~			4
							TH-234	L.T. 2. E 00		08/31	U J		4
							~~TH-234~~	~~1.0 +- 1.5E 00~~		~~08/31~~			4
							TOTAL-U	L.T. 2. E 00		08/31	U J		4
							~~TOTAL-U~~	~~1.00+- 1.32E 00~~		~~08/31~~			4
22711	9308L516-007	B08YH2	08/02				SR-90	4.1 +-0.1 E 00		09/10		7.85 *	3
							TC-99	L.T. 5. E-01		10/01	~~UR~~ U		3
							~~TC-99~~	~~2.2 +- 28.9E-02~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 2. E-02~~		~~09/10~~			3
							BE-7	1.31+-0.64E 00		08/31			4
							~~BE-7~~	~~L.T. 1. E 00~~		~~08/31~~			4
							K-40	1.18+-0.12E 01		08/31			4
							~~K-40~~	~~L.T. 3. E 00~~		~~08/31~~			4
							MN-54	L.T. 1. E-01		08/31	U		4
							~~MN-54~~	~~1.9 +- 5.9E-02~~		~~08/31~~			4
							CO-58	L.T. 1. E-01		08/31	U		4
							~~CO-58~~	~~5.8 +- 6.8E-02~~		~~08/31~~			4
							FE-59	L.T. 3. E-01		08/31	U		4

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4/12/94

Revised 4/11/94

verified 2/1/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 11
4-3231	LL-1140-F4	08/11/93	09/13/93	

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22711	9308L516-007	B08YH2	08/02				~~FE-59~~	~~4.9 +- 15.4E-02~~		~~08/31~~			4
							CO-60	L.T. 1. E-01		08/31	U		4
							~~CO-60~~	~~3.8 +- 5.4E-02~~		~~08/31~~			4
							ZN-65	L.T. 2. E-01		08/31	U		4
							~~ZN-65~~	~~5.5 +- 128.E-03~~		~~08/31~~			4
							ZR-95	L.T. 1. E-01		08/31	U		4
							~~ZR-95~~	~~2.1 +- 7.4E-02~~		~~08/31~~			4
							RU-103	L.T. 1. E-01		08/31	U		4
							~~RU-103~~	~~4.0 +- 8.1E-02~~		~~08/31~~			4
							RU-106	L.T. 9. E-01		08/31	U		4
							~~RU-106~~	~~3.1 +- 5.5E-01~~		~~08/31~~			4
							I-131	L.T. 1. E 00		08/31	U		4
							~~I-131~~	~~1.5 +- 62.5E-02~~		~~08/31~~			4
							CS-134	L.T. 1. E-01		08/31	U		4
							~~CS-134~~	~~5.0 +- 6.4E-02~~		~~08/31~~			4
							CS-137	L.T. 1. E-01		08/31	U		4
							~~CS-137~~	~~7.3 +- 6.3E-02~~		~~08/31~~			4
							BA-140	L.T. 4. E-01		08/31	U		4
							~~BA-140~~	~~2.2 +- 2.5E-01~~		~~08/31~~			4
							CE-141	L.T. 2. E-01		08/31	U		4
							~~CE-141~~	~~4.9 +- 12.5E-02~~		~~08/31~~			4
							CE-144	L.T. 5. E-01		08/31	U		4
							~~CE-144~~	~~8.6 +- 32.2E-02~~		~~08/31~~			4
							EU-152	L.T. 3. E-01		08/31	U		4
							~~EU-152~~	~~3.1 +- 1.8E-01~~		~~08/31~~			4
							EU-154	L.T. 5. E-01		08/31	U		4
							~~EU-154~~	~~2.3 +- 2.3E-01~~		~~08/31~~			4
							EU-155	L.T. 3. E-01		08/31	U		4
							~~EU-155~~	~~8.8 +- 1.8E-01~~		~~08/31~~			4
							RA-226	L.T. 2. E 00		08/31	U		4
							~~RA-226~~	~~9.4 +- 10.2E-01~~		~~08/31~~			4
							TH-228	L.T. 2. E-01		08/31	U		4

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22711	9308L516-007	B08YH2	08/02				~~TH-228~~	~~9.2 +- 9.6E-02~~		~~08/31~~			4
							TH-234	L.T. 2. E 00		08/31	U		4
							~~TH-234~~	~~2.0 +-10.7E-01~~		~~08/31~~			4
							TOTAL-U	~~1.99+-10.7E-01~~	L.T. 2 E00	08/31	U		4
22712	9308L516-008	B08YH7	08/02				SR-90	1.7 +-0.1 E 00		09/10		15.33 *	3
							TC-99	L.T. 5. E-01		10/01	~~UR~~ U		3
							~~TC-99~~	~~5.1 +-33.9E-02~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 3. E-02~~		~~09/10~~			3
							BE-7	L.T. 2. E 00		08/31	U		4
							~~BE-7~~	~~3.3 +-122.E-02~~		~~08/31~~			4
							K-40	4.62+-0.46E 01		08/31			4
							~~K-40~~	~~L.T. 8. E 00~~		~~08/31~~			4
							MN-54	L.T. 2. E-01		08/31	U		4
							~~MN-54~~	~~1.1 +-11.2E-02~~		~~08/31~~			4
							CO-58	L.T. 2. E-01		08/31	U		4
							~~CO-58~~	~~6.1 +-14.9E-02~~		~~08/31~~			4
							FE-59	L.T. 5. E-01		08/31	U		4
							~~FE-59~~	~~1.2 +-32.0E-02~~		~~08/31~~			4
							CO-60	L.T. 2. E-01		08/31	U		4
							~~CO-60~~	~~4.2 +-10.5E-02~~		~~08/31~~			4
							ZN-65	L.T. 4. E-01		08/31	U		4
							~~ZN-65~~	~~1.2 +- 2.7E-01~~		~~08/31~~			4
							ZR-95	L.T. 2. E-01		08/31	U		4
							~~ZR-95~~	~~3.6 +-14.7E-02~~		~~08/31~~			4
							RU-103	L.T. 3. E-01		08/31	U		4
							~~RU-103~~	~~9.0 +-16.7E-02~~		~~08/31~~			4
							RU-106	L.T. 2. E 00		08/31	U		4
							~~RU-106~~	~~4.6 +-10.8E-01~~		~~08/31~~			4
							I-131	L.T. 2. E 00		08/31	U		4
							~~I-131~~	~~1.1 +-11.9E-01~~		~~08/31~~			4
							CS-134	L.T. 2. E-01		08/31	U		4

2/11/94

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4/9/94

Revised 4/11/94

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Verified 2/10/94

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22712	9308L516-008	B08YH7	08/02				~~CS-134~~	~~1.4 +- 1.3E-01~~		~~08/31~~			4
							CS-137	L.T. 2. E-01		08/31	U5		4
							~~CS-137~~	~~2.0 +- 1.3E-01~~		~~08/31~~			4
							BA-140	L.T. 7. E-01		08/31	U5		4
							~~BA-140~~	~~2.1 +- 4.5E-01~~		~~08/31~~			4
							CE-141	L.T. 4. E-01		08/31	U5		4
							~~CE-141~~	~~8.3 +-237.E-03~~		~~08/31~~			4
							CE-144	L.T. 1. E 00		08/31	U5		4
							~~CE-144~~	~~4.0 +- 6.1E-01~~		~~08/31~~			4
							EU-152	L.T. 6. E-01		08/31	U5		4
							~~EU-152~~	~~4.4 +-34.8E-02~~		~~08/31~~			4
							EU-154	L.T. 5. E-01		08/31	U5		4
							~~EU-154~~	~~4.5 +- 3.7E-01~~		~~08/31~~			4
							EU-155	L.T. 5. E-01		08/31	U5		4
							~~EU-155~~	~~3.5 +- 3.0E-01~~		~~08/31~~			4
							RA-226	L.T. 3. E 00		08/31	U5		4
							~~RA-226~~	~~1.1 +-19.9E-01~~		~~08/31~~			4
							TH-228	L.T. 3. E-01		08/31	U5		4
							~~TH-228~~	~~8.3 +-17.6E-02~~		~~08/31~~			4
							TH-234	L.T. 3. E 00		08/31	U5		4
							~~TH-234~~	~~2.0 +-17.9E-01~~		~~08/31~~			4
							TOTAL-U	L.T. 3. E 00		08/31	U5		4
							~~TOTAL-U~~	~~2.04+-17.9E-01~~		~~08/31~~			4
22713	9308L516-009	B08YH8	08/02				SR-90	4.8 +-0.2 E 00		09/12			3
							TC-99	L.T. 5. E-01		10/01	U		3
							~~TC-99~~	~~0.0 +- 3.0 E-01~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 3. E-02~~		~~09/12~~			3
							~~BE-7~~	~~6.57+-3.79E-01~~		~~09/02~~			4
							BE-7	L.T. 7. E-01		09/02	U		4
							K-40	5.26+-0.53E 01		09/02			4
							~~K-40~~	~~L.T. 4. E 00~~		~~09/02~~			4

