START 9213507.1E06 0045893

27223-WES-1325 85

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 11/4/93

TI #'s 27223 - 27233

WO # 4-3986

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Comments:

There were no unusual occurrences with these samples.

Contents:

	Procedure #'s	Bench & Work Sheet Pages	Calibration Pages	Tracers/ Carrier Pages
Reports of Analysis		18		
Gross Alpha	PRO-032-1	6	36	
Gross Beta		-	-	
Sr-90	PRO-032-16	10	82	2
Gamma	PRO-042-5	18	12	
Tc-99	PRO-032-78	10	29	1
Total-Uranium	PRO-032-89	2	11	
H-3	PRO-032-35	3	9	
Pu-238,239/240	PRO-062-114	27	23	4
U-235-235-238	PRO-062-110	-	-	-
Am-241	PRO-062-111	-	-	-
C-O-C		1		
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

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TELEDYNE ISOTOPES

Spike Activity for TI #27228

Nuclide	Activity pCi/l	Acceptable Range
Technetium-99	98.5	79. - 118.
Gross Alpha	11.2	6. - 17.
Gross Beta	22.	17. - 28.
Strontium-90	40.	34. - 46.
Total Uranium	18.6 ug/l	15.8 - 21.4
Cobalt-60	2.5 E 04	1.7 - 3.2 E 04
Cesium-137	2.16 E 04	1.51 - 2.81 E 04
Plutonium-239	1.09	0.9 - 1.3
Tritium	1.4 E 03	1.1 - 1.7 E 03

Activity for Matrix Spike TI# 27224 & Matrix Spike Duplicate TI# 27225

Nuclide	Activity pCi/l	Acceptable Range
Tritium	1.4 E 03	1.1 - 1.7 E 03

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

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27223	9309L017-001	B09507	09/18				PH TEST	VERIF IED					3
							TC-99	L.T. 3. E 00		10/15			3
							GR-A	L.T. 2. E 00		10/07			3
							GR-B	9.2 +-2.0 E 00		10/07			3
							SR-90	L.T. 1. E 00		10/15			3
							TOTAL-U	2.3 +-0.3 E 00	UGM/LITER *				3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3
							GR-A	1.2 +-1.79E 00		10/07			3
							GR-B	L.T. 2. E 00		10/07			3
							TC-99	0.0 +-1.6 E 00		10/15			3
							SR-90	8.3 +-73.3E-02		10/15			3
							BE-7	L.T. 7. E 01		10/07			4
							BE-7 -	3.1 +- 4.4E 01		10/07			4
							K-40	L.T. 2. E 02		10/07			4
							K-40 -	5.1 +- 8.4E 01		10/07			4
							MN-54	L.T. 8. E 00		10/07			4
							MN-54	1.0 +- 4.5E 00		10/07			4
							CO-58	L.T. 8. E 00		10/07			4
							CO-58 -	4.5 +- 5.2E 00		10/07			4
							FE-59	L.T. 2. E 01		10/07			4
							FE-59	3.8 +- 9.7E 00		10/07			4
							CO-60	L.T. 6. E 00		10/07			4
							CO-60 -	2.3 +-37.7E-01		10/07			4
							ZN-65	L.T. 2. E 01		10/07			4
							ZN-65	3.3 +- 9.6E 00		10/07			4
							ZR-95	L.T. 9. E 00		10/07			4
							ZR-95 -	1.1 +- 5.3E 00		10/07			4
							RU-103	L.T. 1. E 01		10/07			4
							RU-103	2.2 +- 5.9E 00		10/07			4
							RU-106	L.T. 8. E 01		10/07			4
							RU-106	3.2 +- 4.5E 01		10/07			4
							I-131	L.T. 4. E 01		10/07			4

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TELEDYNE ISOTOPES

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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27223	9309L017-001	B09507	09/18				I-131	4.2 +-21.4E 00		10/07			4
							CS-134	L.T. 8. E 00		10/07			4
							CS-134 -	1.6 +- 5.0E 00		10/07			4
							CS-137	L.T. 8. E 00		10/07			4
							CS-137	0.0 +- 5.1E 00		10/07			4
							BA-140	L.T. 2. E 01		10/07			4
							BA-140 -	7.9 +-115.E-01		10/07			4
							CE-141	L.T. 1. E 01		10/07			4
							CE-141 -	6.6 +- 8.5E 00		10/07			4
							CE-144	L.T. 4. E 01		10/07			4
							CE-144 -	6.1 +-27.4E 00		10/07			4
							EU-152	L.T. 2. E 01		10/07			4
							EU-152 -	1.4 +- 1.5E 01		10/07			4
							EU-154	L.T. 2. E 01		10/07			4
							EU-154	0.0 +- 1.2E 01		10/07			4
							EU-155	L.T. 3. E 01		10/07			4
							EU-155 -	2.1 +- 1.5E 01		10/07			4
							RA-226	L.T. 1. E 02		10/07			4
							RA-226	2.3 +- 8.3E 01		10/07			4
							TH-228	L.T. 1. E 01		10/07			4
							TH-228	1.0 +- 0.8E 01		10/07			4
							TH-234	L.T. 1. E 02		10/07			4
							TH-234 -	7.8 +- 6.8E 01		10/07			4
							H-3	L.T. 2. E 02		10/08			5
							H-3 -	1.1 +-.869E 02		10/08			5
							PU-238	L.T. 9. E-02		10/27			6
							PU-239	L.T. 9. E-02		10/27			6
							PU-238	5.8 +-58.4E-03		10/27			6
							PU-239	5.8 +-58.4E-03		10/27			6

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TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27224	9309L017-001MS B09507		09/18				H-3	1.3 +-0.1 E 03		10/09			5
							H-3	L.T. 2. E 02		10/09			5
27225	9309L017-001MSDB09507		09/18				H-3	1.3 +-0.1 E 03		10/09			5
							H-3	L.T. 2. E 02		10/09			5
27226	9309L017-001DUPB09507		09/18				TC-99	L.T. 3. E 00		10/15			3
							GR-A	2.9 +-1.6 E 00		11/01			3
							GR-B	8.0 +-1.9 E 00		10/07			3
							SR-90	L.T. 9. E-01		10/15			3
							TOTAL-U	2.4 +-0.4 E 00	UGM/LITER *				3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3
							GR-A	L.T. 2. E 00		11/01			3
							GR-B	L.T. 2. E 00		10/07			3
							TC-99	9.3 +-18.7E 00		10/15			3
							SR-90 -	4.0 +-4.86E-01		10/15			3
							BE-7	L.T. 7. E 01		10/08			4
							BE-7	1.4 +- 4.2E 01		10/08			4
							K-40	L.T. 1. E 02		10/08			4
							K-40 -	9.9 +- 6.6E 01		10/08			4
							MN-54	L.T. 6. E 00		10/08			4
							MN-54 -	2.7 +- 4.1E 00		10/08			4
							CO-58	L.T. 8. E 00		10/08			4
							CO-58 -	1.1 +- 4.8E 00		10/08			4
							FE-59	L.T. 1. E 01		10/08			4
							FE-59 -	4.1 +- 9.3E 00		10/08			4
							CO-60	L.T. 7. E 00		10/08			4
							CO-60	2.7 +- 3.9E 00		10/08			4
							ZN-65	L.T. 1. E 01		10/08			4
							ZN-65 -	6.4 +- 8.3E 00		10/08			4
							ZR-95	L.T. 8. E 00		10/08			4
							ZR-95	2.1 +- 4.8E 00		10/08			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

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27226	9309L017-001DUPB09507		09/18				RU-103	L.T. 9. E 00		10/08			4
							RU-103	1.9 +- 5.5E 00		10/08			4
							RU-106	L.T. 6. E 01		10/08			4
							RU-106	0.0 +- 3.9E 01		10/08			4
							I-131	L.T. 4. E 01		10/08			4
							I-131	1.9 +- 2.2E 01		10/08			4
							CS-134	L.T. 7. E 00		10/08			4
							CS-134	5.1 +-43.8E-01		10/08			4
							CS-137	L.T. 8. E 00		10/08			4
							CS-137	2.2 +- 4.5E 00		10/08			4
							BA-140	L.T. 2. E 01		10/08			4
							BA-140	7.9 +-105.E-01		10/08			4
							CE-141	L.T. 1. E 01		10/08			4
							CE-141 -	3.9 +- 7.9E 00		10/08			4
							CE-144	L.T. 4. E 01		10/08			4
							CE-144 -	2.2 +- 2.5E 01		10/08			4
							EU-152	L.T. 2. E 01		10/08			4
							EU-152 -	1.8 +- 1.4E 01		10/08			4
							EU-154	L.T. 3. E 01		10/08			4
							EU-154 -	8.9 +-16.4E 00		10/08			4
							EU-155	L.T. 2. E 01		10/08			4
							EU-155 -	6.1 +- 1.3E 01		10/08			4
							RA-226	L.T. 1. E 02		10/08			4
							RA-226 -	6.1 +- 7.4E 01		10/08			4
							TH-228	L.T. 1. E 01		10/08			4
							TH-228	7.0 +- 7.2E 00		10/08			4
							TH-234	L.T. 1. E 02		10/08			4
							TH-234 -	9.3 +- 8.0E 01		10/08			4
							H-3	L.T. 2. E 02		10/09			5
							H-3 -	1.0 +-.873E 02		10/09			5
							PU-238	L.T. 9. E-02		10/27			6
							PU-239	L.T. 2. E-01		10/27			6

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TELEDYNE ISOTOPES

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MPS JOSIE EDWARDS
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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27226	9309L017-001DUPB09507		09/18				PU-238	5.5 +-54.5E-03		10/27			6
							PU-239 -	2.7 +-7.2 E-02		10/27			6
27227	DISTILLED BLANK H2O		/				TC-99	L.T. 4. E 00		10/15			3
							GR-A	L.T. 7. E-01		10/07			3
							GR-B	L.T. 8. E-01		10/07			3
							SR-90	L.T. 1. E 00		10/19			3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3
							TOTAL-U	8. +-8. E-03	UGM/LITER *				3
							GR-A	0.0 +-4.5 E-01		10/07			3
							GR-B -	2.4 +-48.4E-02		10/07			3
							TC-99	0.0 +-2.2 E 00		10/15			3
							SR-90	3.0 +-7.01E-01		10/19			3
							BE-7	L.T. 5. E 01		10/07			4
							BE-7	1.7 +- 2.7E 01		10/07			4
							K-40	L.T. 1. E 02		10/07			4
							K-40 -	9.5 +- 6.8E 01		10/07			4
							MN-54	L.T. 6. E 00		10/07			4
							MN-54	1.5 +- 3.3E 00		10/07			4
							CO-58	L.T. 5. E 00		10/07			4
							CO-58 -	3.8 +- 3.4E 00		10/07			4
							FE-59	L.T. 1. E 01		10/07			4
							FE-59	4.9 +- 6.7E 00		10/07			4
							CO-60	L.T. 6. E 00		10/07			4
							CO-60	9.9 +-35.2E-01		10/07			4
							ZN-65	L.T. 1. E 01		10/07			4
							ZN-65	1.7 +- 6.1E 00		10/07			4
							ZR-95	L.T. 5. E 00		10/07			4
							ZR-95	1.3 +-32.9E-01		10/07			4
							RU-103	L.T. 5. E 00		10/07			4
							RU-103 -	1.7 +- 3.2E 00		10/07			4
							RU-106	L.T. 6. E 01		10/07			4

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TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27227	DISTILLED BLANK H2O		/				RU-106	3.1 +- 3.4E 01		10/07			4
							I-131	L.T. 6. E 00		10/07			4
							I-131 -	1.5 +- 3.6E 00		10/07			4
							CS-134	L.T. 6. E 00		10/07			4
							CS-134 -	3.0 +-37.0E-01		10/07			4
							CS-137	L.T. 6. E 00		10/07			4
							CS-137	5.3 +-37.2E-01		10/07			4
							BA-140	L.T. 5. E 00		10/07			4
							BA-140 -	3.3 +- 3.5E 00		10/07			4
							CE-141	L.T. 8. E 00		10/07			4
							CE-141 -	6.7 +-47.0E-01		10/07			4
							CE-144	L.T. 3. E 01		10/07			4
							CE-144 -	6.5 +-20.9E 00		10/07			4
							EU-152	L.T. 2. E 01		10/07			4
							EU-152 -	8.3 +-11.6E 00		10/07			4
							EU-154	L.T. 1. E 01		10/07			4
							EU-154 -	1.7 +- 9.1E 00		10/07			4
							EU-155	L.T. 2. E 01		10/07			4
							EU-155 -	6.1 +- 1.1E 01		10/07			4
							RA-226	L.T. 1. E 02		10/07			4
							RA-226	7.3 +-68.2E 00		10/07			4
							TH-228	L.T. 1. E 01		10/07			4
							TH-228	5.2 +- 6.1E 00		10/07			4
							TH-234	L.T. 1. E 02		10/07			4
							TH-234 -	2.6 +- 7.1E 01		10/07			4
							H-3	L.T. 2. E 02		10/09			5
							H-3	2.4 +-92.8E 00		10/09			5
							PU-238	L.T. 1. E-01		10/28			6
							PU-239	L.T. 1. E-01		10/28			6
							PU-238	6.3 +-62.5E-03		10/28			6
							PU-239	6.3 +-62.5E-03		10/28			6

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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

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27228	DISTILLED SPIKED H2O		/				TC-99	8.7 +-0.9 E 01		10/15			3
							GR-A	1.1 +-0.2 E 01		10/07			3
							GR-B	2.0 +-0.1 E 01		10/07			3
							SR-90	7.2 +-0.5 E 01		10/21			3
							TOTAL-U	1.6 +-0.2 E 01	UGM/LITER *				3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3
							GR-A	L.T. 9. E-01		10/07			3
							GR-B	L.T. 8. E-01		10/07			3
							TC-99	L.T. 4. E 00		10/15			3
							SR-90	L.T. 2. E 00		10/21			3
							BE-7	L.T. 2. E 06		10/08			4
							BE-7 -	7.3 +-148.E 04		10/08			4
							K-40	L.T. 5. E 02		10/08			4
							K-40 -	1.9 +- 2.8E 02		10/08			4
							MN-54	L.T. 4. E 02		10/08			4
							MN-54 -	1.9 +- 2.6E 02		10/08			4
							CO-58	L.T. 4. E 04		10/08			4
							CO-58	0.0 +- 2.4E 04		10/08			4
							FE-59	L.T. 3. E 06		10/08			4
							FE-59	4.3 +-17.3E 05		10/08			4
							CO-60	2.47+-0.25E 04		10/08			4
							CO-60	L.T. 8. E 02		10/08			4
							ZN-65	L.T. 1. E 03		10/08			4
							ZN-65	0.0 +- 8.6E 02		10/08			4
							ZR-95	L.T. 7. E 04		10/08			4
							ZR-95 -	7.0 +-40.5E 03		10/08			4
							RU-103	L.T. 4. E 06		10/08			4
							RU-103	1.4 +-24.9E 05		10/08			4
							RU-106	L.T. 3. E 03		10/08			4
							RU-106 -	4.0 +-16.8E 02		10/08			4
							CS-134	L.T. 2. E 02		10/08			4
							CS-134	6.4 +-12.1E 01		10/08			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