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4/9/94

Revised 4/4/94

023

Verified 2/1/94

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22713	9308L516-009	B08YH8	08/02				MN-54	L.T. 6. E-02		09/02	U		4
							~~MN-54~~	~~1.1 +- 35.7E-03~~		~~09/02~~			4
							CO-58	L.T. 8. E-02		09/02	U		4
							~~CO-58~~	~~1.7 +- 4.7E-02~~		~~09/02~~			4
							FE-59	L.T. 2. E-01		09/02	U		4
							~~FE-59~~	~~4.0 +- 12.4E-02~~		~~09/02~~			4
							CO-60	L.T. 6. E-02		09/02	U		4
							~~CO-60~~	~~6.0 +- 37.1E-03~~		~~09/02~~			4
							ZN-65	L.T. 2. E-01		09/02	U		4
							~~ZN-65~~	~~8.3 +- 94.8E-03~~		~~09/02~~			4
							ZR-95	L.T. 8. E-02		09/02	U		4
							~~ZR-95~~	~~3.1 +- 4.6E-02~~		~~09/02~~			4
							RU-103	L.T. 8. E-02		09/02	U		4
							~~RU-103~~	~~1.8 +- 5.0E-02~~		~~09/02~~			4
							RU-106	L.T. 5. E-01		09/02	U		4
							~~RU-106~~	~~1.9 +- 3.3E-01~~		~~09/02~~			4
							I-131	L.T. 7. E-01		09/02	U		4
							~~I-131~~	~~1.5 +- 4.2E-01~~		~~09/02~~			4
							CS-134	L.T. 7. E-02		09/02	U		4
							~~CS-134~~	~~1.9 +- 4.1E-02~~		~~09/02~~			4
							CS-137	3.83+-0.56E-01		09/02			4
							~~CS-137~~	~~L.T. 1. E-01~~		~~09/02~~			4
							BA-140	L.T. 3. E-01		09/02	U		4
							~~BA-140~~	~~8.6 +- 14.1E-02~~		~~09/02~~			4
							CE-141	L.T. 1. E-01		09/02	U		4
							~~CE-141~~	~~7.6 +- 6.9E-02~~		~~09/02~~			4
							CE-144	L.T. 3. E-01		09/02	U		4
							~~CE-144~~	~~1.7 +- 17.4E-02~~		~~09/02~~			4
							EU-152	L.T. 2. E-01		09/02	U		4
							~~EU-152~~	~~8.0 +- 96.9E-03~~		~~09/02~~			4
							EU-154	L.T. 2. E-01		09/02	U		4
							~~EU-154~~	~~2.3 +- 1.3E-01~~		~~09/02~~			4

Verified 2/10/94

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	TIME	STOP DATE	TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22713	9308L516-009	B08YH8	08/02				EU-155	L.T. 2. E-01		09/02	U		4
							~~EU-155~~	~~3.1 +- 0.9E-01~~		~~09/02~~			4
							RA-226	L.T. 9. E-01		09/02	U		4
							~~RA-226~~	~~5.3 +- 53.8E-02~~		~~09/02~~			4
							TH-228	L.T. 1. E-01		09/02	U		4
							~~TH-228~~	~~1.2 +- 8.5E-01~~		~~09/02~~			4
							TH-234	L.T. 1. E 00		09/02	U		4
							~~TH-234~~	~~2.5 +- 5.7E-01~~		~~09/02~~			4
							TOTAL-U	L.T. 1. E 00		09/02	U		4
							~~TOTAL-U~~	~~2.50+-5.71E-01~~		~~09/02~~			4
22714	9308L516-010	B08YH9	08/02				SR-90	2.5 +-0.6 E-01		09/16		11.18 *	3
							TC-99	L.T. 4. E-01		10/01	~~UR~~ U		3
							~~TC-99~~	~~2.4 +- 2.8 E-01~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 5. E-02~~		~~09/16~~			3
							BE-7	3.94+-0.71E 00		09/02			4
							~~BE-7~~	~~L.T. 1. E 00~~		~~09/02~~			4
							K-40	7.61+-0.90E 00		09/02			4
							~~K-40~~	~~L.T. 2. E 00~~		~~09/02~~			4
							MN-54	L.T. 7. E-02		09/02	U		4
							~~MN-54~~	~~1.3 +- 4.2E-02~~		~~09/02~~			4
							CO-58	L.T. 8. E-02		09/02	U		4
							~~CO-58~~	~~1.4 +- 5.1E-02~~		~~09/02~~			4
							FE-59	L.T. 2. E-01		09/02	U		4
							~~FE-59~~	~~2.7 +- 12.2E-02~~		~~09/02~~			4
							CO-60	L.T. 7. E-02		09/02	U		4
							~~CO-60~~	~~4.5 +- 40.7E-03~~		~~09/02~~			4
							ZN-65	L.T. 1. E-01		09/02	U		4
							~~ZN-65~~	~~2.9 +- 8.5E-02~~		~~09/02~~			4
							ZR-95	L.T. 7. E-02		09/02	U		4
							~~ZR-95~~	~~2.0 +- 4.6E-02~~		~~09/02~~			4
							RU-103	L.T. 1. E-01		09/02	U		4

Reissued 4/11/94

4/11/94

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE. 16
4-3231	LL-1140-F4	08/11/93	09/13/93	

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22714	9308L516-010	808YH9	08/02				~~RU-103~~	~~1.4 +- 6.2E-02~~		~~09/02~~			4
							RU-106	L.T. 6. E-01		09/02	U		4
							~~RU-106~~	~~1.0 +- 3.9E-01~~		~~09/02~~			4
							I-131	L.T. 9. E-01		09/02	U		4
							~~I-131~~	~~2.7 +- 53.2E-02~~		~~09/02~~			4
							CS-134	L.T. 7. E-02		09/02	U		4
							~~CS-134~~	~~3.3 +- 4.7E-02~~		~~09/02~~			4
							CS-137	7.77+-0.78E-01		09/02			4
							~~CS-137~~	~~L.T. 2. E-01~~		~~09/02~~			4
							BA-140	L.T. 3. E-01		09/02	U		4
							~~BA-140~~	~~0.0 +- 1.9E-01~~		~~09/02~~			4
							CE-141	L.T. 2. E-01		09/02	U		4
							~~CE-141~~	~~1.8 +- 92.0E-03~~		~~09/02~~			4
							CE-144	L.T. 4. E-01		09/02	U		4
							~~CE-144~~	~~5.9 +- 22.9E-02~~		~~09/02~~			4
							EU-152	L.T. 2. E-01		09/02	U		4
							~~EU-152~~	~~0.0 +- 1.3E-01~~		~~09/02~~			4
							EU-154	L.T. 2. E-01		09/02	U		4
							~~EU-154~~	~~7.1 +- 11.1E-02~~		~~09/02~~			4
							EU-155	L.T. 2. E-01		09/02	U		4
							~~EU-155~~	~~3.6 +- 1.2E-01~~		~~09/02~~			4
							RA-226	L.T. 1. E 00		09/02	U		4
							~~RA-226~~	~~3.7 +- 737.E-03~~		~~09/02~~			4
							~~TH-228~~	~~L.T. 1. E-01~~		~~09/02~~			4
							TH-228	1.4 +- 0.7E-01		09/02			4
							TH-234	L.T. 1. E 00		09/02	U		4
							~~TH-234~~	~~5.5 +- 7.3E-01~~		~~09/02~~			4
							TOTAL-U	L.T. 1. E 00		09/02	U		4
							~~TOTAL-U~~	~~5.53+- 7.27E-01~~		~~09/02~~			4

Verified
2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22715	9308L516-010DUPB08YH9		08/02				SR-90	3.3 +-0.6 E-01		09/16		11.18 *	3
							TC-99	L.T. 5. E-01		10/01			3
							~~TC-99~~	~~4.7 +-30.0E-02~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 4. E-02~~		~~09/16~~			3
							BE-7	4.76+-0.91E 00		09/07			4
							~~BE-7~~	~~L.T. 2. E-00~~		~~09/07~~			4
							K-40	6.87+-0.89E 00		09/07			4
							~~K-40~~	~~L.T. 3. E-00~~		~~09/07~~			4
							MN-54	L.T. 9. E-02		09/07			4
							~~MN-54~~	~~2.5 +- 5.2E-02~~		~~09/07~~			4
							CO-58	L.T. 1. E-01		09/07			4
							~~CO-58~~	~~4.8 +- 6.7E-02~~		~~09/07~~			4
							FE-59	L.T. 2. E-01		09/07			4
							~~FE-59~~	~~6.0 +-149.E-03~~		~~09/07~~			4
							CO-60	L.T. 7. E-02		09/07			4
							~~CO-60~~	~~4.6 +-44.2E-03~~		~~09/07~~			4
							ZN-65	L.T. 2. E-01		09/07			4
							~~ZN-65~~	~~3.9 + 9.7E-02~~		~~09/07~~			4
							ZR-95	L.T. 1. E-01		09/07			4
							~~ZR-95~~	~~2.4 + 6.3E-02~~		~~09/07~~			4
							RU-103	L.T. 1. E-01		09/07			4
							~~RU-103~~	~~0.0 + 8.0E-02~~		~~09/07~~			4
							RU-106	L.T. 8. E-01		09/07			4
							~~RU-106~~	~~2.6 + 4.9E-01~~		~~09/07~~			4
							I-131	L.T. 2. E 00		09/07			4
							~~I-131~~	~~8.3 +-10.0E-01~~		~~09/07~~			4
							CS-134	L.T. 9. E-02		09/07			4
							~~CS-134~~	~~5.3 +-51.7E-03~~		~~09/07~~			4
							CS-137	8.31+-0.97E-01		09/07			4
							~~CS-137~~	~~L.T. 2. E-01~~		~~09/07~~			4
							BA-140	L.T. 4. E-01		09/07			4
							~~BA-140~~	~~2.3 +- 2.8E-01~~		~~09/07~~			4

Revised 4/14/94

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22715	9308L516-010DUPB08YH9		08/02				CE-141	L.T. 2. E-01		09/07	U		4
							~~CE-141~~	~~5.5 +- 12.3E-02~~		~~09/07~~			4
							CE-144	L.T. 5. E-01		09/07	U		4
							~~CE-144~~	~~4.8 +- 281.E-03~~		~~09/07~~			4
							EU-152	L.T. 2. E-01		09/07	U		4
							~~EU-152~~	~~2.6 +- 1.5E-01~~		~~09/07~~			4
							EU-154	L.T. 2. E-01		09/07	U		4
							~~EU-154~~	~~2.6 +- 13.1E-02~~		~~09/07~~			4
							EU-155	L.T. 3. E-01		09/07	U		4
							~~EU-155~~	~~7.5 +- 15.1E-02~~		~~09/07~~			4
							RA-226	L.T. 1. E 00		09/07	U		4
							~~RA-226~~	~~2.4 +- 8.7E-01~~		~~09/07~~			4
							TH-228	L.T. 2. E-01		09/07	U		4
							~~TH-228~~	~~1.4 +- 0.8E-01~~		~~09/07~~			4
							TH-234	L.T. 1. E 00		09/07	U		4
							~~TH-234~~	~~4.3 +- 8.8E-01~~		~~09/07~~			4
							TOTAL-U	L.T. 2. E 00		09/07	U		4
							~~TOTAL-U~~	~~4.31+-8.81E-01~~		~~09/07~~			4
22716	9308L516-011	B08YJ5	08/04				SR-90	2.8 +-0.4 E-01		09/10		5.05 *	3
							TC-99	L.T. 5. E-01		10/01	~~UR~~ U		3
							~~TC-99~~	~~1.1 +- 3.38E-01~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 2. E-02~~		~~09/10~~			3
							BE-7	L.T. 1. E 00		09/02	UJ		4
							~~BE-7~~	~~2.2 +- 7.7E-01~~		~~09/02~~			4
							K-40	7.10+-0.94E 00		09/02	J		4
							~~K-40~~	~~L.T. 3. E 00~~		~~09/02~~			4
							MN-54	L.T. 8. E-02		09/02	UJ		4
							~~MN-54~~	~~2.0 +- 5.3E-02~~		~~09/02~~			4
							CO-58	L.T. 1. E-01		09/02	UJ		4
							~~CO-58~~	~~5.8 +- 6.5E-02~~		~~09/02~~			4
							FE-59	L.T. 2. E-01		09/02	UJ		4

Revised 4/11/94

4/11/94

4/11/94

verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22716	9308L516-011	808YJ5	08/04				~~FE-59~~	~~1.9 +- 14.2E-02~~		~~09/02~~			4
							CO-60	3.01+-0.71E-01		09/02			4
							~~CO-60~~	~~L.T. 2. E-01~~		~~09/02~~			4
							ZN-65	L.T. 2. E-01		09/02			4
							~~ZN-65~~	~~1.0 +- 11.9E-02~~		~~09/02~~			4
							ZR-95	L.T. 1. E-01		09/02			4
							~~ZR-95~~	~~9.1 +- 7.0E-02~~		~~09/02~~			4
							RU-103	L.T. 2. E-01		09/02			4
							~~RU-103~~	~~0.0 +- 9.2E-02~~		~~09/02~~			4
							RU-106	L.T. 9. E-01		09/02			4
							~~RU-106~~	~~1.4 +- 5.6E-01~~		~~09/02~~			4
							I-131	L.T. 1. E 00		09/02			4
							~~I-131~~	~~2.8 +- 6.7E-01~~		~~09/02~~			4
							CS-134	L.T. 1. E-01		09/02			4
							~~CS-134~~	~~3.3 +- 6.0E-02~~		~~09/02~~			4
							CS-137	8.04+-0.80E 00		09/02			4
							~~CS-137~~	~~L.T. 6. E-01~~		~~09/02~~			4
							BA-140	L.T. 4. E-01		09/02			4
							~~BA-140~~	~~2.0 +- 2.1E-01~~		~~09/02~~			4
							CE-141	L.T. 2. E-01		09/02			4
							~~CE-141~~	~~4.0 +- 11.1E-02~~		~~09/02~~			4
							CE-144	L.T. 5. E-01		09/02			4
							~~CE-144~~	~~5.7 +- 28.9E-02~~		~~09/02~~			4
							EU-152	L.T. 3. E-01		09/02			4
							~~EU-152~~	~~5.2 +- 18.0E-02~~		~~09/02~~			4
							EU-154	L.T. 4. E-01		09/02			4
							~~EU-154~~	~~2.5 +- 2.0E-01~~		~~09/02~~			4
							EU-155	L.T. 3. E-01		09/02			4
							~~EU-155~~	~~7.9 +- 1.5E-01~~		~~09/02~~			4
							RA-226	L.T. 2. E 00		09/02			4
							~~RA-226~~	~~4.3 +- 98.2E-02~~		~~09/02~~			4
							TH-228	L.T. 2. E-01		09/02			4

4/9/94

Revised 4/4/94

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22716	9308L516-011	B08YJ5	08/04				~~TH-228~~	~~9.9 +- 9.4E-02~~		~~09/02~~			4
							TH-234	L.T. 2. E 00		09/02			4
							~~TH-234~~	~~7.0 +- 9.3E-01~~		~~09/02~~			4
							TOTAL-U	L.T. 2. E 00		09/02			4
							~~TOTAL-U~~	~~7.02+-9.35E-01~~		~~09/02~~			4
22717	9308L516-012	B08YJ6	08/04				SR-90	1.3 +-0.2 E-01		09/11		10.02 *	3
							TC-99	L.T. 6. E-01		10/01			3
							~~TC-99~~	~~2.2 +-3.30E-01~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 2. E-02~~		~~09/11~~			3
							BE-7	L.T. 1. E 00		09/02			4
							~~BE-7~~	~~2.4 +- 7.9E-01~~		~~09/02~~			4
							K-40	2.60+-0.62E 00		09/02			4
							~~K-40~~	~~L.T. 2. E-00~~		~~09/02~~			4
							MN-54	L.T. 9. E-02		09/02			4
							~~MN-54~~	~~3.7 +-51.8E-03~~		~~09/02~~			4
							CO-58	L.T. 1. E-01		09/02			4
							~~CO-58~~	~~4.6 +-64.6E-03~~		~~09/02~~			4
							FE-59	L.T. 2. E-01		09/02			4
							~~FE-59~~	~~6.8 +-139.E-03~~		~~09/02~~			4
							CO-60	L.T. 9. E-02		09/02			4
							~~CO-60~~	~~4.3 +- 5.0E-02~~		~~09/02~~			4
							ZN-65	L.T. 2. E-01		09/02			4
							~~ZN-65~~	~~5.1 +-10.7E-02~~		~~09/02~~			4
							ZR-95	L.T. 1. E-01		09/02			4
							~~ZR-95~~	~~3.1 +- 6.9E-02~~		~~09/02~~			4
							RU-103	L.T. 2. E-01		09/02			4
							~~RU-103~~	~~6.8 +- 9.8E-02~~		~~09/02~~			4
							RU-106	L.T. 9. E-01		09/02			4
							~~RU-106~~	~~7.5 +-55.1E-02~~		~~09/02~~			4
							I-131	L.T. 1. E 00		09/02			4
							~~I-131~~	~~2.2 +- 7.0E-01~~		~~09/02~~			4

Revised 4/4/94

Verified 2/10/94

4/9/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22717	9308L516-012	B08YJ6	08/04				CS-134	L.T. 9. E-02		09/02	U		4
							~~CS-134~~	~~2.2 +- 5.7E-02~~		~~09/02~~			4
							CS-137	8.62+-0.86E 00		09/02			4
							~~CS-137~~	~~L.T. 6. E-01~~		~~09/02~~			4
							BA-140	L.T. 4. E-01		09/02	U		4
							~~BA-140~~	~~1.0 +- 2.2E-01~~		~~09/02~~			4
							CE-141	L.T. 2. E-01		09/02	U		4
							~~CE-141~~	~~3.6 +- 11.7E-02~~		~~09/02~~			4
							CE-144	L.T. 5. E-01		09/02	U		4
							~~CE-144~~	~~1.0 +- 30.8E-02~~		~~09/02~~			4
							EU-152	L.T. 3. E-01		09/02	U		4
							~~EU-152~~	~~2.6 +- 1.9E-01~~		~~09/02~~			4
							EU-154	L.T. 2. E-01		09/02	U		4
							~~EU-154~~	~~3.6 +- 14.3E-02~~		~~09/02~~			4
							EU-155	L.T. 3. E-01		09/02	U		4
							~~EU-155~~	~~1.5 +- 1.5E-01~~		~~09/02~~			4
							RA-226	L.T. 2. E 00		09/02	U		4
							~~RA-226~~	~~6.5 +- 10.4E-01~~		~~09/02~~			4
							TH-228	L.T. 2. E-01		09/02	U		4
							~~TH-228~~	~~5.3 +- 9.8E-02~~		~~09/02~~			4
							TH-234	L.T. 2. E 00		09/02	U		4
							~~TH-234~~	~~5.9 +- 9.1E-01~~		~~09/02~~			4
							TOTAL-U	L.T. 2. E 00		09/02	U		4
							~~TOTAL-U~~	~~5.92+-9.08E-01~~		~~09/02~~			4
22718	9308L516-013	B08YJ7	08/04				SR-90	3.0 +-0.4 E-01		09/11		7.80 *	3
							TC-99	L.T. 4. E-01		10/01	~~UR~~ U		3
							~~TC-99~~	~~6.0 +- 25.8E-02~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 2. E-02~~		~~09/11~~			3
							BE-7	L.T. 2. E 00		09/03	U		4
							~~BE-7~~	~~2.0 +- 10.4E-01~~		~~09/03~~			4
							K-40	1.60+-0.19E 01		09/03			4