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27228	DISTILLED SPIKED H2O		/				CS-137	2.22+-0.22E 04		10/08			4
							CS-137	L.T. 6. E 02		10/08			4
							CE-141	L.T. 4. E 07		10/08			4
							CE-141 -	1.1 +- 2.3E 07		10/08			4
							CE-144	L.T. 2. E 03		10/08			4
							CE-144	6.0 +-11.4E 02		10/08			4
							EU-152	L.T. 3. E 02		10/08			4
							EU-152 -	2.0 +- 1.8E 02		10/08			4
							EU-154	L.T. 2. E 02		10/08			4
							EU-154 -	6.5 +-115.E 00		10/08			4
							EU-155	L.T. 5. E 02		10/08			4
							EU-155	7.4 +- 0.2E 03		10/08			4
							RA-226	L.T. 1. E 03		10/08			4
							RA-226	1.5 +- 0.8E 03		10/08			4
							TH-228	L.T. 2. E 02		10/08			4
							TH-228 -	2.6 +-14.7E 01		10/08			4
							TH-234	L.T. 1. E 03		10/08			4
							TH-234 -	1.9 +- 0.1E 04		10/08			4
							H-3	1.3 +-0.1 E 03		10/09			5
							H-3	L.T. 2. E 02		10/09			5
							PU-238	L.T. 4. E-02		10/28			6
							PU-239	1.0 +-0.2 E 00		10/28			6
							PU-238	2.7 +-26.6E-03		10/28			6
							PU-239	L.T. 7. E-02		10/28			6
27229	9309L017-003	B09519	09/18				PH TEST	VERIF IED					3
							TC-99	2.1 +-0.1 E 03		10/15			3
							GR-A	L.T. 2. E 00		10/08			3
							GR-B	1.0 +-0.1 E 03		10/07			3
							SR-90	L.T. 7. E-01		10/16			3
							TOTAL-U	6.4 +-1.0 E 00	UGM/LITER *				3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3

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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

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27229	9309L017-003	809519	09/18				GR-A	1.6 +-1.6 E 00		10/08			3
							GR-B	L.T. 3. E 00		10/07			3
							TC-99	L.T. 3. E 00		10/15			3
							SR-90 -	3.1 +-3.92E-01		10/16			3
							BE-7	L.T. 8. E 01		10/08			4
							BE-7	1.7 +- 4.7E 01		10/08			4
							K-40	L.T. 2. E 02		10/08			4
							K-40 -	3.9 +- 8.5E 01		10/08			4
							MN-54	L.T. 8. E 00		10/08			4
							MN-54	1.2 +- 4.8E 00		10/08			4
							CO-58	L.T. 1. E 01		10/08			4
							CO-58	3.1 +- 5.6E 00		10/08			4
							FE-59	L.T. 2. E 01		10/08			4
							FE-59	0.0 +- 1.2E 01		10/08			4
							CO-60	3.50+-0.74E 01		10/08			4
							CO-60	L.T. 1. E 01		10/08			4
							ZN-65	L.T. 2. E 01		10/08			4
							ZN-65 -	1.7 +-11.0E 00		10/08			4
							ZR-95	L.T. 9. E 00		10/08			4
							ZR-95	1.1 +- 5.6E 00		10/08			4
							RU-103	L.T. 1. E 01		10/08			4
							RU-103 -	1.4 +- 6.5E 00		10/08			4
							RU-106	L.T. 7. E 01		10/08			4
							RU-106 -	1.6 +- 4.4E 01		10/08			4
							I-131	L.T. 4. E 01		10/08			4
							I-131 -	5.7 +-24.4E 00		10/08			4
							CS-134	L.T. 9. E 00		10/08			4
							CS-134	8.9 +-52.7E-01		10/08			4
							CS-137	L.T. 9. E 00		10/08			4
							CS-137	0.0 +- 5.2E 00		10/08			4
							BA-140	L.T. 2. E 01		10/08			4
							BA-140 -	2.5 +-11.6E 00		10/08			4

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TELEDYNE ISOTOPES

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4-3986	LL-1140-F4	09/24/93	10/27/93

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27229	9309L017-003	B09519	09/18				CE-141	L.T. 1. E 01		10/08			4
							CE-141 -	4.6 +- 9.0E 00		10/08			4
							CE-144	L.T. 5. E 01		10/08			4
							CE-144 -	3.3 +-28.4E 00		10/08			4
							EU-152	L.T. 2. E 01		10/08			4
							EU-152 -	1.7 +- 1.5E 01		10/08			4
							EU-154	L.T. 2. E 01		10/08			4
							EU-154	6.7 +-144.E-01		10/08			4
							EU-155	L.T. 3. E 01		10/08			4
							EU-155 -	1.8 +- 1.5E 01		10/08			4
							RA-226	L.T. 2. E 02		10/08			4
							RA-226	5.3 +-88.1E 00		10/08			4
							TH-228	L.T. 1. E 01		10/08			4
							TH-228	9.5 +- 8.1E 00		10/08			4
							TH-234	L.T. 2. E 02		10/08			4
							TH-234 -	1.0 +- 0.9E 02		10/08			4
							H-3	4.1 +-1.1 E 02		10/09			5
							H-3	L.T. 2. E 02		10/09			5
							PU-238	L.T. 9. E-02		10/28			6
							PU-239	L.T. 1. E-01		10/28			6
							PU-238	5.6 +-55.9E-03		10/28			6
							PU-239 -	1.1 +-6.5 E-02		10/28			6
27230	9309L017-005	B094V5	09/18				PH TEST	VERIF IED					3
							TC-99	5.3 +-0.2 E 02		10/15			3
							GR-A	L.T. 2. E 00		10/08			3
							GR-B	3.1 +-0.1 E 02		10/07			3
							SR-90	L.T. 4. E-01		10/16			3
							TOTAL-U	3.0 +-0.5 E 00	UGM/LITER *				3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3
							GR-A	1.7 +-1.5 E 00		10/08			3
							GR-B	L.T. 2. E 00		10/07			3

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TELEDYNE ISOTOPES

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3986	LL-1140-F4	09/24/93	10/27/93

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27230	9309L017-005	B094V5	09/18				TC-99	L.T. 2. E 00		10/15			3
							SR-90	2.6 +-2.54E-01		10/16			3
							BE-7	L.T. 6. E 01		10/11			4
							BE-7	6.8 +-38.3E 00		10/11			4
							K-40	L.T. 2. E 02		10/11			4
							K-40	6.8 +-73.2E 00		10/11			4
							MN-54	L.T. 6. E 00		10/11			4
							MN-54	7.1 +-37.4E-01		10/11			4
							CO-58	L.T. 7. E 00		10/11			4
							CO-58 -	3.0 +- 4.3E 00		10/11			4
							FE-59	L.T. 1. E 01		10/11			4
							FE-59	8.6 +-83.7E-01		10/11			4
							CO-60	1.45+-0.42E 01		10/11			4
							CO-60	L.T. 9. E 00		10/11			4
							ZN-65	L.T. 1. E 01		10/11			4
							ZN-65	1.8 +- 7.3E 00		10/11			4
							ZR-95	L.T. 8. E 00		10/11			4
							ZR-95	1.6 +- 4.5E 00		10/11			4
							RU-103	L.T. 8. E 00		10/11			4
							RU-103 -	2.1 +- 5.1E 00		10/11			4
							RU-106	L.T. 6. E 01		10/11			4
							RU-106	2.2 +- 3.5E 01		10/11			4
							I-131	L.T. 4. E 01		10/11			4
							I-131 -	1.6 +- 2.5E 01		10/11			4
							CS-134	L.T. 7. E 00		10/11			4
							CS-134 -	1.1 +- 4.2E 00		10/11			4
							CS-137	L.T. 7. E 00		10/11			4
							CS-137 -	1.1 +- 4.1E 00		10/11			4
							BA-140	L.T. 2. E 01		10/11			4
							BA-140 -	8.5 +-112.E-01		10/11			4
							CE-141	L.T. 1. E 01		10/11			4
							CE-141 -	3.6 +- 7.4E 00		10/11			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 11/02/93

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4-3986	LL-1140-F4	09/24/93	10/27/93

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27230	9309L017-005	B094V5	09/18				CE-144	L.T. 4. E 01		10/11			4
							CE-144	2.7 +-22.2E 00		10/11			4
							EU-152	L.T. 2. E 01		10/11			4
							EU-152 -	5.4 +-12.1E 00		10/11			4
							EU-154	L.T. 2. E 01		10/11			4
							EU-154 -	2.3 +-10.0E 00		10/11			4
							EU-155	L.T. 2. E 01		10/11			4
							EU-155 -	5.9 +- 1.1E 01		10/11			4
							RA-226	L.T. 1. E 02		10/11			4
							RA-226 -	1.6 +- 7.1E 01		10/11			4
							TH-228	L.T. 1. E 01		10/11			4
							TH-228	4.1 +- 6.1E 00		10/11			4
							TH-234	L.T. 1. E 02		10/11			4
							TH-234 -	9.8 +- 7.0E 01		10/11			4
							H-3	4.5 +-0.2 E 03		10/09			5
							H-3	L.T. 2. E 02		10/09			5
							PU-238	L.T. 1. E-01		10/28			6
							PU-239	L.T. 1. E-01		10/28			6
							PU-238	7.0 +-69.7E-03		10/28			6
							PU-239	7.0 +-69.7E-03		10/28			6
27231	9309L017-007	B09539	09/18				PH TEST	VERIF IED					3
							TC-99	6.4 +-0.6 E 01		10/15			3
							GR-A	3.5 +-2.3 E 00		10/07			3
							GR-B	4.5 +-0.4 E 01		10/07			3
							SR-90	L.T. 4. E-01		10/16			3
							TOTAL-U	4.0 +-0.6 E 00	UGM/LITER *				3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3
							GR-A	L.T. 2. E 00		10/07			3
							GR-B	L.T. 2. E 00		10/07			3
							TC-99	L.T. 3. E 00		10/15			3
							SR-90 -	1.6 +-2.50E-01		10/16			3

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 11/02/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27231	9309L017-007	B09539	09/18				BE-7	L.T. 8. E 01		10/11			4
							BE-7 -	1.2 +- 4.7E 01		10/11			4
							K-40	1.71+-0.49E 02		10/11			4
							K-40	L.T. 2. E 02		10/11			4
							MN-54	L.T. 8. E 00		10/11			4
							MN-54	0.0 +- 4.6E 00		10/11			4
							CO-58	L.T. 9. E 00		10/11			4
							CO-58 -	4.5 +- 5.5E 00		10/11			4
							FE-59	L.T. 2. E 01		10/11			4
							FE-59	5.1 +-11.5E 00		10/11			4
							CO-60	L.T. 8. E 00		10/11			4
							CO-60	1.2 +- 4.5E 00		10/11			4
							ZN-65	L.T. 1. E 01		10/11			4
							ZN-65 -	6.8 +- 9.0E 00		10/11			4
							ZR-95	L.T. 9. E 00		10/11			4
							ZR-95 -	4.0 +- 5.6E 00		10/11			4
							RU-103	L.T. 1. E 01		10/11			4
							RU-103 -	2.9 +- 6.3E 00		10/11			4
							RU-106	L.T. 7. E 01		10/11			4
							RU-106 -	2.1 +- 4.2E 01		10/11			4
							I-131	L.T. 5. E 01		10/11			4
							I-131 -	8.3 +-30.7E 00		10/11			4
							CS-134	L.T. 8. E 00		10/11			4
							CS-134 -	3.6 +- 4.9E 00		10/11			4
							CS-137	L.T. 8. E 00		10/11			4
							CS-137	3.0 +- 4.8E 00		10/11			4
							BA-140	L.T. 2. E 01		10/11			4
							BA-140 -	3.9 +-14.6E 00		10/11			4
							CE-141	L.T. 1. E 01		10/11			4
							CE-141	8.2 +-90.2E-01		10/11			4
							CE-144	L.T. 4. E 01		10/11			4
							CE-144 -	1.1 +- 2.7E 01		10/11			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

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27231	9309L017-007	B09539	09/18				EU-152	L.T. 2. E 01		10/11			4
							EU-152 -	1.6 +- 1.4E 01		10/11			4
							EU-154	L.T. 2. E 01		10/11			4
							EU-154	6.7 +-12.2E 00		10/11			4
							EU-155	L.T. 2. E 01		10/11			4
							EU-155 -	2.2 +- 1.4E 01		10/11			4
							RA-226	L.T. 1. E 02		10/11			4
							RA-226	1.0 +- 0.8E 02		10/11			4
							TH-228	L.T. 1. E 01		10/11			4
							TH-228	3.1 +- 7.4E 00		10/11			4
							TH-234	L.T. 2. E 02		10/11			4
							TH-234 -	1.9 +- 8.7E 01		10/11			4
							H-3	8.4 +-0.1 E 04		10/09			5
							H-3	L.T. 1. E 02		10/09			5
							PU-238	L.T. 9. E-02		10/28			6
							PU-239	L.T. 9. E-02		10/28			6
							PU-238	5.5 +-55.5E-03		10/28			6
							PU-239	5.5 +-55.5E-03		10/28			6
27232	9309L017-009	B09525	09/18				PH TEST	VERIF IED					3
							TC-99	L.T. 3. E 00		10/15			3
							GR-A	L.T. 2. E 00		10/07			3
							GR-B	1.5 +-0.2 E 01		10/07			3
							SR-90	L.T. 4. E-01		10/16			3
							TOTAL-U	1.0 +-0.2 E 00	UGM/LITER *				3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3
							GR-A	1.2 +-1.85E 00		10/07			3
							GR-B	L.T. 2. E 00		10/07			3
							TC-99	1.7 +-2.0 E 00		10/15			3
							SR-90 -	2.3 +-2.13E-01		10/16			3
							BE-7	L.T. 6. E 01		10/12			4
							BE-7 -	9.9 +-38.2E 00		10/12			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
4-3986	LL-1140-F4	09/24/93	10/27/93