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4/9/94

4/11/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22718	9308L516-013	B08YJ7	08/04				~~K-40~~	~~L.T. 5. E-00~~		~~09/03~~			4
							MN-54	L.T. 1. E-01		09/03	U5		4
							~~MN-54~~	~~1.7 +- 8.8E-02~~		~~09/03~~			4
							CO-58	L.T. 2. E-01		09/03	U5		4
							~~CO-58~~	~~1.0 +- 1.1E-01~~		~~09/03~~			4
							FE-59	L.T. 4. E-01		09/03	U5		4
							~~FE-59~~	~~5.7 +- 25.1E-02~~		~~09/03~~			4
							CO-60	L.T. 1. E-01		09/03	U5		4
							~~CO-60~~	~~2.4 +- 8.4E-02~~		~~09/03~~			4
							ZN-65	L.T. 3. E-01		09/03	U5		4
							~~ZN-65~~	~~8.7 +- 20.2E-02~~		~~09/03~~			4
							ZR-95	L.T. 2. E-01		09/03	U5		4
							~~ZR-95~~	~~4.1 +- 110.E-03~~		~~09/03~~			4
							RU-103	L.T. 2. E-01		09/03	U5		4
							~~RU-103~~	~~2.4 +- 12.9E-02~~		~~09/03~~			4
							RU-106	L.T. 1. E 00		09/03	U5		4
							~~RU-106~~	~~2.4 +- 8.3E-01~~		~~09/03~~			4
							I-131	L.T. 2. E 00		09/03	U5		4
							~~I-131~~	~~2.5 +- 9.8E-01~~		~~09/03~~			4
							CS-134	L.T. 1. E-01		09/03	U5		4
							~~CS-134~~	~~6.4 +- 9.1E-02~~		~~09/03~~			4
							CS-137	3.55+-0.35E 00		09/03			4
							~~CS-137~~	~~L.T. 5. E-01~~		~~09/03~~			4
							BA-140	L.T. 6. E-01		09/03	U5		4
							~~BA-140~~	~~8.7 +- 37.4E-02~~		~~09/03~~			4
							CE-141	L.T. 3. E-01		09/03	U5		4
							~~CE-141~~	~~6.2 +- 16.9E-02~~		~~09/03~~			4
							CE-144	L.T. 7. E-01		09/03	U5		4
							~~CE-144~~	~~8.9 +- 443.E-03~~		~~09/03~~			4
							EU-152	L.T. 4. E-01		09/03	U5		4
							~~EU-152~~	~~2.6 +- 2.7E-01~~		~~09/03~~			4
							EU-154	L.T. 4. E-01		09/03	U5		4

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Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22718	9308L516-013	B08YJ7	08/04				~~EU-154~~	~~0.0 +- 2.3E-01~~		~~09/03~~			4
							EU-155	L.T. 4. E-01		09/03	UJ		4
							~~EU-155~~	~~6.6 +- 2.3E-01~~		~~09/03~~			4
							RA-226	L.T. 2. E 00		09/03	UJ		4
							~~RA-226~~	~~2.0 +- 13.9E-01~~		~~09/03~~			4
							TH-228	L.T. 3. E-01		09/03	UJ		4
							~~TH-228~~	~~2.0 +- 1.4E-01~~		~~09/03~~			4
							TH-234	L.T. 2. E 00		09/03	UJ		4
							~~TH-234~~	~~7.6 +- 13.4E-01~~		~~09/03~~			4
							TOTAL-U	L.T. 2. E 00		09/03	UJ		4
							~~TOTAL-U~~	~~7.59+-13.4E-01~~		~~09/03~~			4
22719	9308L516-014	B08YJ8	08/04				SR-90	4.2 +-0.2 E 00		09/16		6.65 *	3
							TC-99	L.T. 6. E-01		10/01	~~UR~~ U		3
							~~TC-99~~	~~2.7 +- 34.3E-02~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 3. E-02~~		~~09/16~~			3
							BE-7	L.T. 2. E 00		09/03	UJ		4
							~~BE-7~~	~~9.6 +- 8.6E-01~~		~~09/03~~			4
							K-40	7.81+-1.26E 00		09/03	J		4
							~~K-40~~	~~L.T. 4. E 00~~		~~09/03~~			4
							MN-54	L.T. 1. E-01		09/03	UJ		4
							~~MN-54~~	~~2.6 +- 7.5E-02~~		~~09/03~~			4
							CO-58	L.T. 1. E-01		09/03	UJ		4
							~~CO-58~~	~~7.2 +- 9.5E-02~~		~~09/03~~			4
							FE-59	L.T. 3. E-01		09/03	UJ		4
							~~FE-59~~	~~1.4 +- 2.0E-01~~		~~09/03~~			4
							CO-60	L.T. 1. E-01		09/03	UJ		4
							~~CO-60~~	~~4.0 +- 61.2E-03~~		~~09/03~~			4
							ZN-65	L.T. 3. E-01		09/03	UJ		4
							~~ZN-65~~	~~0.0 +- 1.6E-01~~		~~09/03~~			4
							ZR-95	L.T. 2. E-01		09/03	UJ		4
							~~ZR-95~~	~~8.3 +- 9.9E-02~~		~~09/03~~			4

4/11/94

Revised 4/11/94

Verified 2/10/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 24
4-3231	LL-1140-F4	08/11/93	09/13/93	

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

S O L I D S

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM WET)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22719	9308L516-014	B08YJ8	08/04				RU-103	L.T. 2. E-01		09/03			4
							~~RU-103~~	~~1.4 +- 11.3E-02~~		~~09/03~~			4
							RU-106	L.T. 1. E 00		09/03			4
							~~RU-106~~	~~1.8 +- 7.4E-01~~		~~09/03~~			4
							I-131	L.T. 1. E 00		09/03			4
							~~I-131~~	~~5.1 +- 8.7E-01~~		~~09/03~~			4
							CS-134	L.T. 1. E-01		09/03			4
							~~CS-134~~	~~4.9 +- 8.9E-02~~		~~09/03~~			4
							CS-137	2.39+-0.95E-01		09/03			4
							~~CS-137~~	~~L.T. 2. E-01~~		~~09/03~~			4
							BA-140	L.T. 7. E-01		09/03			4
							~~BA-140~~	~~2.4 +- 4.1E-01~~		~~09/03~~			4
							CE-141	L.T. 2. E-01		09/03			4
							~~CE-141~~	~~1.2 +- 1.5E-01~~		~~09/03~~			4
							CE-144	L.T. 7. E-01		09/03			4
							~~CE-144~~	~~6.9 +-39.7E-02~~		~~09/03~~			4
							EU-152	L.T. 4. E-01		09/03			4
							~~EU-152~~	~~1.5 +- 2.4E-01~~		~~09/03~~			4
							EU-154	L.T. 6. E-01		09/03			4
							~~EU-154~~	~~8.5 +-30.2E-02~~		~~09/03~~			4
							EU-155	L.T. 4. E-01		09/03			4
							~~EU-155~~	~~1.1 +- 0.2E-00~~		~~09/03~~			4
							RA-226	L.T. 2. E 00		09/03			4
							~~RA-226~~	~~7.3 +- 12.7E-01~~		~~09/03~~			4
							~~TH-228~~	~~L.T. 3. E-01~~		~~09/03~~			4
							TH-228	3.7 +- 1.3E-01		09/03			4
							TH-234	L.T. 2. E 00		09/03			4
							~~TH-234~~	~~3.6 +- 13.0E-01~~		~~09/03~~			4
							TOTAL-U	L.T. 2. E 00		09/03			4
							~~TOTAL-U~~	~~3.57+-13.0E-01~~		~~09/03~~			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 27
4-3231	LL-1140-F4	08/11/93	09/13/93	

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

W A T E R

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22721	DISTILLED SPIKED H20		/				TC-99	1.2 +-0.2 E 02		10/01	R J		3
							SR-90	3.9 +-0.3 E 01		10/01			3
							~~TC-99~~	~~L.T. 9. E 00~~		~~10/01~~			3
							~~SR-90~~	~~L.T. 8. E 01~~		~~10/01~~			3
							BE-7	L.T. 2. E 06		09/03	U		4
							~~BE-7~~	~~5.2 +-10.3E 05~~		~~09/03~~			4
							K-40	L.T. 6. E 02		09/03	U		4
							~~K-40~~	~~4.0 +- 3.2E 02~~		~~09/03~~			4
							MN-54	L.T. 4. E 02		09/03	U		4
							~~MN-54~~	~~2.1 +- 2.6E 02~~		~~09/03~~			4
							CO-58	L.T. 3. E 04		09/03	U		4
							~~CO-58~~	~~9.2 +-18.6E 03~~		~~09/03~~			4
							FE-59	L.T. 2. E 06		09/03	U		4
							~~FE-59~~	~~4.0 +-10.9E 05~~		~~09/03~~			4
							CO-60	2.49+-0.25E 04		09/03			4
							~~CO-60~~	~~L.T. 9. E 02~~		~~09/03~~			4
							ZN-65	L.T. 1. E 03		09/03	U		4
							~~ZN-65~~	~~1.1 +- 0.9E 03~~		~~09/03~~			4
							ZR-95	L.T. 5. E 04		09/03	U		4
							~~ZR-95~~	~~1.1 + 3.1E 04~~		~~09/03~~			4
							RU-103	L.T. 2. E 06		09/03	U		4
							~~RU-103~~	~~6.5 +-14.8E 05~~		~~09/03~~			4
							RU-106	L.T. 3. E 03		09/03	U		4
							~~RU-106~~	~~1.1 +- 1.7E 03~~		~~09/03~~			4
							CS-134	L.T. 2. E 02		09/03	U		4
							~~CS-134~~	~~2.8 +-12.8E 01~~		~~09/03~~			4
							CS-137	2.20+-0.22E 04		09/03			4
							~~CS-137~~	~~L.T. 6. E 02~~		~~09/03~~			4
							CE-141	L.T. 2. E 07		09/03	U		4
							~~CE-141~~	~~4.8 +-124.E 05~~		~~09/03~~			4
							CE-144	L.T. 2. E 03		09/03	U		4
							~~CE-144~~	~~1.5 +- 1.2E 03~~		~~09/03~~			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3231	LL-1140-F4	08/11/93	09/13/93