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27232	9309L017-009	B09525	09/18				K-40	L.T. 1. E 02		10/12			4
							K-40 -	1.2 +- 0.6E 02		10/12			4
							MN-54	L.T. 6. E 00		10/12			4
							MN-54	1.5 +- 3.8E 00		10/12			4
							CO-58	L.T. 7. E 00		10/12			4
							CO-58 -	3.2 +- 4.2E 00		10/12			4
							FE-59	L.T. 2. E 01		10/12			4
							FE-59	2.9 +- 9.0E 00		10/12			4
							CO-60	L.T. 6. E 00		10/12			4
							CO-60	1.1 +- 3.5E 00		10/12			4
							ZN-65	L.T. 1. E 01		10/12			4
							ZN-65 -	1.4 +- 7.9E 00		10/12			4
							ZR-95	L.T. 7. E 00		10/12			4
							ZR-95	0.0 +- 4.5E 00		10/12			4
							RU-103	L.T. 9. E 00		10/12			4
							RU-103	5.9 +-51.3E-01		10/12			4
							RU-106	L.T. 6. E 01		10/12			4
							RU-106	0.0 +- 3.5E 01		10/12			4
							I-131	L.T. 4. E 01		10/12			4
							I-131 -	7.9 +-27.0E 00		10/12			4
							CS-134	L.T. 7. E 00		10/12			4
							CS-134	5.8 +-41.6E-01		10/12			4
							CS-137	L.T. 6. E 00		10/12			4
							CS-137 -	1.7 +- 3.9E 00		10/12			4
							BA-140	L.T. 2. E 01		10/12			4
							BA-140	8.5 +-121.E-01		10/12			4
							CE-141	L.T. 1. E 01		10/12			4
							CE-141	0.0 +- 7.7E 00		10/12			4
							CE-144	L.T. 4. E 01		10/12			4
							CE-144 -	8.7 +-21.9E 00		10/12			4
							EU-152	L.T. 2. E 01		10/12			4
							EU-152 -	5.5 +-11.5E 00		10/12			4

0 0 1 3 3 0 7 . 1 E 2 2

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 11/02/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 16
4-3986	LL-1140-F4	09/24/93	10/27/93	

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27232	9309L017-009	B09525	09/18				EU-154	L.T. 2. E 01		10/12			4
							EU-154	1.1 +-10.2E 00		10/12			4
							EU-155	L.T. 2. E 01		10/12			4
							EU-155 -	4.7 +- 1.1E 01		10/12			4
							RA-226	L.T. 1. E 02		10/12			4
							RA-226 -	7.4 +-66.8E 00		10/12			4
							TH-228	L.T. 1. E 01		10/12			4
							TH-228	3.3 +- 6.2E 00		10/12			4
							TH-234	L.T. 1. E 02		10/12			4
							TH-234 -	3.3 +- 6.9E 01		10/12			4
							H-3	L.T. 2. E 02		10/09			5
							H-3	6.8 +-9.90E 01		10/09			5
							PU-238	L.T. 1. E-01		10/28			6
							PU-239	L.T. 2. E-01		10/28			6
							PU-238	6.2 +-61.6E-03		10/28			6
							PU-239 -	3.1 +-8.1 E-02		10/28			6
27233	9309L017-011	B09523	09/18				PH TEST	VERIF IED					3
							TC-99	3.2 +-0.1 E 03		10/15			3
							GR-A	6.3 +-2.6 E 00		10/08			3
							GR-B	1.6 +-0.1 E 03		10/07			3
							SR-90	L.T. 5. E-01		10/16			3
							TOTAL-U	6.7 +-1.0 E 00	UGM/LITER *				3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *				3
							GR-A	L.T. 2. E 00		10/08			3
							GR-B	L.T. 4. E 00		10/07			3
							TC-99	L.T. 3. E 00		10/15			3
							SR-90 -	2.0 +-2.68E-01		10/16			3
							BE-7	L.T. 7. E 01		10/12			4
							BE-7 -	7.6 +-41.0E 00		10/12			4
							K-40	L.T. 1. E 02		10/12			4
							K-40 -	2.4 +- 6.3E 01		10/12			4

9713507.1E23

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 11/02/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3986	LL-1140-F4	09/24/93	10/27/93

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27233	9309L017-011	B09523	09/18				MN-54	L.T. 7. E 00		10/12			4
							MN-54 -	5.4 +-40.0E-01		10/12			4
							CO-58	L.T. 8. E 00		10/12			4
							CO-58 -	1.1 +- 4.8E 00		10/12			4
							FE-59	L.T. 2. E 01		10/12			4
							FE-59	1.1 +- 1.1E 01		10/12			4
							CO-60	7.88+-0.89E 01		10/12			4
							CO-60	L.T. 2. E 01		10/12			4
							ZN-65	L.T. 1. E 01		10/12			4
							ZN-65 -	4.7 +- 8.3E 00		10/12			4
							ZR-95	L.T. 8. E 00		10/12			4
							ZR-95 -	9.2 +-49.3E-01		10/12			4
							RU-103	L.T. 9. E 00		10/12			4
							RU-103 -	1.9 +- 5.4E 00		10/12			4
							RU-106	L.T. 6. E 01		10/12			4
							RU-106	2.3 +- 3.8E 01		10/12			4
							I-131	L.T. 5. E 01		10/12			4
							I-131 -	3.9 +-28.8E 00		10/12			4
							CS-134	L.T. 7. E 00		10/12			4
							CS-134	7.1 +-44.1E-01		10/12			4
							CS-137	L.T. 7. E 00		10/12			4
							CS-137 -	2.9 +- 4.6E 00		10/12			4
							BA-140	L.T. 2. E 01		10/12			4
							BA-140	4.1 +-13.2E 00		10/12			4
							CE-141	L.T. 1. E 01		10/12			4
							CE-141 -	7.9 +- 7.9E 00		10/12			4
							CE-144	L.T. 4. E 01		10/12			4
							CE-144	1.3 +- 2.4E 01		10/12			4
							EU-152	L.T. 2. E 01		10/12			4
							EU-152 -	1.1 +- 1.2E 01		10/12			4
							EU-154	L.T. 3. E 01		10/12			4
							EU-154 -	1.4 +- 1.5E 01		10/12			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 11/02/93

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 18
4-3986	LL-1140-F4	09/24/93	10/27/93	

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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27233	9309L017-011	B09523	09/18				EU-155	L.T. 2. E 01		10/12			4
							EU-155 -	5.5 +- 1.3E 01		10/12			4
							RA-226	L.T. 1. E 02		10/12			4
							RA-226	6.3 +- 7.2E 01		10/12			4
							TH-228	L.T. 1. E 01		10/12			4
							TH-228 -	2.2 +- 6.8E 00		10/12			4
							TH-234	L.T. 1. E 02		10/12			4
							TH-234 -	2.6 +- 7.6E 01		10/12			4
							H-3	2.8 +-0.2 E 03		10/09			5
							H-3	L.T. 1. E 02		10/09			5
							PU-238	L.T. 1. E-01		10/28			6
							PU-239	L.T. 1. E-01		10/28			6
							PU-238	5.9 +-59.2E-03		10/28			6
							PU-239	3.0 +-7.6 E-02		10/28			6

LAST PAGE OF REPORT

J Guenther
APPROVED BY J. GUENTHER 11/02/93

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.

9713507.1325

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

306

Client: WESTON/WESTinghouse
Est. Final Proj. Sampling Date:
Work Order #: 6168-0201-9999
Project Contact/Phone #:
AD Project Manager: J. 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
#/Type Container						3/P +	1/G +	1/P
Volume						2 liter	250	1 liter

WESTON Analytics Use Only

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)	RFW#
	B09507 *			W	9/8/93		✓	9309L017-001
	B09519						✓	-003
	B09445						✓	-005
	B09539						✓	-007
	B09525						✓	-009
	B09523						✓	-011

* Tritium bottle broken at WESTON - send TOS bottle (1 pt. 250 ml) instead.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Radiochem = Gross Alpha/Beta, Gamma Spec (Cs-137/Co-60, Ru-106), Pu-238/239/240, Sr-90, Total U, Tritium, Tc-99

DATE/REVISIONS	B; α; γSPEC	Sr-90	Total U	Tc-99	H-3
B09507 1.	1.73	1.81	2.31	1.89	7.97
B09519 2.	1.84	1.76	1.77	1.85	7.87
B09445 3.	1.73	1.72	1.72	1.85	7.95
B09539 4.	1.63	1.61	1.61	1.64	8.06
B09525 5.	1.60	1.61	1.58	1.86	8.08
B09523 6.	1.57	1.61	1.62	1.82	7.93

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
[signature]	[signature]	9-10-93	16:30

Relinquished by	Received by	Date	Time
	[signature]	9-24-93	1200

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

9213507.1E26

pH Tri - verified 9/29/93 [illegible]

9713507.1627

Golder Associates Inc.

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

Golder Associates

April 18, 1994

Our ref: 913-1719
S/O/3014

APR 1994
RECEIVED
TQO

Westinghouse Hanford Company
Hanford Analytical Services
345 Hills, MSIN H4-23
P.O. Box 1970
Richland, Washington 99352

ATTENTION: Ms. Jeanette Duncan

RE: TRANSMITTAL OF REVISED 200-BP-1 DATA PACKAGES, TASK ORDER S92-19, CONTRACT MJK-SVV-M073750

Dear Jeanette:

Enclosed are revised pages for data packages for the 200-BP-1 data validation project. These changes are a result of our review of the data packages during preparation of the 200-BP-1 final data validation summary. Please call if you have questions.

Data Package	Revised Pages
27223-WES-1325	radiochemistry pages: 1, 2, 3, 7, 9, 10, 12, 17, 19, 21, 23, 25, and 37.
9308L751-WES-1274	metals pages: 2, 3, 8, 9, 11 - 36, 62, 63

Sincerely,

GOLDER ASSOCIATES INC.

Christina I. Jensen

Christina I. Jensen
Task Manager

Douglas G. Dunster

Douglas G. Dunster
Project Director

CJ/DGD/ah

cc: P.K. Brockman, SAIC w/Enclosures
K. Angelos

9713507.1628

27223-WES-1325

radiochemistry pages: 1, 2, 3, 7, 9, 10, 12, 17, 19, 21, 23, 25, and 37.

Changes made 4-29-94

Jim W.

9713507.1829

Golder Associates Inc.

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

Golder Associates

January 21, 1994

Our ref: 913-1719
S/O/KAJ21

Westinghouse Hanford Company
Hanford Analytical Services Management
345 Hills
Richland, Washington 99352

ATTENTION: Ms. Jeanette Duncan

RE: TRANSMITTAL OF 200-BP-1 DATA VALIDATION PACKAGE, TASK ORDER S-91-19

Dear Ms. Duncan:

Enclosed is one data validation package containing radiochemistry analyses performed by the Weston laboratory for the 200-BP-1 ER project.

The data package included in this shipment is as follows:

- 27223-WES-1325

The validation documentation is located at the front of the data package folder. Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kent M. Angelos
Project Manager

Donald M. Caldwell
Project Director

Enclosures

cc: P.K. Brockman, SAIC
C. Jensen

RECEIVED
JAN 24 1994
VALIDATION DOCUMENTATION
SDLA

JAN 1994
RECEIVED
TQO

9213507.1630

RECORD COPY

MEMORANDUM

TO: 200 BP-1 Project QA Record

April 18, 1994

FR: Thomas Stapp

RE: RADIOCHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE 27223-WES-1325 (913-1719/ 27223R.BP1)

INTRODUCTION

This memo presents the results of data validation on data package 27223-WES-1325 consisting of six groundwater samples for radiochemistry analyses. The samples were analyzed by the Teledyne Isotopes laboratory under contract to Weston Analytic using WHC approved methods. A list of the samples validated is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA**	ANALYSES
B09539*	09/18/93	GW	SEE NOTE 1
B09507	09/18/93	GW	
B09519	09/18/93	GW	
B094V5	09/18/93	GW	
B09525	09/18/93	GW	
B09523	09/18/93	GW	

Notes:

* Indicates 100% validation performed on these samples.
** GW indicates the media type is groundwater.

1. Indicates the samples were analyzed for gross alpha, gross beta, strontium-90, technetium-99 (beta counting), isotopic plutonium and uranium (alpha spectroscopy), total uranium (kinetic phosphorimetry), tritium (liquid scintillation) and selected radioisotopes by gamma spectroscopy.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993) and validation procedures (WHC 1992). 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

Revised 4-18-94

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.

Accuracy. Goals for accuracy were met with the exception of major deficiencies identified below.

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 work plan (DOE-RL 1992).

Completeness. The data package was complete for all requested analyses. A total of six samples were validated in this data package with a total of 180 determinations reported, of which 174 were deemed valid. This results in a completeness of 97 percent which meets the work plan completeness objective of 90 percent (DOE-RL 1992).

MAJOR DEFICIENCIES

The following major deficiencies were identified during data validation which required qualification of data as unusable.

Spike Recovery

- The strontium-90 spike recovery for the LCS (identified as Distilled Spiked H2O) was unacceptable. Associated results for strontium-90 have been qualified as unusable (UR for non-detects). Attachments 2 and 5 provide a summary of the data qualification applied and supporting documentation.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of data.

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 4-19-94

002

REFERENCES

WHC, 1993, Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision G, May 1993. Westinghouse Hanford Company, Richland, Washington.

WHC, 1992, Westinghouse Hanford Company, Data Validation Procedures for Radiochemical Analyses, WHC-SD-EN-SPP-001, Rev. 0, 1993. Westinghouse Hanford Company, Richland, Washington.

DOE-RL 1990, Remedial Investigation/Feasibility Study Work Plan for the 200-BP-1 Operable Unit Hanford Site, DOE/RL 88-32, U.S. Department of Energy, Richland, Washington.