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

W A T E R

Q

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22721	DISTILLED SPIKED H2O		/				EU-152	L.T. 3. E 02		09/03	U		4
							~~EU-152~~	~~1.9 +- 20.4E 01~~		~~09/03~~			4
							EU-154	L.T. 2. E 02		09/03	U		4
							~~EU-154~~	~~2.6 +- 12.7E 01~~		~~09/03~~			4
							~~EU-155~~	~~L.T. 6. E 02~~		~~09/03~~			4
							EU-155	8.1 +- 0.3E 03		09/03			4
							RA-226	L.T. 2. E 03		09/03	U		4
							~~RA-226~~	~~1.2 +- 1.0E 03~~		~~09/03~~			4
							TH-228	L.T. 3. E 02		09/03	U		4
							~~TH-228~~	~~6.7 +- 16.1E 01~~		~~09/03~~			4
							TH-234	L.T. 2. E 03		09/03	U		4
							~~TH-234~~	~~2.1 +- 0.1E 04~~		~~09/03~~			4
22722	DISTILLED BLANK H2O		/				TC-99	L.T. 5. E 00		10/01	~~UR~~ U		3
							SR-90	L.T. 7. E-01		10/01	U		3
							~~TC-99~~	~~2.6 +- 31.1E 01~~		~~10/01~~			3
							~~SR-90~~	~~4.2 +- 5.1 E-01~~		~~10/01~~			3
							BE-7	L.T. 5. E 01		09/03	U		4
							~~BE-7~~	~~1.7 +- 28.0E 00~~		~~09/03~~			4
							K-40	L.T. 2. E 02		09/03	U		4
							~~K-40~~	~~4.0 +- 71.8E 00~~		~~09/03~~			4
							MN-54	L.T. 6. E 00		09/03	U		4
							~~MN-54~~	~~6.8 +- 34.2E-01~~		~~09/03~~			4
							CO-58	L.T. 5. E 00		09/03	U		4
							~~CO-58~~	~~1.4 +- 3.2E 00~~		~~09/03~~			4
							FE-59	L.T. 1. E 01		09/03	U		4
							~~FE-59~~	~~3.1 +- 69.4E 01~~		~~09/03~~			4
							CO-60	L.T. 5. E 00		09/03	U		4
							~~CO-60~~	~~4.0 +- 30.8E 01~~		~~09/03~~			4
							ZN-65	L.T. 1. E 01		09/03	U		4
							~~ZN-65~~	~~1.0 +- 7.2E 00~~		~~09/03~~			4
							ZR-95	L.T. 6. E 00		09/03	U		4

4/11/94

Raised 4/11/94

Verified 2/10/94

036

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 10/06/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 29
4-3231	LL-1140-F4	08/11/93	09/13/93	

MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE PA 19341-1313

W A T E R

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
22722	DISTILLED BLANK H2O		/				~~ZR-95~~	~~2.6 +- 34.2E-01~~		~~09/03~~			4
							RU-103	L.T. 6. E 00		09/03	U		4
							~~RU-103~~	~~2.2 +- 3.4E-00~~		~~09/03~~			4
							RU-106	L.T. 5. E 01		09/03	U		4
							~~RU-106~~	~~5.4 +- 32.4E-00~~		~~09/03~~			4
							I-131	L.T. 6. E 00		09/03	U		4
							~~I-131~~	~~7.9 +- 37.8E-01~~		~~09/03~~			4
							CS-134	L.T. 6. E 00		09/03	U		4
							~~CS-134~~	~~3.0 +- 36.4E-01~~		~~09/03~~			4
							CS-137	L.T. 6. E 00		09/03	U		4
							~~CS-137~~	~~6.6 +- 39.2E-01~~		~~09/03~~			4
							BA-140	L.T. 6. E 00		09/03	U		4
							~~BA-140~~	~~1.6 +- 3.9E 00~~		~~09/03~~			4
							CE-141	L.T. 8. E 00		09/03	U		4
							~~CE-141~~	~~1.9 +- 4.7E-00~~		~~09/03~~			4
							CE-144	L.T. 3. E 01		09/03	U		4
							~~CE-144~~	~~2.2 +- 20.4E-00~~		~~09/03~~			4
							EU-152	L.T. 2. E 01		09/03	U		4
							~~EU-152~~	~~6.7 +- 11.3E-00~~		~~09/03~~			4
							EU-154	L.T. 2. E 01		09/03	U		4
							~~EU-154~~	~~5.7 +- 101.E-01~~		~~09/03~~			4
							EU-155	L.T. 2. E 01		09/03	U		4
							~~EU-155~~	~~4.5 +- 1.1E-01~~		~~09/03~~			4
							RA-226	L.T. 1. E 02		09/03	U		4
							~~RA-226~~	~~2.7 +- 71.2E-00~~		~~09/03~~			4
							TH-228	L.T. 1. E 01		09/03	U		4
							~~TH-228~~	~~1.1 +- 6.1E-00~~		~~09/03~~			4
							TH-234	L.T. 1. E 02		09/03	U		4
							~~TH-234~~	~~1.5 +- 7.2E-01~~		~~09/03~~			4

LAST PAGE OF REPORT

J.M. Martin
APPROVED BY J. GUENTHER 10/06/93

SEND 1 COPIES TO WE884S MRS JOSIE EDWARDS

2 - GAS LAB. 3 - RADIO CHEMISTRY LAB. 4 - GE(LI) GAMMA SPEC LAB. 5 - TRITIUM GAS/L.S. LAB. 6 - ALPHA SPEC LAB.

Verified [signature] 2/10/94

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ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

TELEDYNE ISOTOPES
50 VAN BUREN AVENUE
PO BOX 1235
WESTWOOD NJ 07675-1235
(201) 664-7070

WESTON/WESTINGHOUSE/HANFORD

Case Narrative/Cover Sheet for Reports of Analysis and Lab Data

Date 10/8/93

TI #'s 22705 - 22722

WO # 4-3231

RECORD COPY

OCT 1993 RECEIVED SDLA

Comments:

There were no unusual occurrences with these samples.

Total uranium was analyzed by gamma spectroscopy and is assumed to be in equilibrium with its parent.

Contents:

	Procedure #'s	Bench & Work Sheet Pages	Calibration Pages	Tracers/ Carrier Pages
Reports of Analysis		29		
Sr-90	PRO-032-38	21	76	2
Gamma	PRO-042-5	36	18	
Total U		-		
Tc-99	PRO-032-78	20	52	1
C-O-C		2		
Other		-		

"I certify that this data package is in compliance with the terms and conditions of the contract, 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 his designee, as verified by the following signature." A. J. Hogan

Spike Activity for TI #22721

Nuclide	Activity pCi/l	Acceptable Range
Technetium-99	98.5	79. - 118.
Strontium-90	40.	34. - 46.
Cobalt-60	2.5 E 04	1.7 - 3.2 E 04
Cesium-137	2.16 E 04	1.51 - 2.81 E 04

EasyLink 62877198 • • • FAX (201) 664-5586

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator Jon Lucas

Company Contact Jon Lucas/Steve Weiss

Telephone 509-376-2789/376-168

Project Designation/Sampling Locations 200 Area Biota/216-U-11, 216-B-3, 216-A-24, 216-T-4-1

Collection Date 7-30-93 and 8-2-93, 8-5-93

Ice Chest No. B-1 (fiberboard box)

Field Logbook No. EFL-1094

Bill of Lading/Airbill No. 970 892 506

Offsite Property No. W93-0-0667-13

Method of Shipment ~~Emery~~ Burlington JL 8-5-93

Shipped to Weston, Lionville, PA

Possible Sample Hazards/Remarks None

Sample Identification

B08YF7	B08YH9
B08Y61	~~B08YJ1~~
B08Y63	~~B08YJ2~~
B08Y64	~~B08YJ3~~
B08YH0	~~B08YJ4~~
B08YH1	B08YJ5
B08YH2	B08YJ6
B08YH7	B08YJ7
B08YH9	B08YJ8

JL 8-5-93 ALL SAMPLES ARE VEGETATION SAMPLES - 1 (one) paper bag per sample number

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
Jonathan S. Lucas					
Airborne	8/6/93	4:00 pm	Brian E [illegible]	8/6/93	4:00 pm

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/92) WEF061

040

~~030~~

0005

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200 Area Biota			DATA PACKAGE: 22705-WES-1257		
VALIDATOR: [illegible]		LAB: Weston/Teledyne		DATE: 02/10/94	
CASE:			SDG: 22705-WES-1257		

ANALYSES PERFORMED

☐ Gross Alpha/Beta	☒ Strontium-90	☒ Technetium-99	☐ Alpha Spectroscopy	☒ Gamma Spectroscopy	
☒ Total Uranium	☐ Radium-22	☐ Tritium	☐		

Gamma Spec

2/10/94 ⊗

SAMPLES/MATRIX	Solid (Vegetation)	
B084F7	B084H1	B084J5
B084G1	B084H2	B084J6
B084G3	B084H7	B084J7
B084G9	B084H8	B084J8
B084H0	B084H9	

1. Completeness . . . . . ☐ N/A

Technical verification forms present? . . . . . (Yes) No N/A

Comments:

2. Initial Calibration . . . . . ☐ N/A

Instruments/detectors calibrated within one year of sample analysis? . . . . . (Yes) No N/A

Initial calibration acceptable? . . . . . Yes (No) N/A ⊗4/11/94

Standards NIST traceable? . . . . . (Yes) No N/A

Standards Expired? . . . . . Yes (No) N/A

Comments: ~~Refer to comments on last page of checklist for ICV deficiencies~~ ⊗4/11/94

Revised ⊗4/11/94

3. Continuing Calibration . . . . . ☐ N/A

Calibration checked within one week of sample analysis? . . Yes No N/A
Calibration check acceptable? . . . . . Yes No N/A
Calibration check standards NIST traceable? . . . . . Yes No N/A
Calibration check standards expired? . . . . . Yes No N/A

Comments:

4. Blanks . . . . . ☐ N/A

Method blank analyzed? . . . . . Yes No N/A
Method blank results acceptable? . . . . . Yes No N/A 4/12/94
Analytes detected in method blank? . . . . . Yes No N/A
Field blank(s) analyzed? . . . . . Yes No N/A
Field blank results acceptable? . . . . . Yes No N/A
Analytes detected in field blank(s)? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments: See Comment 3 on last page of checklist

5. Matrix Spikes . . . . . ☒ N/A

Matrix spike analyzed? . . . . . Yes No N/A
Spike recoveries acceptable? . . . . . Yes No N/A
Spike source traceable? . . . . . Yes No N/A
Spike source expired? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments:

6. Laboratory Control Samples . . . . . ☐ N/A

LCS analyzed? . . . . . Yes No N/A
LCS recoveries acceptable? See comment ③ on last page of checklist . . Yes No N/A 4/12/94
LCS traceable? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments: Europium-155 was detected in the blank spike sample, however, it is not a spiked radionuclide. Therefore, the presence of Eu-155 may be due to laboratory contamination. No qualification is required.

7. Chemical Recovery . . . . . ☐ N/A

Chemical carrier added? . . . . . Yes No N/A
Chemical recovery acceptable? . . . . . Yes No N/A
Chemical carrier traceable? . . . . . Yes No N/A
Chemical carrier expired? . . . . . Yes No N/A
Transcription/Calculation errors? . . . . . Yes No N/A

Comments: All chemical yields for Tc-99 & Sr-90 are acceptable with the exception of:
Tc-99 B089G1 29% Recovery qualifier: UJ
Tc-99 Blank Spike 23% Recovery qualifier: J

8. Duplicates . . . . . ☐ N/A

Duplicates Analyzed? . . . . . Yes No N/A
RPD Values Acceptable? . . . . . Yes No N/A
Transcription/Calculation Errors? . . . . . Yes No N/A

Comments:

9. Field QC Samples . . . . . ☒ N/A

Field duplicate sample(s) analyzed? . . . . . Yes No N/A
Field duplicate RPD values acceptable? . . . . . Yes No N/A
Field split sample(s) analyzed? . . . . . Yes No N/A
Field split RPD values acceptable? . . . . . Yes No N/A
Performance audit sample(s) analyzed? . . . . . Yes No N/A
Performance audit sample results acceptable? . . . . . Yes No N/A

Comments:

10. Holding Times

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

11. Results and Detection Limits (Levels D & E) . . . . . ☐ N/A

Results reported for all required sample analyses? . . . . . (Yes) No N/A
Results supported in raw data? See note below. . . . (Yes) No N/A
Results Acceptable? . . . . . (Yes) No N/A
Transcription/Calculation errors? . . . . . Yes (No) N/A
MDA's meet required detection limits? . . . . . (Yes) No N/A
Transcription/calculation errors? . . . . . Yes (No) N/A

Comments: The primary result for total uranium was not reported on the lab form for sample B084H2. Therefore, the total uranium result, sample B084H2, was added to the lab report form.

Comments:

(1) ~~All GPC initial detector efficiencies are ≥20% with the exception of:~~

~~Parameter~~	~~Detector~~	~~Eff.~~	~~Assoc. Sample~~	~~Qualifier~~
~~Tc 99~~	~~C-1~~	~~0.19~~	~~B084H2~~	~~UR~~
	~~C-3~~	~~0.19~~	~~B084H7~~	~~UR~~
	~~C-6~~	~~0.18~~	~~B084H9~~	~~UR~~
	~~C-7~~	~~0.18~~	~~B084H9 Dup.~~	~~UR~~
	~~C-8~~	~~0.19~~	~~B084J5~~	~~UR~~
	~~C-1~~	~~0.19~~	~~B084J7~~	~~UR~~
	~~C-3~~	~~0.19~~	~~B084J8~~	~~UR~~
	~~C-6~~	~~0.18~~	~~Blank Spike (CCI# 22721)~~	~~R~~
	~~C-7~~	~~0.18~~	~~Blank (CCI# 22722)~~	~~UR~~

(1) 4/11/94

~~Therefore, the associated results have been qualified as unusable (R/UR).~~
Cs-137 eff. values are all > 20%. No qualification is required.

(2) The initial calibration verification data for detector 40312 using Marinelli geometry was not provided in this data package. However, it was obtained from the data pkg. 25866-WES-1305. A copy of the associated ICV follows this page. Since the ICV is acceptable, no qualification is required.

(3) Samples B084G1, B084G9, B084H1, B084H7, B084J5, B084J6, B084J7, B084J8, and B084J8 duplicate were analyzed in different geometries than the blank & LCS for gamma spectroscopy. Therefore, the assoc. results have been qualified as estimated (J/UJ). All other samples in this SDG were analyzed in Marinelli geometry and therefore do not require qualification.

Revised (1) 4/11/94

```
*************************************************************
*****************     11-JAN-93 15:36:59     *****************
*************************************************************
```

From
SOG 25866-WES-1305

MARINELLI

SPECTRAL FILE NAME: GAMMA.S40312
SAMPLE DATE: 01-FEB-92 12:00:00
SAMPLE IDENTIFICATION: MARI.D40312
TYPE OF SAMPLE: STANDARD
SAMPLE QUANTITY: 1.000000 UNITS: TOTAL
SAMPLE GEOMETRY: MARINELLI
EFFICIENCY FILE NAME: EFF.D1MARI

```
*************************************************************
                                    *
ACQUIRE DATE: 22-DEC-92 12:26:00    * FWHM(1332)          1.790
PRESET TIME(LIVE):      3600. SEC   * SENSITIVITY:       15.000
ELAPSED REAL TIME:      3615. SEC   * SHAPE PARAMETER :  10.0 %
ELAPSED LIVE TIME:      3600. SEC   * NBR ITERATIONS:    10.
                                    *
*************************************************************
                                    *
DETECTOR: DET. 40312 ADC1           * LIBRARY:NUCL.MDA
CALIB DATE:  20-MAR-92 12:00:00     * ENERGY TOLERANCE:  2.000KV
KEV/CHNL:       0.5000000           * HALF LIFE RATIO:  20.00
OFFSET:         0.0000000 KEV       * ABUNDANCE LIMIT:  85.00%
                                    *
*************************************************************
```

ENERGY WINDOW 40.00 TO 2000.00

PK	IT	ENERGY	AREA	BKGND	FWHM	CHANNEL	LEFT	PW	CTS/SEC	%ERR	FIT
1	0	59.45	8238.	4760.	0.69	118.90	115	8	2.29E 00	1.8	
2	0	87.96	8670.	4335.	0.69	175.92	172	8	2.41E 00	1.7	
3	0	121.97	7833.	4676.	0.74	243.93	239	10	2.18E 00	2.0	
4	0	136.33	1016.	3080.	0.83	272.67	269	7	2.82E-01	9.6	
5	0	165.75	4076.	3301.	0.99	331.50	328	8	1.13E 00	2.9	
6	0	391.46	5640.	2413.	1.06	782.93	778	11	1.57E 00	2.2	
7	0	513.76	1684.	1658.	1.24	1027.52	1023	10	4.68E-01	5.2	
8	0	661.27	28747.	2020.	1.32	1322.55	1315	15	7.99E 00	0.7	
9	0	897.50	6725.	1740.	1.55	1795.00	1788	14	1.87E 00	1.8	
10	0	1172.48	21094.	965.	1.71	2344.96	2337	18	5.86E 00	0.8	
11	0	1331.59	19046.	438.	1.78	2663.18	2654	19	5.29E 00	0.8	
12	0	1834.51	3915.	101.	2.26	3669.03	3658	21	1.09E 00	1.7	

PEAK SEARCH COMPLETED (REV 15.5)

2/8/94

~~141~~

****
****

EFFICIENCY CALCULATION FOR 1 LITER MARINELLI
AMERSHAM INTERNATIONAL CERT NO'S M25709 SOL. NO. R2/15/48 PC: QCY.48
DETECTOR NO. 40312
DATE SOURCE COUNTED 12 / 22 / 1992
COUNT DURATION 3600 SEC

****

NUCLIDE	ENERGY	PEAK COUNTS	GPS-DECAYED	EFFICIENCY	
AM-241	59.54KeV	8238	305.35	.749	PERCENT
CD-109	88.03KeV	8670	107.23	2.246	PERCENT
CO-57	122.06KeV	7833	69.05	3.151	PERCENT
CE-139	165.85KeV	4076	37.40	3.027	PERCENT
HG-203	279.19KeV	0	4.24	0.000	PERCENT
SN-113	391.69KeV	5640	86.53	1.811	PERCENT
SR-85	513.99KeV	1684	32.46	1.441	PERCENT
CS-137	661.65KeV	28747	665.41	1.200	PERCENT
Y-88	898.02KeV	6725	204.72	.912	PERCENT
CO-60	1173.21KeV	21094	821.38	.713	PERCENT
CO-60	1332.47KeV	19046	822.10	.644	PERCENT
Y-88	1836.04KeV	3915	216.97	.501	PERCENT

****
****

FIT ENERGIES 240KeV TO 2000KeV TO A POWER CURVE

R SQUARE = 0.999

EFFICIENCY = 2.770 * ENERGY(KeV) ^ -0.841

****

ENERGY	%AVG-EFF	P-CURVE EFF(%)
59.54KeV	.7494	0.0000
88.03KeV	2.2459	0.0000
122.06KeV	3.1510	0.0000
165.85KeV	3.0274	0.0000
279.19KeV	0.0000	2.4233
391.69KeV	1.8106	1.8225
513.99KeV	1.4409	1.4500
661.65KeV	1.2001	1.1725
898.02KeV	.9125	.9067
1173.21KeV	.7134	.7241
1332.47KeV	.6435	.6505
1836.04KeV	.5012	.4967
2000.00KeV	0.0000	.4622