DOE-RL 1992, Remedial Investigation/Feasibility Study Work Plan for the 200-BP-1 Operable Unit Hanford Site, DOE/RL 88-32,Change Order 26, U.S. Department of Energy, Richland, Washington.

Revised 4-18-94

9713507_1E33

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

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.

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ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9713507.1636

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 27223-WES-1325	REVIEWER: T. STAPP	DATE: 4-18-94	PAGE 1 OF 1
COMMENTS: RADIOCHEMISTRY			
COMPOUND/ANALYTE	QUALIFIER	SAMPLES AFFECTED	REASON
STRONTIUM-90	UR	ALL	LCS SPIKE RECOVERY EXCEEDED 115% LIMIT

Revised 4-18-94
TS

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ATTACHMENT 3

QUALIFIED DATA SUMMARY and ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 27223-WES-1325

	Samp#	B094V5		B09507		B09519		B09523		B09525		B09539	
	Date	9-18-93		9-18-93		9-18-93		9-18-93		9-18-93		9-18-93	
	Location	299-E33-3		699-47-60		699-50-53A		699-52-54		699-52-57		699-57-59	
	Type	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Technetium-99	pCi/L	530.000		3.000	U	2100.000		3200.000		3.000	U	64.000	
Gross Alpha	pCi/L	2.000	U	2.000	U	2.000	U	6.300		2.000	U	3.500	
Gross Beta	pCi/L	310.000		9.200		1000.000		1600.000		15.000		45.000	
Strontium-90	pCi/L	0.400	UR	1.000	UR	0.700	UR	0.500	UR	0.400	UR	0.400	UR
Total Uranium	µg/L	3.000		2.300		6.400		6.700		1.000		4.000	
Beryllium-7	pCi/L	60.000	U	70.000	U	80.000	U	70.000	U	60.000	U	80.000	U
Potassium-40	pCi/L	200.000	U	200.000	U	200.000	U	100.000	U	100.000	U	200.000	U
Manganese-54	pCi/L	6.000	U	8.000	U	8.000	U	7.000	U	6.000	U	8.000	U
Cobalt-58	pCi/L	7.000	U	8.000	U	10.000	U	8.000	U	7.000	U	9.000	U
Iron-59	pCi/L	10.000	U	20.000	U	20.000	U	20.000	U	20.000	U	20.000	U
Cobalt-60	pCi/L	14.500		6.000	U	35.000		78.800		6.000	U	8.000	U
Zinc-65	pCi/L	10.000	U	20.000	U	20.000	U	10.000	U	10.000	U	10.000	U
Zirconium-95	pCi/L	8.000	U	9.000	U	9.000	U	8.000	U	7.000	U	9.000	U
Ruthenium-103	pCi/L	8.000	U	10.000	U	10.000	U	9.000	U	9.000	U	10.000	U
Ruthenium-106	pCi/L	60.000	U	80.000	U	70.000	U	60.000	U	60.000	U	70.000	U
Iodine-131	pCi/L	40.000	U	40.000	U	40.000	U	50.000	U	40.000	U	50.000	U
Cesium-134	pCi/L	7.000	U	8.000	U	9.000	U	7.000	U	7.000	U	8.000	U
Cesium-137	pCi/L	7.000	U	8.000	U	9.000	U	7.000	U	6.000	U	8.000	U
Barium-140	pCi/L	20.000	U	20.000	U	20.000	U	20.000	U	20.000	U	20.000	U
Cerium-141	pCi/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
Cerium-144	pCi/L	40.000	U	40.000	U	50.000	U	40.000	U	40.000	U	40.000	U
Europium-152	pCi/L	20.000	U	20.000	U	20.000	U	20.000	U	20.000	U	20.000	U
Europium-154	pCi/L	20.000	U	20.000	U	20.000	U	30.000	U	20.000	U	20.000	U
Europium-155	pCi/L	20.000	U	30.000	U	30.000	U	20.000	U	20.000	U	20.000	U
Radium-226	pCi/L	100.000	U	100.000	U	200.000	U	100.000	U	100.000	U	100.000	U
Thorium-228	pCi/L	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U	10.000	U
Thorium-234	pCi/L	100.000	U	100.000	U	200.000	U	100.000	U	100.000	U	200.000	U
Tritium	pCi/L	4500.000		200.000	U	410.000		2800.000		200.000	U	84000.000	
Plutonium-238	pCi/L	0.100	U	0.090	U	0.090	U	0.100	U	0.100	U	0.090	U
Plutonium-239	pCi/L	0.100	U	0.090	U	0.100	U	0.100	U	0.200	U	0.090	U

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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

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.
27223	9309L017-001	B09507	09/18				PH TEST	VERIF IED					3
							TC-99	L.T. 3. E 00		10/15	U		3
							GR-A	L.T. 2. E 00		10/07	U		3
							GR-B	9.2 +-2.0 E 00		10/07			3
							SR-90	L.T. 1. E 00		10/15	UR		3
							TOTAL-U	2.3 +-0.3 E 00	UGM/LITER *				3
							~~TOTAL-U~~	~~L.T. 5. E 02~~	~~UGM/LITER *~~				3
							~~GR-A~~	~~1.2 +- 1.79E 00~~		~~10/07~~			3
							~~GR-B~~	~~L.T. 2. E 00~~		~~10/07~~			3
							~~TC-99~~	~~0.0 +- 1.6 E 00~~		~~10/15~~			3
							~~SR-90~~	~~8.3 +- 73.3E 02~~		~~10/15~~			3
							BE-7	L.T. 7. E 01		10/07	U		4
							~~BE-7~~	~~3.1 +- 4.4E 01~~		~~10/07~~			4
							K-40	L.T. 2. E 02		10/07	U		4
							~~K-40~~	~~5.1 +- 8.4E 01~~		~~10/07~~			4
							MN-54	L.T. 8. E 00		10/07	U		4
							~~MN-54~~	~~1.0 +- 4.5E 00~~		~~10/07~~			4
							CO-58	L.T. 8. E 00		10/07	U		4
							~~CO-58~~	~~4.5 +- 5.2E 00~~		~~10/07~~			4
							FE-59	L.T. 2. E 01		10/07	U		4
							~~FE-59~~	~~3.8 +- 9.7E 00~~		~~10/07~~			4
							CO-60	L.T. 6. E 00		10/07	U		4
							~~CO-60~~	~~2.3 +- 37.7E 01~~		~~10/07~~			4
							ZN-65	L.T. 2. E 01		10/07	U		4
							~~ZN-65~~	~~3.3 +- 9.6E 00~~		~~10/07~~			4
							ZR-95	L.T. 9. E 00		10/07	U		4
							~~ZR-95~~	~~1.1 +- 5.3E 00~~		~~10/07~~			4
							RU-103	L.T. 1. E 01		10/07	U		4
							~~RU-103~~	~~2.2 +- 5.9E 00~~		~~10/07~~			4
							RU-106	L.T. 8. E 01		10/07	U		4
							~~RU-106~~	~~3.2 +- 4.5E 01~~		~~10/07~~			4
							I-131	L.T. 4. E 01		10/07	U		4

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TELEDYNE ISOTOPES

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
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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.
27223	9309L017-001	B09507	09/18				~~I-131~~	~~4.2 +-21.4E 00~~		~~10/07~~			4
							CS-134	L.T. 8. E 00		10/07	U		4
							~~CS-134~~	~~1.6 +- 5.0E 00~~		~~10/07~~			4
							CS-137	L.T. 8. E 00		10/07	U		4
							~~CS-137~~	~~0.0 +- 5.1E 00~~		~~10/07~~			4
							BA-140	L.T. 2. E 01		10/07	U		4
							~~BA-140~~	~~7.9 +-115.E-01~~		~~10/07~~			4
							CE-141	L.T. 1. E 01		10/07	U		4
							~~CE-141~~	~~6.6 + 9.5E 00~~		~~10/07~~			4
							CE-144	L.T. 4. E 01		10/07	U		4
							~~CE-144~~	~~6.1 +-27.4E 00~~		~~10/07~~			4
							EU-152	L.T. 2. E 01		10/07	U		4
							~~EU-152~~	~~1.4 + 1.5E 01~~		~~10/07~~			4
							EU-154	L.T. 2. E 01		10/07	U		4
							~~EU-154~~	~~0.0 +- 1.2E 01~~		~~10/07~~			4
							EU-155	L.T. 3. E 01		10/07	U		4
							~~EU-155~~	~~2.1 + 1.5E 01~~		~~10/07~~			4
							RA-226	L.T. 1. E 02		10/07	U		4
							~~RA-226~~	~~2.2 +- 8.3E 01~~		~~10/07~~			4
							TH-228	L.T. 1. E 01		10/07	U		4
							~~TH-228~~	~~1.0 +- 0.8E 01~~		~~10/07~~			4
							TH-234	L.T. 1. E 02		10/07	U		4
							~~TH-234~~	~~7.8 +- 8.8E 01~~		~~10/07~~			4
							H-3	L.T. 2. E 02		10/08	U		5
							~~H-3~~	~~1.1 + .069E 02~~		~~10/08~~			5
							PU-238	L.T. 9. E-02		10/27	U		6
							PU-239	L.T. 9. E-02		10/27	U		6
							~~PU-238~~	~~5.8 + 58.4E-03~~		~~10/27~~			6
							~~PU-239~~	~~5.8 +-58.4E-03~~		~~10/27~~			6

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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

W A T E R

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	TIME	STOP DATE	TIME	NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27224	9309L017-001MS B09507		09/18				H-3	1.3 +-0.1 E 03		10/09			5
							~~H-3~~	~~L.T. 2. E 02~~		~~10/09~~			5
27225	9309L017-001MSDB09507		09/18				H-3	1.3 +-0.1 E 03		10/09			5
							~~H-3~~	~~L.T. 2. E 02~~		~~10/09~~			5
27226	9309L017-001DUPB09507		09/18				TC-99	L.T. 3. E 00		10/15	U		3
							GR-A	2.9 +-1.6 E 00		11/01			3
							GR-B	8.0 +-1.9 E 00		10/07			3
							SR-90	L.T. 9. E-01		10/15	UR		3
							TOTAL-U	2.4 +-0.4 E 00	UGM/LITER *				3
							~~TOTAL-U~~	~~L.T. 5. E 02~~	~~UGM/LITER *~~				3
							~~GR-A~~	~~L.T. 2. E 00~~		~~11/01~~			3
							~~GR-B~~	~~L.T. 2. E 00~~		~~10/07~~			3
							~~TC-99~~	~~9.3 +- 18.7E 00~~		~~10/15~~			3
							~~SR-90~~	~~4.0 +- 4.86E-01~~		~~10/15~~			3
							BE-7	L.T. 7. E 01		10/08	U		4
							~~BE-7~~	~~1.4 +- 4.2E 01~~		~~10/08~~			4
							K-40	L.T. 1. E 02		10/08	U		4
							~~K-40~~	~~9.9 +- 6.6E 01~~		~~10/08~~			4
							MN-54	L.T. 6. E 00		10/08	U		4
							~~MN-54~~	~~2.7 +- 4.1E 00~~		~~10/08~~			4
							CO-58	L.T. 8. E 00		10/08	U		4
							~~CO-58~~	~~1.1 +- 4.8E 00~~		~~10/08~~			4
							FE-59	L.T. 1. E 01		10/08	U		4
							~~FE-59~~	~~4.1 +- 9.3E 00~~		~~10/08~~			4
							CO-60	L.T. 7. E 00		10/08	U		4
							~~CO-60~~	~~2.7 +- 3.9E 00~~		~~10/08~~			4
							ZN-65	L.T. 1. E 01		10/08	U		4
							~~ZN-65~~	~~6.4 +- 8.3E 00~~		~~10/08~~			4
							ZR-95	L.T. 8. E 00		10/08	U		4
							~~ZR-95~~	~~2.1 +- 4.8E 00~~		~~10/08~~			4

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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27226	9309L017-001DUPB09507		09/18				RU-103	L.T. 9. E 00		10/08	U		4
							~~RU-103~~	~~1.9 +- 5.5E 00~~		~~10/08~~			4
							RU-106	L.T. 6. E 01		10/08	U		4
							~~RU-106~~	~~0.0 +- 3.9E 01~~		~~10/08~~			4
							I-131	L.T. 4. E 01		10/08	U		4
							~~I-131~~	~~1.9 +- 2.2E 01~~		~~10/08~~			4
							CS-134	L.T. 7. E 00		10/08	U		4
							~~CS-134~~	~~5.1 +-43.8E 01~~		~~10/08~~			4
							CS-137	L.T. 8. E 00		10/08	U		4
							~~CS-137~~	~~2.2 +- 4.5E 00~~		~~10/08~~			4
							BA-140	L.T. 2. E 01		10/08	U		4
							~~BA-140~~	~~7.9 +-105.E 01~~		~~10/08~~			4
							CE-141	L.T. 1. E 01		10/08	U		4
							~~CE-141~~	~~3.9 +- 7.9E 00~~		~~10/08~~			4
							CE-144	L.T. 4. E 01		10/08	U		4
							~~CE-144~~	~~2.2 +- 2.5E 01~~		~~10/08~~			4
							EU-152	L.T. 2. E 01		10/08	U		4
							~~EU-152~~	~~1.8 +- 1.4E 01~~		~~10/08~~			4
							EU-154	L.T. 3. E 01		10/08	U		4
							~~EU-154~~	~~8.9 +-16.4E 00~~		~~10/08~~			4
							EU-155	L.T. 2. E 01		10/08	U		4
							~~EU-155~~	~~6.1 +- 1.3E 01~~		~~10/08~~			4
							RA-226	L.T. 1. E 02		10/08	U		4
							~~RA-226~~	~~6.1 +- 7.4E 01~~		~~10/08~~			4
							TH-228	L.T. 1. E 01		10/08	U		4
							~~TH-228~~	~~7.0 +- 7.2E 00~~		~~10/08~~			4
							TH-234	L.T. 1. E 02		10/08	U		4
							~~TH-234~~	~~9.3 +- 8.0E 01~~		~~10/08~~			4
							H-3	L.T. 2. E 02		10/09	U		5
							~~H-3~~	~~1.0 +-.873E 02~~		~~10/09~~			5
							PU-238	L.T. 9. E-02		10/27	U		6
							PU-239	L.T. 2. E-01		10/27	U		6

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MPS 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	TIME	STOP DATE	TIME	NUCLIDE	ACTIVITY (PCI/LITER)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB
27226	9309L017-001DUPB09507		09/18				~~PU-238~~	~~5.5 +- 54.5E-03~~		~~10/27~~			6
							~~PU-239~~	~~2.7 + 7.2 E 02~~		~~10/27~~			6
27227	DISTILLED BLANK H2O		/				TC-99	L.T. 4. E 00		10/15	U		3
							GR-A	L.T. 7. E-01		10/07	U		3
							GR-B	L.T. 8. E-01		10/07	U		3
							SR-90	L.T. 1. E 00		10/19	U		3
							TOTAL-U	L.T. 5. E-02	UGM/LITER *		U		3
							~~TOTAL-U~~	~~8. + 8. E-03~~	~~UGM/LITER *~~				3
							~~GR-A~~	~~0.0 + 4.5 E-01~~		~~10/07~~			3
							~~GR-B~~	~~2.4 + 48.4E-02~~		~~10/07~~			3
							~~TC-99~~	~~0.0 + 2.2 E 00~~		~~10/15~~			3
							~~SR-90~~	~~3.0 + 7.01E-01~~		~~10/19~~			3
							BE-7	L.T. 5. E 01		10/07	U		4
							~~BE-7~~	~~1.7 + 2.7E 01~~		~~10/07~~			4
							K-40	L.T. 1. E 02		10/07	U		4
							~~K-40~~	~~9.5 +- 6.8E-01~~		~~10/07~~			4
							MN-54	L.T. 6. E 00		10/07	U		4
							~~MN-54~~	~~1.5 +- 3.3E-00~~		~~10/07~~			4
							CO-58	L.T. 5. E 00		10/07	U		4
							~~CO-58~~	~~3.8 + 3.4E 00~~		~~10/07~~			4
							FE-59	L.T. 1. E 01		10/07	U		4
							~~FE-59~~	~~4.9 +- 6.7E 00~~		~~10/07~~			4
							CO-60	L.T. 6. E 00		10/07	U		4
							~~CO-60~~	~~9.9 + 35.2E-01~~		~~10/07~~			4
							ZN-65	L.T. 1. E 01		10/07	U		4
							~~ZN-65~~	~~1.7 +- 6.1E 00~~		~~10/07~~			4
							ZR-95	L.T. 5. E 00		10/07	U		4
							~~ZR-95~~	~~1.3 +-32.9E-01~~		~~10/07~~			4
							RU-103	L.T. 5. E 00		10/07	U		4
							~~RU-103~~	~~1.7 +- 3.2E 00~~		~~10/07~~			4
							RU-106	L.T. 6. E 01		10/07	U		4

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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.
27227	DISTILLED BLANK H2O		/				~~RU-106~~	~~3.1 +- 3.4E 01~~		~~10/07~~			4
							I-131	L.T. 6. E 00		10/07	U		4
							~~I-131~~	~~1.5 +- 3.6E 00~~		~~10/07~~			4
							CS-134	L.T. 6. E 00		10/07	U		4
							~~CS-134~~	~~3.0 +-37.0E-01~~		~~10/07~~			4
							CS-137	L.T. 6. E 00		10/07	U		4
							~~CS-137~~	~~5.3 +-37.2E-01~~		~~10/07~~			4
							BA-140	L.T. 5. E 00		10/07	U		4
							~~BA-140~~	~~3.3 +- 3.5E 00~~		~~10/07~~			4
							CE-141	L.T. 8. E 00		10/07	U		4
							~~CE-141~~	~~6.7 +-47.0E-01~~		~~10/07~~			4
							CE-144	L.T. 3. E 01		10/07	U		4
							~~CE-144~~	~~6.5 +-20.9E 00~~		~~10/07~~			4
							EU-152	L.T. 2. E 01		10/07	U		4
							~~EU-152~~	~~8.3 +-11.6E 00~~		~~10/07~~			4
							EU-154	L.T. 1. E 01		10/07	U		4
							~~EU-154~~	~~1.7 +- 9.1E 00~~		~~10/07~~			4
							EU-155	L.T. 2. E 01		10/07	U		4
							~~EU-155~~	~~6.1 +- 1.1E 01~~		~~10/07~~			4
							RA-226	L.T. 1. E 02		10/07	U		4
							~~RA-226~~	~~7.3 +-68.2E 00~~		~~10/07~~			4
							TH-228	L.T. 1. E 01		10/07	U		4
							~~TH-228~~	~~5.2 +- 6.1E 00~~		~~10/07~~			4
							TH-234	L.T. 1. E 02		10/07	U		4
							~~TH-234~~	~~2.6 +- 7.1E 01~~		~~10/07~~			4
							H-3	L.T. 2. E 02		10/09	U		5
							~~H-3~~	~~2.4 +-92.8E 00~~		~~10/09~~			5
							PU-238	L.T. 1. E-01		10/28	U		6
							PU-239	L.T. 1. E-01		10/28	U		6
							~~PU-238~~	~~6.3 +-62.5E-03~~		~~10/28~~			6
							~~PU-239~~	~~6.3 +-62.5E-03~~		~~10/28~~			6

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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27228	DISTILLED SPIKED H2O		/				TC-99	8.7 +-0.9 E 01		10/15			3
							GR-A	1.1 +-0.2 E 01		10/07			3
							GR-B	2.0 +-0.1 E 01		10/07			3
							SR-90	7.2 +-0.5 E 01		10/21			3
							TOTAL-U	1.6 +-0.2 E 01	UGM/LITER *				3
							~~TOTAL-U~~	~~L.T. 5. E 02~~	~~UGM/LITER *~~				3
							~~GR-A~~	~~L.T. 9. E 01~~		~~10/07~~			3
							~~GR-B~~	~~L.T. 8. E 01~~		~~10/07~~			3
							~~TC-99~~	~~L.T. 4. E 00~~		~~10/15~~			3
							~~SR-90~~	~~L.T. 2. E 00~~		~~10/21~~			3
							BE-7	L.T. 2. E 06		10/08	U		4
							~~BE-7~~	~~7.3 + 140.E 04~~		~~10/08~~			4
							K-40	L.T. 5. E 02		10/08	U		4
							~~K-40~~	~~1.9 + 2.0E 02~~		~~10/08~~			4
							MN-54	L.T. 4. E 02		10/08	U		4
							~~MN-54~~	~~1.9 + 2.6E 02~~		~~10/08~~			4
							CO-58	L.T. 4. E 04		10/08	U		4
							~~CO-58~~	~~0.0 + 2.4E 04~~		~~10/08~~			4
							FE-59	L.T. 3. E 06		10/08	U		4
							~~FE-59~~	~~4.2 +-17.3E 05~~		~~10/08~~			4
							CO-60	2.47+-0.25E 04		10/08			4
							~~CO-60~~	~~L.T. 8. E 02~~		~~10/08~~			4
							ZN-65	L.T. 1. E 03		10/08	U		4
							~~ZN-65~~	~~0.0 + -8.6E 02~~		~~10/08~~			4
							ZR-95	L.T. 7. E 04		10/08	U		4
							~~ZR-95~~	~~7.C +-40.5E 03~~		~~10/08~~			4
							RU-103	L.T. 4. E 06		10/08	U		4
							~~RU-103~~	~~1.4 +-24.9E 05~~		~~10/08~~			4
							RU-106	L.T. 3. E 03		10/08	U		4
							~~RU-106~~	~~4.0 + 16.8E 02~~		~~10/08~~			4
							CS-134	L.T. 2. E 02		10/08	U		4
							~~CS-134~~	~~6.4 + 12.1E 01~~		~~10/08~~			4

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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.
27228	DISTILLED SPIKED H2O		/				CS-137	2.22+-0.22E 04		10/08			4
							~~CS-137~~	~~L.T. 6. E 02~~		~~10/08~~			4
							CE-141	L.T. 4. E 07		10/08	U		4
							~~CE-141~~	~~1.1 +- 2.3E 07~~		~~10/08~~			4
							CE-144	L.T. 2. E 03		10/08	U		4
							~~CE-144~~	~~6.0 +-11.4E 02~~		~~10/08~~			4
							EU-152	L.T. 3. E 02		10/08	U		4
							~~EU-152~~	~~2.0 + 1.8E 02~~		~~10/08~~			4
							EU-154	L.T. 2. E 02		10/08	U		4
							~~EU-154~~	~~6.5 +-115.E 00~~		~~10/08~~			4
							~~EU-155~~	~~L.T. 5. E 02~~		~~10/08~~			4
							EU-155	7.4 +- 0.2E 03		10/08			4
							~~RA-226~~	~~L.T. 1. E 03~~		~~10/08~~			4
							RA-226	1.5 +- 0.8E 03		10/08			4
							TH-228	L.T. 2. E 02		10/08	U		4
							~~TH-228~~	~~2.6 +-14.7E 01~~		~~10/08~~			4
							TH-234	L.T. 1. E 03		10/08	U		4
							~~TH-234~~	~~1.9 +- 0.1E 04~~		~~10/08~~			4
							H-3	1.3 +-0.1 E 03		10/09			5
							~~H-3~~	~~L.T. 2. E 02~~		~~10/09~~			5
							PU-238	L.T. 4. E-02		10/28	U		6
							PU-239	1.0 +-0.2 E 00		10/28			6
							~~PU-238~~	~~2.7 +-26.6E-03~~		~~10/28~~			6
							~~PU-239~~	~~L.T. 7. E-02~~		~~10/28~~			6
27229	9309L017-003	B09519	09/18				PH TEST	VERIF IED					3
							TC-99	2.1 +-0.1 E 03		10/15			3
							GR-A	L.T. 2. E 00		10/08	U		3
							GR-B	1.0 +-0.1 E 03		10/07			3
							SR-90	L.T. 7. E-01		10/16	UR		3
							TOTAL-U	6.4 +-1.0 E 00	UGM/LITER *				3
							~~TOTAL-U~~	~~L.T. 5. E 02~~	~~UGM/LITER *~~				3

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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.
27229	9309L017-003	809519	09/18				~~GR-A~~	~~1.6 +- 1.6 E 00~~		~~10/08~~			3
							~~GR-B~~	~~L.T. 3. E 00~~		~~10/07~~			3
							~~TC-99~~	~~L.T. 3. E 00~~		~~10/15~~			3
							~~SR-90~~	~~3.1 +- 3.92E 01~~		~~10/16~~			3
							BE-7	L.T. 8. E 01		10/08	U		4
							~~BE-7~~	~~1.7 +- 4.7E 01~~		~~10/08~~			4
							K-40	L.T. 2. E 02		10/08	U		4
							~~K-40~~	~~3.9 +- 8.5E 01~~		~~10/08~~			4
							MN-54	L.T. 8. E 00		10/08	U		4
							~~MN-54~~	~~1.2 +- 4.8E 00~~		~~10/08~~			4
							CO-58	L.T. 1. E 01		10/08	U		4
							~~CO-58~~	~~3.1 +- 5.6E 00~~		~~10/08~~			4
							FE-59	L.T. 2. E 01		10/08	U		4
							~~FE-59~~	~~0.0 +- 1.2E 01~~		~~10/08~~			4
							CO-60	3.50+-0.74E 01		10/08			4
							~~CO-60~~	~~L.T. 1. E 01~~		~~10/08~~			4
							ZN-65	L.T. 2. E 01		10/08	U		4
							~~ZN-65~~	~~1.7 +- 11.0E 00~~		~~10/08~~			4
							ZR-95	L.T. 9. E 00		10/08	U		4
							~~ZR-95~~	~~1.1 +- 5.6E 00~~		~~10/08~~			4
							RU-103	L.T. 1. E 01		10/08	U		4
							~~RU-103~~	~~1.4 +- 6.5E 00~~		~~10/08~~			4
							RU-106	L.T. 7. E 01		10/08	U		4
							~~RU-106~~	~~1.6 +- 4.4E 01~~		~~10/08~~			4
							I-131	L.T. 4. E 01		10/08	U		4
							~~I-131~~	~~5.7 +- 24.4E 00~~		~~10/08~~			4
							CS-134	L.T. 9. E 00		10/08	U		4
							~~CS-134~~	~~8.9 +- 52.7E 01~~		~~10/08~~			4
							CS-137	L.T. 9. E 00		10/08	U		4
							~~CS-137~~	~~0.0 +- 5.2E 00~~		~~10/08~~			4
							BA-140	L.T. 2. E 01		10/08	U		4
							~~BA-140~~	~~2.5 +- 11.6E 00~~		~~10/08~~			4

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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.
27229	9309L017-003	B09519	09/18				CE-141	L.T. 1. E 01		10/08	U		4
							~~CE-141~~	~~4.6 +- 9.0E 00~~		~~10/08~~			4
							CE-144	L.T. 5. E 01		10/08	U		4
							~~CE-144~~	~~3.3 +- 28.4E 00~~		~~10/08~~			4
							EU-152	L.T. 2. E 01		10/08	U		4
							~~EU-152~~	~~1.7 +- 1.5E 01~~		~~10/08~~			4
							EU-154	L.T. 2. E 01		10/08	U		4
							~~EU-154~~	~~6.7 +-144.E-01~~		~~10/08~~			4
							EU-155	L.T. 3. E 01		10/08	U		4
							~~EU-155~~	~~1.8 + 1.5E 01~~		~~10/08~~			4
							RA-226	L.T. 2. E 02		10/08	U		4
							~~RA-226~~	~~5.3 +-88.1E 00~~		~~10/08~~			4
							TH-228	L.T. 1. E 01		10/08	U		4
							~~TH-228~~	~~9.5 +- 8.1E 00~~		~~10/08~~			4
							TH-234	L.T. 2. E 02		10/08	U		4
							~~TH-234~~	~~1.0 +- 0.9E 02~~		~~10/08~~			4
							H-3	4.1 +-1.1 E 02		10/09			5
							~~H-3~~	~~L.T. 2. E 02~~		~~10/09~~			5
							PU-238	L.T. 9. E-02		10/28	U		6
							PU-239	L.T. 1. E-01		10/28	U		6
							~~PU-238~~	~~5.6 +-55.9E-03~~		~~10/28~~			6
							~~PU-239~~	~~1.1 +-6.5 E-02~~		~~10/28~~			6
27230	9309L017-005	B094V5	09/18				PH TEST	VERIF IED					3
							TC-99	5.3 +-0.2 E 02		10/15			3
							GR-A	L.T. 2. E 00		10/08	U		3
							GR-B	3.1 +-0.1 E 02		10/07			3
							SR-90	L.T. 4. E-01		10/16	UR		3
							TOTAL-U	3.0 +-0.5 E 00	U&M/LITER *				3
							~~TOTAL-U~~	~~L.T. 5. E 02~~	~~U&M/LITER *~~				3
							~~GR-A~~	~~1.7 + 1.5 E 00~~		~~10/08~~			3
							~~GR-B~~	~~L.T. 2. E 00~~		~~10/07~~			3