****
****

2/8/94

```
*************************************************************
*****************     31-AUG-93 13:44:40     *****************
*************************************************************

W W H

SPECTRAL FILE NAME:  SCR1D.
SAMPLE DATE:  02-AUG-93 12:00:00
SAMPLE IDENTIFICATION:  WSTHAN.S22711
TYPE OF SAMPLE:  SD
SAMPLE QUANTITY:   75.50000          UNITS:  H
SAMPLE GEOMETRY:  MARINELLI
EFFICIENCY FILE NAME:  EFF.D2MARI
*************************************************************
                                    *
ACQUIRE DATE: 31-AUG-93 08:20:00    * FWHM(1332)          1.870
PRESET TIME(LIVE):     18000. SEC   * SENSITIVITY:        5.000
ELAPSED REAL TIME:     18001. SEC   * SHAPE PARAMETER : 10.0 %
ELAPSED LIVE TIME:     18000. SEC   * NBR ITERATIONS:    10.
                                    *
*************************************************************
                                    *
DETECTOR: DET. 20654  ADC2          * LIBRARY:NUCL.MDA
CALIB DATE:  20-MAR-92 12:00:00     * ENERGY TOLERANCE:  2.000KV
KEV/CHNL:        0.5000000          * HALF LIFE RATIO:  20.00
OFFSET:          0.0000000 KEV      * ABUNDANCE LIMIT:  85.00%
                                    *
*************************************************************
```

B084H2

ENERGY WINDOW 40.00 TO 2000.00

PK	IT	ENERGY	AREA	BKGND	FWHM	CHANNEL	LEFT	PW	CTS/SEC	%ERR	FIT
1	0	46.69	84.	284.	0.87	93.39	90	7	4.69E-03	35.7	
2	0	63.39	101.	336.	0.92	126.79	124	7	5.60E-03	32.5	
3	4	74.95	423.	377.	1.09	149.90	141	18	2.35E-02	9.1	8.84E 00
4	4	77.02	150.	338.	1.09	154.04	141	18	8.34E-03	23.6	
5	4	84.64	216.	325.	0.96	169.28	163	15	1.20E-02	14.7	1.39E 00
6	4	86.63	94.	411.	1.35	173.26	163	15	5.21E-03	41.9	
7	0	92.76	213.	422.	1.18	185.51	182	9	1.18E-02	19.3	
8	0	123.03	445.	450.	0.82	246.06	241	10	2.47E-02	10.2	
9	0	185.05	89.	448.	1.27	370.10	366	9	4.97E-03	44.8	
10	0	238.40	211.	316.	0.85	476.81	473	9	1.17E-02	17.7	
11	0	247.26	117.	299.	1.27	494.52	490	10	6.50E-03	30.0	
12	0	294.63	72.	235.	1.11	589.26	586	8	4.00E-03	39.6	
13	0	338.07	45.	183.	1.41	676.15	672	9	2.48E-03	55.5	
14	0	351.86	142.	209.	1.03	703.71	700	9	7.86E-03	20.7	
15	0	477.39	72.	119.	1.29	954.78	953	7	3.98E-03	29.2	
16	0	510.58	497.	272.	2.21	1021.16	1014	17	2.76E-02	8.7	
17	0	582.80	113.	132.	1.36	1165.59	1160	12	6.28E-03	23.8	
18	0	609.25	145.	141.	1.34	1218.51	1214	13	8.05E-03	19.7	
19	0	724.46	122.	137.	4.97	1448.92	1440	19	6.80E-03	26.8	
20	0	872.72	48.	82.	1.45	1745.45	1740	12	2.69E-03	39.4	
21	0	910.53	43.	58.	1.21	1821.07	1818	8	2.37E-03	37.3	
22	4	1001.08	26.	36.	1.19	2002.15	1999	16	1.43E-03	44.2	3.95E 00
23	4	1004.13	46.	37.	1.19	2008.25	1999	16	2.56E-03	28.4	
24	0	1118.98	22.	64.	1.54	2237.95	2235	11	1.24E-03	72.4	

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ENERGY WINDOW 40.00 TO 2000.00

PK	IT	ENERGY	AREA	BKGND	FWHM	CHANNEL	LEFT	PW	CTS/SEC	%ERR	FIT
25	0	1273.26	100.	49.	1.97	2546.52	2538	15	5.56E-03	17.8	
26	0	1459.56	642.	19.	2.05	2919.11	2909	19	3.57E-02	4.5	
27	0	1762.76	33.	17.	1.07	3525.51	3521	10	1.82E-03	31.4	

049

PEAK SEARCH COMPLETED (REV 15.5)

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B084H2

ACTIVATION PRODUCT

NUCLIDE	ENERGY	AREA	BKGND	%ABN	%EFF	PCI/UT	ERR-2SIGMA(1SIG%)
CO-57	122.06	51.	450.	85.2*	3.077E 00	4.175E -2	5.041E -2(60.4%)
	136.47	0.	0.	11.1	0.000E-01	0.000E 0	0.000E 0(*****%)
SB-124	602.70	0.	0.	98.0	0.000E-01	0.000E 0	0.000E 0(*****%)
	722.80	48.	137.	10.6	1.104E 00	1.134E 0	8.502E -1(37.5%)
	1691.00	0.	0.	45.7*	0.000E-01	0.000E 0	0.000E 0(*****%)

FISSION PRODUCT

NUCLIDE	ENERGY	AREA	BKGND	%ABN	%EFF	PCI/UT	ERR-2SIGMA(1SIG%)
ZR-95	723.99	48.	137.	49.0*	1.104E 00	2.393E -1	1.794E -1(37.5%)
	755.99	0.	0.	49.0	0.000E-01	0.000E 0	0.000E 0(*****%)
EU-152	121.78	51.	450.	25.4	3.077E 00	1.305E -1	1.576E -1(60.4%)
	344.31	0.	0.	24.5*	0.000E-01	0.000E 0	0.000E 0(*****%)
	778.87	0.	0.	12.0	0.000E-01	0.000E 0	0.000E 0(*****%)
	1408.02	0.	0.	19.8	0.000E-01	0.000E 0	0.000E 0(*****%)
EU-154	123.07	51.	450.	39.0	3.077E 00	8.522E -2	1.029E -1(60.4%)
	723.26	48.	137.	20.2	1.104E 00	4.290E -1	3.217E -1(37.5%)
	873.16	0.	0.	11.7	0.000E-01	0.000E 0	0.000E 0(*****%)
	1004.75	0.	0.	17.0	0.000E-01	0.000E 0	0.000E 0(*****%)
	1274.49	0.	0.	33.6*	0.000E-01	0.000E 0	0.000E 0(*****%)
NP-237	86.50	12.	325.	14.0	2.120E 00	8.023E -2	3.447E -1(214.8%)
	300.00	0.	0.	5.8	0.000E-01	0.000E 0	0.000E 0(*****%)
	311.90	0.	0.	34.0*	0.000E-01	0.000E 0	0.000E 0(*****%)
	340.00	11.	183.	3.9	2.027E 00	2.824E -1	9.782E -1(173.2%)

NATURAL PRODUCT

NUCLIDE	ENERGY	AREA	BKGND	%ABN	%EFF	PCI/UT	ERR-2SIGMA(1SIG%)
BE-7	477.59	72.	119.	10.3*	1.540E 00	1.308E 0	6.440E -1(24.6%)
K-40	1460.85	411.	19.	11.0*	6.311E-01	1.177E 1	1.214E 0(5.2%)
EU-155	86.54	12.	325.	32.0*	2.120E 00	3.549E -2	1.525E -1(214.8%)
	105.30	0.	0.	20.0	0.000E-01	0.000E 0	0.000E 0(*****%)
TH-228	238.60	79.	316.	49.0*	2.574E 00	1.288E -1	8.657E -2(33.6%)
	583.10	39.	132.	31.0	1.313E 00	1.970E -1	1.751E -1(44.4%)
RA-228	338.00	11.	183.	15.0	2.027E 00	7.413E -2	2.568E -1(173.2%)
	911.00	4.	58.	25.0*	9.197E-01	3.705E -2	1.920E -1(259.2%)
	968.90	0.	0.	15.0	0.000E-01	0.000E 0	0.000E 0(*****%)
TH-234	63.30	39.	336.	3.5	1.048E 00	2.128E 0	2.894E 0(68.0%)
	92.80	34.	422.	4.7*	2.426E 00	5.904E -1	1.033E 0(87.5%)

MINIMUM DETECTABLE ACTIVITY REPORT
(REV.07,2/85,AWS; REV 08,3/85,HWJ-TELEDYNE)

4.66 SIGMA

NUCLIDE	ENERGY	EFF*B.I.	BKGN	MIN PCI/UT	DECAY	NET	PCI/UT	ERR-2SIG
BE-7	477.6	1.5853E-03	234.	1.30E 00	1.4573E 00	117.	2.14E 00	6.85E-01
K-40	1460.8	6.9373E-04	635.	3.37E 00	1.0000E 00	380.	1.09E 01	1.47E 00
MN-54	834.8	9.8571E-03	90.	9.53E-02	1.0685E 00	-9.	-1.94E-02	5.94E-02
CO-58	810.8	9.9884E-03	71.	1.04E-01	1.3250E 00	-22.	-5.80E-02	6.77E-02
FE-59	1099.3	4.4316E-03	64.	2.61E-01	1.5603E 00	7.	4.90E-02	1.54E-01
CO-60	1332.5	6.7870E-03	48.	9.56E-02	1.0105E 00	13.	3.85E-02	5.38E-02
ZN-65	1115.5	3.9577E-03	68.	2.10E-01	1.0851E 00	-1.	-5.45E-03	1.28E-01
ZR-95	765.9	1.0559E-02	108.	1.24E-01	1.3617E 00	8.	2.05E-02	7.39E-02
RU-103	497.0	1.3122E-02	139.	1.38E-01	1.6597E 00	16.	4.02E-02	8.13E-02
RU-106	621.8	1.2221E-03	139.	9.44E-01	1.0562E 00	18.	3.09E-01	5.54E-01
I-131	364.5	1.5633E-02	206.	1.03E 00	1.2090E 01	-1.	-1.54E-02	6.25E-01
CS-134	795.8	9.0120E-03	90.	1.00E-01	1.0272E 00	-22.	-4.99E-02	6.45E-02
CS-137	661.6	1.0063E-02	144.	1.11E-01	1.0018E 00	37.	7.33E-02	6.27E-02
BA-140	1596.4	5.6405E-03	21.	3.61E-01	4.8003E 00	-13.	-2.20E-01	2.52E-01
CE-141	145.4	1.5750E-02	375.	2.09E-01	1.8371E 00	21.	4.87E-02	1.25E-01
CE-144	134.0	3.4897E-03	353.	5.35E-01	1.0730E 00	14.	8.56E-02	3.22E-01
EU-152	344.3	4.8906E-03	205.	2.72E-01	1.0042E 00	-76.	-3.10E-01	1.80E-01
EU-154	1274.5	2.3629E-03	130.	4.50E-01	1.0065E 00	-27.	-2.33E-01	2.26E-01
EU-155	86.5	7.0326E-03	493.	2.96E-01	1.0111E 00	-308.	-8.80E-01	1.76E-01
RA-226	186.0	1.2097E-03	567.	1.82E 00	1.0001E 00	57.	9.36E-01	1.02E 00
TH-228	238.6	1.2608E-02	527.	1.74E-01	1.0292E 00	56.	9.16E-02	9.55E-02
TH-234	92.8	1.1409E-03	557.	1.92E 00	1.0001E 00	-11.	-1.99E-01	1.07E 00