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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.
27230	9309L017-005	B094V5	09/18				~~TC-99~~	~~L.T. 2. E 00~~		~~10/15~~			3
							~~SR-90~~	~~2.6 +- 2.54E 01~~		~~10/16~~			3
							BE-7	L.T. 6. E 01		10/11	U		4
							~~BE-7~~	~~6.8 +- 38.3E 00~~		~~10/11~~			4
							K-40	L.T. 2. E 02		10/11	U		4
							~~K-40~~	~~6.8 +- 73.2E 00~~		~~10/11~~			4
							MN-54	L.T. 6. E 00		10/11	U		4
							~~MN-54~~	~~7.1 +- 37.4E 01~~		~~10/11~~			4
							CO-58	L.T. 7. E 00		10/11	U		4
							~~CO-58~~	~~3.0 +- 4.3E 00~~		~~10/11~~			4
							FE-59	L.T. 1. E 01		10/11	U		4
							~~FE-59~~	~~8.6 +- 83.7E 01~~		~~10/11~~			4
							CO-60	1.45+-0.42E 01		10/11			4
							~~CO-60~~	~~L.T. 9. E 00~~		~~10/11~~			4
							ZN-65	L.T. 1. E 01		10/11	U		4
							~~ZN-65~~	~~1.8 +- 7.3E 00~~		~~10/11~~			4
							ZR-95	L.T. 8. E 00		10/11	U		4
							~~ZR-95~~	~~1.6 +- 4.5E 00~~		~~10/11~~			4
							RU-103	L.T. 8. E 00		10/11	U		4
							~~RU-103~~	~~2.1 +- 5.1E 00~~		~~10/11~~			4
							RU-106	L.T. 6. E 01		10/11	U		4
							~~RU-106~~	~~2.2 +- 3.5E 01~~		~~10/11~~			4
							I-131	L.T. 4. E 01		10/11	U		4
							~~I-131~~	~~1.6 +- 2.5E 01~~		~~10/11~~			4
							CS-134	L.T. 7. E 00		10/11	U		4
							~~CS-134~~	~~1.1 +- 4.2E 00~~		~~10/11~~			4
							CS-137	L.T. 7. E 00		10/11	U		4
							~~CS-137~~	~~1.1 +- 4.1E 00~~		~~10/11~~			4
							BA-140	L.T. 2. E 01		10/11	U		4
							~~BA-140~~	~~8.5 +- 112.E 01~~		~~10/11~~			4
							CE-141	L.T. 1. E 01		10/11	U		4
							~~CE-141~~	~~3.6 +- 7.4E 00~~		~~10/11~~			4

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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.
27230	9309L017-005	B094V5	09/18				CE-144	L.T. 4. E 01		10/11	U		4
							~~CE-144~~	~~2.7 +-22.2E 00~~		~~10/11~~			4
							EU-152	L.T. 2. E 01		10/11	U		4
							~~EU-152~~	~~5.4 +-12.1E 00~~		~~10/11~~			4
							EU-154	L.T. 2. E 01		10/11	U		4
							~~EU-154~~	~~2.3 +-10.0E 00~~		~~10/11~~			4
							EU-155	L.T. 2. E 01		10/11	U		4
							~~EU-155~~	~~5.9 +- 1.1E 01~~		~~10/11~~			4
							RA-226	L.T. 1. E 02		10/11	U		4
							~~RA-226~~	~~1.6 +- 7.1E 01~~		~~10/11~~			4
							TH-228	L.T. 1. E 01		10/11	U		4
							~~TH-228~~	~~4.1 +- 6.1E 00~~		~~10/11~~			4
							TH-234	L.T. 1. E 02		10/11	U		4
							~~TH-234~~	~~9.8 +- 7.0E 01~~		~~10/11~~			4
							H-3	4.5 +-0.2 E 03		10/09			5
							~~H-3~~	~~L.T. 2. E 02~~		~~10/09~~			5
							PU-238	L.T. 1. E-01		10/28	U		6
							PU-239	L.T. 1. E-01		10/28	U		6
							~~PU-238~~	~~7.0 +-69.7E-03~~		~~10/28~~			6
							~~PU-239~~	~~7.0 +-69.7E-03~~		~~10/28~~			6
27231	9309L017-007	B09539	09/18				PH TEST	VERIF IED					3
							TC-99	6.4 +-0.6 E 01		10/15			3
							GR-A	3.5 +-2.3 E 00		10/07			3
							GR-B	4.5 +-0.4 E 01		10/07			3
							SR-90	L.T. 4. E-01		10/16	~~UR~~ R ~~1-13-94~~	UR	3
							TOTAL-U	4.0 +-0.6 E 00	UGM/LITER *				3
							~~TOTAL-U~~	~~L.T. 5. E 02~~	~~UGM/LITER *~~			4-18-94	3
							~~GR-A~~	~~L.T. 2. E 00~~		~~10/07~~			3
							~~GR-B~~	~~L.T. 2. E 00~~		~~10/07~~			3
							~~TC-99~~	~~L.T. 3. E 00~~		~~10/15~~		1/13/94	3
							~~SR-90~~	~~1.6 +-2.50E 01~~		~~10/16~~			3

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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
208 WELSH POOL ROAD
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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27231	9309L017-007	B09539	09/18				BE-7	L.T. 8. E 01		10/11	U		4
							~~BE-7~~	~~1.2 +- 4.7E 01~~		~~10/11~~			4
							~~K-40~~	~~1.71+- 0.49E 02~~		~~10/11~~			4
							K-40	L.T. 2. E 02		10/11	U		4
							MN-54	L.T. 8. E 00		10/11	U		4
							~~MN-54~~	~~0.0 +- 4.6E 00~~		~~10/11~~			4
							CO-58	L.T. 9. E 00		10/11	U		4
							~~CO-58~~	~~4.5 +- 5.5E 00~~		~~10/11~~			4
							FE-59	L.T. 2. E 01		10/11	U		4
							~~FE-59~~	~~5.1 +-11.5E 00~~		~~10/11~~			4
							CO-60	L.T. 8. E 00		10/11	U		4
							~~CO-60~~	~~1.2 +- 4.5E 00~~		~~10/11~~			4
							ZN-65	L.T. 1. E 01		10/11	U		4
							~~ZN-65~~	~~6.8 +- 9.0E 00~~		~~10/11~~			4
							ZR-95	L.T. 9. E 00		10/11	U		4
							~~ZR-95~~	~~4.0 +- 5.6E 00~~		~~10/11~~			4
							RU-103	L.T. 1. E 01		10/11	U		4
							~~RU-103~~	~~2.9 +- 6.3E 00~~		~~10/11~~			4
							RU-106	L.T. 7. E 01		10/11	U		4
							~~RU-106~~	~~2.1 +- 4.2E 01~~		~~10/11~~			4
							I-131	L.T. 5. E 01		10/11	U		4
							~~I-131~~	~~8.3 +-30.7E 00~~		~~10/11~~			4
							CS-134	L.T. 8. E 00		10/11	U		4
							~~CS-134~~	~~3.6 +- 4.9E 00~~		~~10/11~~			4
							CS-137	L.T. 8. E 00		10/11	U		4
							~~CS-137~~	~~3.0 +- 4.8E 00~~		~~10/11~~			4
							BA-140	L.T. 2. E 01		10/11	U		4
							~~BA-140~~	~~3.9 +-14.6E 00~~		~~10/11~~			4
							CE-141	L.T. 1. E 01		10/11	U		4
							~~CE-141~~	~~8.2 +-90.2E 01~~		~~10/11~~			4
							CE-144	L.T. 4. E 01		10/11	U		4
							~~CE-144~~	~~1.1 +- 2.7E 01~~		~~10/11~~			4

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REPORT OF ANALYSIS

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 14
4-3986	LL-1140-F4	09/24/93	10/27/93	

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.
27231	9309L017-007	B09539	09/18				EU-152	L.T. 2. E 01		10/11	U		4
							~~EU-152~~	~~1.6 +- 1.4E 01~~		~~10/11~~			4
							EU-154	L.T. 2. E 01		10/11	U		4
							~~EU-154~~	~~6.7 +-12.2E 00~~		~~10/11~~			4
							EU-155	L.T. 2. E 01		10/11	U		4
							~~EU-155~~	~~2.2 + 1.4E 01~~		~~10/11~~			4
							RA-226	L.T. 1. E 02		10/11	U		4
							~~RA-226~~	~~1.0 +- 0.8E 02~~		~~10/11~~			4
							TH-228	L.T. 1. E 01		10/11	U		4
							~~TH-228~~	~~3.1 +- 7.4E 00~~		~~10/11~~			4
							TH-234	L.T. 2. E 02		10/11	U		4
							~~TH-234~~	~~1.9 + 8.7E 01~~		~~10/11~~			4
							H-3	8.4 +-0.1 E 04		10/09			5
							~~H-3~~	~~L.T. 1. E 02~~		~~10/09~~			5
							PU-238	L.T. 9. E-02		10/28	U		6
							PU-239	L.T. 9. E-02		10/28	U		6
							~~PU-238~~	~~5.5 + 55.5E 03~~		~~10/28~~			6
							~~PU-239~~	~~5.5 + 55.5E 03~~		~~10/28~~			6
27232	9309L017-009	B09525	09/18				PH TEST	VERIF IED					3
							TC-99	L.T. 3. E 00		10/15	U		3
							GR-A	L.T. 2. E 00		10/07	U		3
							GR-B	1.5 +-0.2 E 01		10/07			3
							SR-90	L.T. 4. E-01		10/16	UR		3
							TOTAL-U	1.0 +-0.2 E 00	UGM/LITER *				3
							~~TOTAL-U~~	~~L.T. 5. E-02~~	~~UGM/LITER *~~				3
							~~GR-A~~	~~1.2 + 1.05E 00~~		~~10/07~~			3
							~~GR-B~~	~~L.T. 2. E 00~~		~~10/07~~			3
							~~TC-99~~	~~1.7 + 2.0 E 00~~		~~10/15~~			3
							~~SR-90~~	~~2.3 + 2.13E-01~~		~~10/16~~			3
							BE-7	L.T. 6. E 01		10/12	U		4
							~~BE-7~~	~~9.9 +-38.35 00~~		~~10/12~~			4

RS 1/13/94

Revised 4-18-94
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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 11/02/93

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE
4-3986	LL-1140-F4	09/24/93	10/27/93

MRS JOSIE EDWARDS
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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27232	9309L017-009	B09525	09/18				K-40	L.T. 1. E 02		10/12	U		4
							~~K-40~~	~~1.2 +- 0.6E 02~~		~~10/12~~			4
							MN-54	L.T. 6. E 00		10/12	U		4
							~~MN-54~~	~~1.5 +- 3.8E 00~~		~~10/12~~			4
							CO-58	L.T. 7. E 00		10/12	U		4
							~~CO-58~~	~~3.2 +- 4.2E 00~~		~~10/12~~			4
							FE-59	L.T. 2. E 01		10/12	U		4
							~~FE-59~~	~~2.9 +- 9.0E 00~~		~~10/12~~			4
							CO-60	L.T. 6. E 00		10/12	U		4
							~~CO-60~~	~~1.1 +- 3.5E 00~~		~~10/12~~			4
							ZN-65	L.T. 1. E 01		10/12	U		4
							~~ZN-65~~	~~1.4 +- 7.9E 00~~		~~10/12~~			4
							ZR-95	L.T. 7. E 00		10/12	U		4
							~~ZR-95~~	~~0.0 +- 4.5E 00~~		~~10/12~~			4
							RU-103	L.T. 9. E 00		10/12	U		4
							~~RU-103~~	~~5.9 +-51.3E-01~~		~~10/12~~			4
							RU-106	L.T. 6. E 01		10/12	U		4
							~~RU-106~~	~~0.0 +- 3.5E 01~~		~~10/12~~			4
							I-131	L.T. 4. E 01		10/12	U		4
							~~I-131~~	~~7.9 +-27.0E 00~~		~~10/12~~			4
							CS-134	L.T. 7. E 00		10/12	U		4
							~~CS-134~~	~~5.8 +-41.6E 01~~		~~10/12~~			4
							CS-137	L.T. 6. E 00		10/12	U		4
							~~CS-137~~	~~1.7 +- 3.9E 00~~		~~10/12~~			4
							BA-140	L.T. 2. E 01		10/12	U		4
							~~BA-140~~	~~8.5 +-121.E-01~~		~~10/12~~			4
							CE-141	L.T. 1. E 01		10/12	U		4
							~~CE-141~~	~~0.0 +- 7.7E 00~~		~~10/12~~			4
							CE-144	L.T. 4. E 01		10/12	U		4
							~~CE-144~~	~~8.7 +- 21.9E 00~~		~~10/12~~			4
							EU-152	L.T. 2. E 01		10/12	U		4
							~~EU-152~~	~~5.5 +- 11.5E 00~~		~~10/12~~			4

JB 1/13/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 16
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MRS JOSIE EDWARDS
WESTON/WESTINGHOUSE/HANFORD
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LIONVILLE PA 19341-1313