050 ~~210~~

Total Uranium L.T. 2500 ~~210~~
Analyzed

FILENAME: 22705-QC.WK1

SDG NO.: 22705-WES-1257

SAMPLE: LABORATORY BLANK (TI# 22722)
SPIKE SAMPLE: LABORATORY BLANK SPIKE SAMPLE (TI# 22721)

PARAMETER	SPIKED AMOUNT	BLANK SAMPLE	SPIKE SAMPLE	%R	QUALIFIER APPLIED
TECHNETIUM-99	98.5	0	120	122	NONE
STRONTIUM-90	40	0	39	98	NONE
COBALT-60	25000	0	24900	100	NONE
CESIUM-137	21600	0	22000	102	NONE

FILENAME: 22705-LD.WK1

SDG NO.: 22705-WES-1257

SAMPLE ID: B08YH9
DUPLICATE SAMPLE ID: B08YH9 DUP

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	QUALIFIER APPLIED
STRONTIUM-90	0.25	0.33	28	NONE
BERYLLIUM-7	3.94	4.76	19	NONE
POTASSIUM-40	7.61	6.87	10	NONE
CESIUM-137	0.777	0.831	7	NONE

SAMPLE ID: B08YJ8
DUPLICATE SAMPLE ID: B08YJ8 DUP

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	QUALIFIER APPLIED
STRONTIUM-90	4.2	4.3	2	NONE
POTASSIUM-40	7.81	9.28	17	NONE
CESIUM-137	0.239	0.267	11	NONE

FILENAME: BIOTA-TC.WK1

SDG	HEIS	Lab No.	Date Analyzed	Det. ID	Spl Amt.	Yield	Gross cnts	Count Time	Bkg. cpm	Det. Eff.	Tc99 Result Calc.	Result Rptd	MDA Calc.	MDA Rptd.
22705	B08YF7	22705	10/01/93	B4	2	0.468	13	100	0.17	0.238	-0.08	-0.081	0.4	0.4
	B08YG1	22706	10/01/93	B5	2	0.29	18	100	0.18	0.251	0	0	0.6	0.6
	B08YG3	22707	10/01/93	B6	2	0.473	19	100	0.2	0.25	-0.02	-0.019	0.4	0.4
	B08YG9	22708	10/01/93	B7	2	0.312	21	100	0.16	0.262	0.14	0.14	0.5	0.5
	B08YH0	22709	10/01/93	B9	2	0.468	16	100	0.18	0.25	-0.04	-0.04	0.4	0.4
	B08YH1	22710	10/01/93	B1	2	0.505	26	100	0.17	0.236	0.17	0.17	0.4	0.4
	B08YH2	22711	10/01/93	C1	2	0.478	21	100	0.22	0.214	-0.02	-0.02	0.5	0.5
	B08YH7	22712	10/01/93	C3	2	0.403	23	100	0.21	0.219	0.05	0.05	0.5	0.5
	B08YH8	22713	10/01/93	C4	2	0.441	22	100	0.22	0.228	-0.00	0.00	0.5	0.5
	B08YH9	22714	10/01/93	C6	2	0.575	31	100	0.19	0.196	0.24	0.24	0.4	0.4
	B08YH9 DUP	22715	10/01/93	C7	2	0.468	21	100	0.19	0.203	0.05	0.05	0.5	0.5
	B08YJ5	22716	10/01/93	C8	2	0.36	20	100	0.16	0.222	0.11	0.11	0.5	0.5
	B08YJ6	22717	10/01/93	C9	2	0.349	14	100	0.22	0.235	-0.22	-0.22	0.6	0.6
	B08YJ7	22718	10/01/93	C1	2	0.532	19	100	0.22	0.21	-0.06	-0.06	0.4	0.4
	B08YJ8	22719	10/01/93	C3	2	0.382	20	100	0.21	0.22	-0.03	-0.03	0.6	0.6
	B08YJ8 DUP	22720	10/01/93	C4	2	0.328	18	100	0.22	0.236	-0.12	0.12	0.6	0.6
	BLANK SPIKE	22721	10/01/93	C6	0.2	0.226	289	100	0.19	0.217	124.00	120.00	9.3	9
	BLANK	22722	10/01/93	C7	0.2	0.43	18	100	0.19	0.205	-0.26	-0.26	5.2	5

FILENAME: BIOTA-SR.WK1

SDG	HEIS	Lab No.	Date Counted	Det. ID	Spl Amt.	Yield	Ash Content	Ingrowth	Decay	Gross cnts	Count Time	Bkg. cpm	Det. Eff.	Sr90 Result Calc.	Result Rptd	MDA Calc.	MDA Rptd.
22705	B08YF7	22705	09/10/93	D2	10	0.798	0.1033	1	0.622	118	100	0.19	0.4	0.023	0.023	0.005	0.005
	B08YG1	22706	09/10/93	D3	7	0.841	0.149	1	0.622	497	100	0.2	0.4	0.219	0.22	0.010	0.01
	B08YG3	22707	09/12/93	D4	10	0.839	0.188	1	0.375	126	100	0.15	0.39	0.077	0.077	0.012	0.01
	B08YG9	22708	09/10/93	D5	2	0.824	0.0662	1	0.622	124	100	0.19	0.4	0.076	0.076	0.015	0.015
	B08YH0	22709	09/10/93	D7	1.7	0.844	0.0667	1	0.622	408	100	0.16	0.4	0.330	0.33	0.016	0.02
	B08YH1	22710	09/22/93	C1	1	0.807	0.0641	1	0.777	62	100	0.22	0.29	0.064	0.064	0.035	0.035
	B08YH2	22711	09/10/93	D10	2	0.827	0.0785	1	0.622	4895	100	0.29	0.41	4.079	4.1	0.021	0.02
	B08YH7	22712	09/10/93	E2	3	0.841	0.1533	1	0.622	1090	100	0.12	0.28	1.694	1.7	0.025	0.03
	B08YH8	22713	09/12/93	E3	5	0.862	0.1714	1	0.375	3040	100	0.15	0.3	4.817	4.8	0.029	0.03
	B08YH9	22714	09/16/93	E1	1.5	0.793	0.1118	1	0.636	131	100	0.21	0.29	0.253	0.253	0.049	0.05
	B08YH9 DUP	22715	09/16/93	E3	1.5	0.723	0.1118	1	0.636	147	100	0.12	0.3	0.329	0.33	0.039	0.04
	B08YJ5	22716	09/10/93	E9	1.6	0.72	0.0505	1	0.622	286	100	0.17	0.31	0.275	0.28	0.020	0.02
	B08YJ6	22717	09/11/93	E9	3	0.859	0.1002	1	0.626	165	100	0.17	0.31	0.134	0.13	0.017	0.02
	B08YJ7	22718	09/11/93	E10	2	0.83	0.078	1	0.626	296	100	0.17	0.31	0.304	0.3	0.021	0.02
	B08YJ8	22719	09/16/93	E5	1	0.81	0.0665	1	0.636	2340	100	0.16	0.32	4.223	4.2	0.034	0.03
	B08YJ8 DUP	22720	09/16/93	E9	1	0.821	0.0665	1	0.636	2340	100	0.22	0.31	4.290	4.3	0.040	0.04
	BLANK SPIKE	22721	10/01/93	B1	1	0.631	---	1	0.493	1026	100	0.17	0.37	39.488	39	0.752	0.8
	BLANK	22722	10/01/93	B2	1	0.599	---	1	0.493	28	100	0.17	0.4	0.419	0.42	0.733	0.7

FILENAME: BIOTA-GS.WK1

SDG	HEIS#	Lab No.	Date Analyzed	Spl Amt	Geometry	Det. No.
22705	B08YF7	22705	08/30/93	144	MARINELLI	20651
	B08YG1	22706	08/30/93	112	300 ML	40312
	B08YG3	22707	08/30/93	113	MARINELLI	20654
	B08YG9	22708	08/30/93	108	300 ML	10760
	B08YH0	22709	08/31/93	96.4	MARINELLI	20651
	B08YH1	22710	08/31/93	43.2	300 ML	40312
	B08YH2	22711	08/31/93	75.5	MARINELLI	20654
	B08YH7	22712	08/31/93	46.4	300 ML	10760
	B08YH8	22713	09/02/93	134	MARINELLI	20651
	B08YH9	22714	09/02/93	102	MARINELLI	40312
	B08YH9 DUP	22715	09/07/93	102	MARINELLI	10760
	B08YJ5	22716	09/02/93	77.2	300 ML	20654
	B08YJ6	22717	09/02/93	95.2	300 ML	10760
	B08YJ7	22718	09/03/93	43.1	300 ML	40312
	B08YJ8	22719	09/03/93	52.6	300 ML	20654
	B08YJ8 DUP	22720	09/07/93	52.6	300 ML	20651
	BLANK SPIKE	22721	09/03/93	1	MARINELLI	10760
	BLANK	22722	09/03/93	1	MARINELLI	20651

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