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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/LITER)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27232	9309L017-009	B09525	09/18				EU-154	L.T. 2. E 01		10/12	U		4
							~~EU-154~~	~~1.1 +- 10.2E 00~~		~~10/12~~			4
							EU-155	L.T. 2. E 01		10/12	U		4
							~~EU-155~~	~~4.7 +- 1.1E 01~~		~~10/12~~			4
							RA-226	L.T. 1. E 02		10/12	U		4
							~~RA-226~~	~~7.4 +-66.8E 00~~		~~10/12~~			4
							TH-228	L.T. 1. E 01		10/12	U		4
							~~TH-228~~	~~3.3 +- 6.2E 00~~		~~10/12~~			4
							TH-234	L.T. 1. E 02		10/12	U		4
							~~TH-234~~	~~3.3 +- 6.9E 01~~		~~10/12~~			4
							H-3	L.T. 2. E 02		10/09	U		5
							~~H-3~~	~~6.8 +- 9.90E 01~~		~~10/09~~			5
							PU-238	L.T. 1. E-01		10/28	U		6
							PU-239	L.T. 2. E-01		10/28	U		6
							~~PU-238~~	~~6.2 +-61.6E-03~~		~~10/28~~			6
							~~PU-239~~	~~3.1 +- 8.1 E 02~~		~~10/28~~			6
27233	9309L017-011	B09523	09/18				PH TEST	VERIF IED					3
							TC-99	3.2 +-0.1 E 03		10/15			3
							GR-A	6.3 +-2.6 E 00		10/08			3
							GR-B	1.6 +-0.1 E 03		10/07			3
							SR-90	L.T. 5. E-01		10/16	UR		3
							TOTAL-U	6.7 +-1.0 E 00	UGM/LITER *				3
							~~TOTAL-U~~	~~L.T. 5. E-02~~	~~UGM/LITER *~~				3
							~~GR-A~~	~~L.T. 2. E 00~~		~~10/08~~			3
							~~GR-B~~	~~L.T. 4. E 00~~		~~10/07~~			3
							~~TC-99~~	~~L.T. 3. E 00~~		~~10/15~~			3
							~~SR-90~~	~~2.0 +-2.60E 01~~		~~10/16~~			3
							BE-7	L.T. 7. E 01		10/12	U		4
							~~BE-7~~	~~7.6 +-41.0E 00~~		~~10/12~~			4
							K-40	L.T. 1. E 02		10/12	U		4
							~~K-40~~	~~2.4 +- 6.3E 01~~		~~10/12~~			4

RS 1/13/94

Revised 4-18-94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

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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/LITER)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27233	9309L017-011	B09523	09/18				MN-54	L.T. 7. E 00		10/12	U		4
							~~MN-54~~	~~5.4 +- 40.0E-01~~		~~10/12~~			4
							CO-58	L.T. 8. E 00		10/12	U		4
							~~CO-58~~	~~1.1 +- 4.0E-00~~		~~10/12~~			4
							FE-59	L.T. 2. E 01		10/12	U		4
							~~FE-59~~	~~1.1 +- 1.1E-01~~		~~10/12~~			4
							CO-60	7.88+-0.89E 01		10/12			4
							~~CO-60~~	~~L.T. 2. E 01~~		~~10/12~~			4
							ZN-65	L.T. 1. E 01		10/12	U		4
							~~ZN-65~~	~~4.7 +- 8.3E-00~~		~~10/12~~			4
							ZR-95	L.T. 8. E 00		10/12	U		4
							~~ZR-95~~	~~9.2 +- 49.3E-01~~		~~10/12~~			4
							RU-103	L.T. 9. E 00		10/12	U		4
							~~RU-103~~	~~1.9 +- 5.4E-00~~		~~10/12~~			4
							RU-106	L.T. 6. E 01		10/12	U		4
							~~RU-106~~	~~2.3 +- 3.8E-01~~		~~10/12~~			4
							I-131	L.T. 5. E 01		10/12	U		4
							~~I-131~~	~~3.9 +- 28.8E-00~~		~~10/12~~			4
							CS-134	L.T. 7. E 00		10/12	U		4
							~~CS-134~~	~~7.1 +-44.1E-01~~		~~10/12~~			4
							CS-137	L.T. 7. E 00		10/12	U		4
							~~CS-137~~	~~2.9 +- 4.6E-00~~		~~10/12~~			4
							BA-140	L.T. 2. E 01		10/12	U		4
							~~BA-140~~	~~4.1 +-13.2E-00~~		~~10/12~~			4
							CE-141	L.T. 1. E 01		10/12	U		4
							~~CE-141~~	~~7.9 +- 7.9E-00~~		~~10/12~~			4
							CE-144	L.T. 4. E 01		10/12	U		4
							~~CE-144~~	~~1.3 +- 2.4E-01~~		~~10/12~~			4
							EU-152	L.T. 2. E 01		10/12	U		4
							~~EU-152~~	~~1.1 +- 1.2E-01~~		~~10/12~~			4
							EU-154	L.T. 3. E 01		10/12	U		4
							~~EU-154~~	~~1.4 +- 1.5E-01~~		~~10/12~~			4

JS 1/13/94

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 11/02/93

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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	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
27233	9309L017-011	B09523	09/18				EU-155	L.T. 2. E 01		10/12	U		4
							~~EU-155~~	~~5.5 +- 1.3E 01~~		~~10/12~~			4
							RA-226	L.T. 1. E 02		10/12	U		4
							~~RA-226~~	~~6.3 +- 7.2E 01~~		~~10/12~~			4
							TH-228	L.T. 1. E 01		10/12	U		4
							~~TH-228~~	~~2.2 +- 6.8E 00~~		~~10/12~~			4
							TH-234	L.T. 1. E 02		10/12	U		4
							~~TH-234~~	~~2.6 +- 7.6E 01~~		~~10/12~~			4
							H-3	2.8 +-0.2 E 03		10/09			5
							~~H-3~~	~~L.T. 1. E 02~~		~~10/09~~			5
							PU-238	L.T. 1. E-01		10/28	U		6
							PU-239	L.T. 1. E-01		10/28	U		6
							~~PU-238~~	~~5.9 +- 59.2E-03~~		~~10/28~~			6
							~~PU-239~~	~~3.0 +- 7.6 E 02~~		~~10/28~~			6

LAST PAGE OF REPORT

J Guenther 1/13/94

APPROVED BY J. GUENTHER 11/02/93

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.

9413507.1856

9713507.1657

ATTACHMENT 4

LABORATORY NARRATIVE and CHAIN-OF-CUSTODY DOCUMENTATION

9213507.1858

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 11/4/93

TI #'s 27223 - 27233

WO # 4-3986

RECORD COPY

NOV 1993 RECEIVED SDLA

Comments:

There were no unusual occurrences with these samples.

Contents:

	Procedure #'s	Bench & Work Sheet Pages	Calibration Pages	Tracers/ Carrier Pages
Reports of Analysis		18		
Gross Alpha	PRO-032-1	6	36	
Gross Beta		-	-	
Sr-90	PRO-032-16	10	82	2
Gamma	PRO-042-5	18	12	
Tc-99	PRO-032-78	10	29	1
Total-Uranium	PRO-032-89	2	11	
H-3	PRO-032-35	3	9	
Pu-238,239/240	PRO-062-114	27	23	4
U-235-235-238	PRO-062-110	-	-	-
Am-241	PRO-062-111	-	-	-
C-O-C		1		
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

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TELEDYNE ISOTOPES

Spike Activity for TI #27228

Nuclide	Activity pCi/l	Acceptable Range
Technetium-99	98.5	79. - 118.
Gross Alpha	11.2	6. - 17.
Gross Beta	22.	17. - 28.
Strontium-90	40.	34. - 46.
Total Uranium	18.6 ug/l	15.8 - 21.4
Cobalt-60	2.5 E 04	1.7 - 3.2 E 04
Cesium-137	2.16 E 04	1.51 - 2.81 E 04
Plutonium-239	1.09	0.9 - 1.3
Tritium	1.4 E 03	1.1 - 1.7 E 03

Activity for Matrix Spike TI# 27224 & Matrix Spike Duplicate TI# 27225

Nuclide	Activity pCi/l	Acceptable Range
Tritium	1.4 E 03	1.1 - 1.7 E 03

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

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

Refrigerator #															
#/Type Container	Liquid						3/P	+	1/G	+	1/P				
	Solid														
Volume	Liquid						2 liter		250		1 liter				
	Solid														
Preservatives															
ANALYSES REQUESTED →		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Herb		Radio-Chem		Metal	CN					

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	WESTON Analytics Use Only											
											SEE BELOW							
	B09507 *			W	9/18/93						✓				9309L017		-001	
	B09519										✓						-003	
	B094V5										✓						-005	
	B09539										✓						-007	
	B09525										✓						-009	
	B09523										✓						-011	

RFWH

*Tritium bottle broken at WESTON - send TOS bottle (1 pl. 250 ml) instead.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Radiochem = Gross Alpha/Beta, Gamma SPEC (Cs-137/Co-60, Ru-106), Pu-238/239/240, Sr-90, Total U, Tritium, Tc-99

DATE/REVISIONS		U-238; dSPEC; Sr-90; TOTU			Tc-99	H-3
B09507	1.	1.73	1.81	2.31	1.89	7.97
B09519	2.	1.84	1.76	1.77	1.85	7.87
B094V5	3.	1.73	1.72	1.72	1.85	7.95
B09539	4.	1.63	1.61	1.61	1.64	8.06
B09525	5.	1.60	1.61	1.58	1.86	8.08
B09523	6.	1.57	1.61	1.62	1.82	7.93

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'd Y or N

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

Relinquished by	Received by	Date	Time
[illegible]	Flores [illegible]	9-21-93	1630

Relinquished by	Received by	Date	Time
	S. Smith	9-24-93	1200

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

C31 pH Tri - verified 9/29/93 [illegible]

9311350 7.1E60

9713507.1861

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9213507.1E62

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

Data Package ID: 27223-WES-1325 Laboratory: WESTON

Data Validator: Tom Stapp Date: 1-13-94

Analysis/Sample Identification/Matrix: Gross α, Gross β, Technetium-99, Strontium-90, Gamma Spec., Pu 239/238, Total Uranium, Tritium / B09507, B09519, B094V5, (B09539), B09525, B09523 / WATER

(100% Validation)

1. Completeness

1.1 Completeness Checklist (Complete the appropriate checklist for each analysis type and attach).

2. Calibration

2.1 Initial Calibration

Was instrument calibrated within specified time period or annually? (Y/N/NA) Note ①

If NO, qualify all associated data as unusable (R).

Was each detector used for the associated data calibrated? (Y/N/NA)

If NO, qualify all associated data as unusable (R).

Are calibration standards NIST traceable or equivalent? (Y/N/NA)

If NO, qualify all associated data as unusable (R).

Were calibration standards expired? (Y/N/NA)

If YES, qualify all associated data as unusable (R).

Comments/Qualified Results:

Tc99 :

Grs α β :

Sr-90 : Spike Recovery exceeds limit.

Tot. U :

① Gamma : Detectors used were calibrated in excess of 1 year from sample analysis. Calib. check data is consistant and within limits ∴ No qualifier will be applied.

H3 :

Pu239 :

C33

2.2 Continuing Calibration

Is check source identified by activity and radionuclides? (Y/N/NA) Y

If NO, qualify all associated data as estimated (J).

Has check source been counted daily? (Y/N/NA) Note ① + ② + ③

If NO, qualify all associated data as unusable (R).

Are check source counts within ±3S control limits? (Y/N/NA) ①

If NO, qualify all associated data as unusable (R).

Have background counts been performed at least weekly and before and after all field and QC samples associated with the SDG? (Y/N/NA) ①

If NO, qualify all associated results as unusable (R).

Are background counts within ±3S control limits? (Y/N/NA) ①

If NO, qualify all associated results as unusable (R).

Comments/Qualified Results:

① Gross α, β, Sr90, Tc99 checksource data and background counts are not logged on a daily basis, but it appears weekly counts were recorded from control charts provided. Control charts indicate general compliance for check sources and background counts. No qualifiers will be applied.

② Gamma detectors checked ~ weekly. No qualifiers applied.

③ Alpha Spec. detectors checked ~ weekly. No qualifiers.

3. Blanks

Have reagent/method/field blanks been analyzed with the SDG? (Y/N/NA)_____

If NO, qualify all results >LLD as estimated (J).

Are positive results reported in the reagent/method/field blanks? (Y/N/NA)_____

If YES, qualify positive results less than the MDA as nondetects (U). Qualify sample results <10X the blank value but greater than the MDA as estimated (J).

Can blank results be verified/calculated properly? (Y/N/NA):_____

Comments/Notes/Qualified Results:_____

No Qualifiers applied.

1-21-94

4. Detection Limits and Sample Results

— Can LLDs and MDAs be verified? (Y/N/NA) Y

If NO, qualify all results as estimated detects (J) or estimated nondetects (UJ).

— Do reported results meet the detection limit requirements? (Y/N/NA) NA

Note discrepancies in the validation report narrative under representativeness.

— Can reported results be verified? (Y/N/NA) Y

If NO, note missing data in the validation report. Correct results on the photocopied report forms and include in the validation report.

Comments/Notes/Qualified Results: No Qualifiers Applied.

1-21-94

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

5. Radiometric and Gravimetric Yields

Were spikes/tracers/chemical yields analyzed in each SDG and/or sample as appropriate for the analytical method? See note ① (Yes) No N/A

If NO or if inappropriate tracers were used qualify associated results as unusable (R).

Was a field blank used for the spike/tracer/chemical yield analysis? Yes (No) N/A

If YES, note in the validation narrative.

Is spike/tracer/chemical yield recovery within the limits of 30-105% for sample results <4X the spike activity? See note ② Yes (No) N/A

Verify the spike recoveries and qualify associated results as follows:

%R:	<30%	30-105%	>105%	>115%
<LLD	R	acceptable	UJ	R
>LLD	R	acceptable	J	R

Comments:

① The Tc-99 results were reanalyzed by the laboratory. Supporting information to recalculate and verify the chemical yields for the reanalysis was not provided in the raw data, however yield values given verify recalculation of sample results. No qualification will be applied.

② Sr-90 LCS recovery (72/40 = 180%) exceeded the 115% limit, which qualifies all sample results as unusable ~~rejected~~ (UR).

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6. Duplicate Samples and Analyses

—Has at least one duplicate analysis been performed for every 10 samples in the SDG? (Y/N/NA)_____

If NO, qualify all associated results as estimated (J).

—Has the field blank been used for duplicate or MS/MSD analysis? (Y/N/NA)_____

—Are RPD valus ≤35% for results >5X the LLD and within ±2X the LLD for results <5X the LLD? (Y/N/NA)_____

If NO, qualify associated results <LLD as estimated nondetects (UJ) and all associated results >LLD as estimated detects (J).

Comments/Notes/Qualified Results:_____

No Qualifiers Applied.

1-21-94

7. Laboratory Control Samples

Are LCS results within the control limits of 80-120% (Y/N/NA): Note ②

If NO, qualify results as follows:

%R:	<50%	50-79%	>120%
Results < LLD:	R	UJ	R
Results > LLD:	R	J	R

Has at least one LCS been analyzed with the SDG? (Y/N/NA): Note ①

If NO, qualify all associated results as estimated (J).

Comments/Notes/Qualified Results:

① Blank Spike Sample has been accepted ~~th~~ in place of the LCS.

② Sr-90 result for LCS = 180% rejecting the associated results (R).

8. Holding Times

Have all samples/analyses been completed with 5 half-lives or 180 days, whichever comes first? (Y/N/NA):

If NO, qualify all associated results >LLD as estimated detects (J) and all associated results <LLD as estimated non-detects (UJ). For gross exceedances (>2X criteria) qualify all associated results as unusable (R).

Comments/Notes/Qualified Results:

Samples Collected		Grs α	Grs β	Tc99	Sr90	Gamma	Pu239	H3	Tot.U
B09507	9-18-93	✓	✓	✓	✓	✓	✓	✓	✓
B09519		✓	✓	✓	✓	✓	✓	✓	✓
B094V5		✓	✓	✓	✓	✓	✓	✓	✓
B09539		✓	✓	✓	✓	✓	✓	✓	✓
B09525		✓	✓	✓	✓	✓	✓	✓	✓
B09523		✓	✓	✓	✓	✓	✓	✓	✓

9. Method Specific and Other Quality Control

9.1 Gas Proportional Counters

- Are field and QC sample preparations outside the range of the self absorption curves? (Y/N/NA): N

  If YES, qualify all associated data as estimated (J).

- Are initial detector efficiencies <20%? (Y/N/NA): N

  If YES, qualify all associated data as unusable (R).

- Have statistical tests been performed routinely (at least weekly)? (Y/N/NA): Y

  If NO, qualify all associated data as estimated (J).

- Have stability verifications been performed after each gas change? (Y/N/NA): NA Note ①

  If NO, qualify all associated data as estimated (J).

Comments/Notes/Qualified Results:

① Stability verifications have not been provided and gas changes were not recorded as having taken place. Assume that detector & operations were acceptable. No qualifiers.

9.2 Alpha Spectroscopy

Has detector system been calibrated across the energy range of interest? (Y/N/NA): Y

If NO, qualify all results as unusable (R).

Is detector resolution adequate to identify each peak centroid? (Y/N/NA): Y

If NO or if resolution cannot be determined, qualify all results as unusable (R).

Is resolution at least 20 keV FWHM? (Y/N/NA): N Note ①

If NO, qualify all results as estimated (J).

Do check source efficiencies agree within 5% of initial calibration efficiencies or are they within the control limits or ±3S of the mean? (Y/N/NA): Y

If NO, qualify all associated results as unusable (R).

Was each sample spiked with a tracer? (Y/N/NA): Y

If NO, qualify all associated results as unusable (R).

Are tracer recoveries within the control limits of 30 to 105%? (Y/N/NA): Y

If NO, qualify all results as follows:

%R:	<30%	30-105%	>105%	>115%
Results <LLD:	R	acceptable	UJ	R
Results >LLD:	R	acceptable	J	R

Comments/Notes/Qualified Results:

① FWHM values < 20 KeV for spike tracer peak:

Distilled H_2O Blank 18.8 KeV
B09523 19.7 "

No qualifiers applied since peak resolution is relatively clear of interference peaks.

9.3 Gamma Spectroscopy 9213507.1872

Does efficiency calibration approximate a smooth semi-log curve? (Y/N/NA): Y

If NO, qualify all results as unusable (R).

Have geometry or matrix factors been accounted for in all analyses? (Y/N/NA): Y

If NO, qualify all associated results as unusable (R).

Does the detector calibration cover the energy range of interest and at least 0 to 2 MeV? (Y/N/NA): Y

If NO, qualify all results outside the energy range as unusable (R).

Is resolution of the detector system adequate and less than 5 FWHM? (Y/N/NA): Y

If NO, qualify all results as estimated (J).

Comments/Notes/Qualified Results:

No Qualifiers Applied.

1-21-94

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9.4 Alpha Emitting Radium Isotopes

Have single radium isotopes (Ra-223, Ra-224, Ra-226) been reported? (Y/N/NA):_____

If YES, qualify all results attributed to a single radium isotope as estimated (J) if the contribution to the total from individual isotopes is unknown.

Can time from sample precipitation to counting be verified? (Y/N/NA):_____

If NO, qualify all associated results >MDA as estimated (J).

Have barium interferences been identified and accounted for? (Y/N/NA):_____

If NO, qualify all associated results with elevated barium levels as estimated (J).

Has counting efficiency for Ra-226 been determined for each SDG? (Y/N/NA):_____

If NO, qualify all associated results as unusable (R).

Have blanks been analyzed with each group to check for possible radium contamination in the reagents? (Y/N/NA):_____

If NO, qualify all associated results as estimated (J).

Are LCS recoveries with the control limits listed below? (Y/N/NA):_____

If no, qualify sample results as follows:

%R:	<50%	50-69%	70-130%	>130%
Results <MDA	R	UJ	Acceptable	R
Results >MDA	R	J	Acceptable	R

If sample was preserved at collection has analysis been completed within 180 days or 5 half-lives? (Y/N/NA):_____

If NO, qualify results >LLD as estimated detects (J) and results < LLD as estimated non-detects (UJ).

If samples were not preserved, were samples received within 5 days of sampling? (Y/N/NA):_____

- Were samples preserved at the laboratory upon receipt? (Y/N/NA):_____
- Were samples held after preservation for at least 16 days? (Y/N/NA):_____

If NO, to any of the above, qualify associated sample results as estimated (J).

Comments/Notes/Qualified Results:_____

Not Analyzed

1/13/94

9.5 Radium 226 Analysis using Scintillation (Lucas) Cell Counting

Is calibration data present and can it be associated with the samples? (Y/N/NA):_____

If NO, qualify associated sample results as unusable (R).

Was the counting system calibrated each day that samples were analyzed? (Y/N/NA):_____

If NO, qualify associated results as estimated (J).

Was the counting system calibrated after replacing the scintillation cell? (Y/N/NA):_____

If NO, qualify associated results as estimated (J) if the cell has a previously determined calibration constant and unusable (R) if no constant is available for the replacement cell.

Were blanks analyzed with each sample group to check for radium contamination in reagents? (Y/N/NA):_____

If NO, qualify associated results as estimated (J).

If sample was preserved at collection has analysis been completed within 180 days or 5 half-lives? (Y/N/NA):_____

If NO, qualify results >LLD as estimated detects (J) and results < LLD as estimated non-detects (UJ).

If samples were not preserved, were samples received within 5 days of sampling? (Y/N/NA):_____

- Were samples preserved at the laboratory upon receipt? (Y/N/NA):_____
- Were samples held after preservation for at least 16 days? (Y/N/NA):_____

If NO, to any of the above, qualify associated sample results as estimated (J).

Comments/Notes/Qualified Results:_____

Not Analyzed

1/13/94

9.6 Tritium Analysis by Liquid Scintillation Counting

Do calibration standard matrices match the sample matrices? (Y/N/NA): Y

If NO, qualify associated results as estimated (J).

Has at least one calibration standard been processed with the samples (Y/N/NA): Note (1)

If NO, qualify results associated with runs lacking calibration standards as unusable (R).

Have results for counting efficiency determination been provided? (Y/N/NA): Y

If NO, qualify all associated results as unusable (R).

Do tritium levels in the blanks exceed the MDA? (Y/N/NA): N

If YES, qualify associated results less than 10X the background tritium level (blanks) as estimated (J).

Have blanks been analyzed with each sample run to check for potential contamination in the chemical reagents? (Y/N/NA): Y

If NO, qualify associated results as estimated (J).

Comments/Notes/Qualified Results:

(1) The Blank Spike Sample analyzed with the batch will be considered as Continuing Calib. Check. Since documentation of a Calibration Standard is not provided with the analysis set. No qualifier

9.7 Fluorometric Analysis of Uranium

Has the laboratory ovided evidence that cation and anion interferences are negligible for the matrix or that matrix interferences have been accounted for? (Y/N/NA): _____

If NO, qualify associated results as estimated (J).

Has the laboratory provided a description of the method of fusion standardization or provided data supporting fusion standardization? (Y/N/NA): _____

If NO, qualify associated results as estimated (J).

Was calibration performed immediately prior to sample analysis? (Y/N/NA): Note ①

If NO, qualify associated results as estimated (J).

Comments/Notes/Qualified Results: _____

① Analysis performed ~30 days after last calibration
No qualifier applied.

9213507.1877

Comments/Notes/Qualified Results:

See attachment 2 for analyses checklists and qualification summaries.

1-18-94

SDG: 27223-WES-1325

GROSS ALPHA RESULTS

SDG	HEIS#	Lab No.	Det.	Spl. Amt.	Date Alpha Counted	GROSS ALPHA Gross Counts	Count Time	Bkg. cpm	Eff.	Result Calc	Result Rptd	MDA Calc	MDA Rptd
27223	B09507	27223	T3	0.5	10/28/93	10	50	0.1	0.078	1.16	1.2	2.4	<2
	B09507 MS	27224											
	B09507 MSD	27225											
	B09507 DUP	27226	T2	0.5	11/03/93	34	100	0.1	0.076	2.84	2.9	1.7	<2
	BLANK	27227	T3	1	10/07/93	8	50	0.16	0.16	-0.00	0	0.7	<0.7
	BLANK SPIKE	27228	T3	1	10/07/93	182	50	0.16	0.138	11.36	11	0.9	<0.9
	B09519	27229	T3	0.5	10/12/93	35	200			ERR	1.6	ERR	<2
	B094V5	27230	T3	0.5	10/12/93	24	100			ERR	1.7	ERR	<2
	B09539	27231	T3	0.5	10/07/93	21	50	0.1	0.082	3.52	3.5	2.3	<2
	B09525	27232	T3	0.5	10/07/93	10	50	0.1	0.076	1.19	1.2	2.5	<2
	B09523	27233	T3	0.5	10/14/93	43	100			ERR	6.3	ERR	<2

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GROSS BETA RESULTS

SDG	HEIS#	Lab No.	Det.	Date Beta Counted	GROSS BETA Gross Counts	Count Time	Bkg. cpm	Eff.	Spl. Amt.	Result Calc	Result Rptd	MDA Calc	MDA Rptd
27223	B09507	27223	T3	10/07/93	204	50	1.08	0.293	0.5	9.22	9.2	2.1	<2
	B09507 MS	27224											
	B09507 MSD	27225											
	B09507 DUP	27226	T3	10/07/93	183	50	1.08	0.29	0.5	8.01	8	2.1	<2
	BLANK	27227	T3	10/07/93	51	50	1.04	0.378	1	-0.02	-0.024	0.8	<0.8
	BLANK SPIKE	27228	T3	10/07/93	851	50	1.04	0.361	1	19.94	20	0.8	<0.8
	B09519	27229	T3	10/07/93	9858	37.75	1.16	0.224	0.5	1045.60	1000	3.3	<3
	B094V5	27230	T3	10/07/93	4960	50	1.16	0.284	0.5	311.00	310	2.3	<2
	B09539	27231	T3	10/07/93	794	50	1.08	0.299	0.5	44.59	45	2.1	<2
	B09525	27232	T3	10/07/93	290	50	1.08	0.289	0.5	14.71	15	2.1	<2
	B09523	27233	T3	10/07/93	9864	22.66	1.16	0.24	0.5	1629.67	1600	4.0	<4

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050

TRITIUM RESULTS

SDG	HEIS#	Lab No.	Date Analyzed	Gross Counts	Count Time	Sample Amount	Bkgnd cpm	Detect Eff.	Result Calc.	Result Rptd	MDA Calc	MDA Rptd
27223	B09507	27223	10/08/93	145	100	0.01	1.91	0.19	-109	-110	153	<200
	B09507 MS	27224		759	100	0.01	1.91	0.19	1347	1300	153	<200
	B09507 MSD	27225		739	100	0.01	1.91	0.19	1299	1300	153	<200
	B09507 DUP	27226	10/09/93	148	100	0.01	1.91	0.19	-102	-100	153	<200
	BLANK	27227	10/09/93	192	100	0.01	1.91	0.19	2	2.4	153	<200
	BLANK SPIKE	27228	10/09/93	721	100	0.01	1.91	0.19	1257	1300	153	<200
	B09519	27229	10/09/93	362	100	0.01	1.91	0.19	405	410	153	<200
	B094V5	27230	10/09/93	2092	100	0.01	1.91	0.19	4507	4500	153	<200
	B09539	27231	10/09/93	35597	100	0.01	1.82	0.19	83962	84000	149	<200
	B09525	27232	10/09/93	209	100	0.01	1.82	0.18	68	68	157	<200
	B09523	27233	10/09/93	1383	100	0.01	1.82	0.19	2847	2800	149	<200

9713507.1680

Pu 239/238 RESULTS

SDG	HEIS No.	Lab No.	Spl. Amt.	Date Analyzed	Det.	Eff.	Pu239 Cnts	Pu238 Cnts	Time Secs	Spike Cnts	Spike Act.	Bkg Pu239	Bkg Pu238	Time secs	Spike %R	Pu239 Calc.
27223	B09507	27223	0.15	10/27/93	46	0.1845	1	1	60000	1151	4.03	1	1	80000	0.697	0.0058
	B09507 MS	27224														
	B09507 MSD	27225														
	B09507 DUP	27226	0.15	10/27/93	47	0.1908	1	1	60000	1234	4.03	3	1	80000	0.722	-0.0272
	BLANK	27227	0.15	10/28/93	46	0.1845	1	1	60000	1075	4.03	1	1	80000	0.651	0.0063
	BLANK SPIKE	27228	0.3	10/28/93	47	0.1908	100	1	60000	1264	4.03	3	1	80000	0.739	1.0409
	B09519	27229														
	B094V5	27230														
	B09539	27231	0.15	10/28/93	43	0.1982	1	1	60000	1211	4.03	1	1	80000	0.683	0.0055
	B09525	27232														
	B09523	27233														

9213507.1681

Pu 239/238 RESULTS

SDG	HEIS No.	Lab No.	Pu239 Rptd	Pu239 MDA Calc	MDA Rptd	Pu238 Calc.	Pu238 Rptd.	Pu238 MDA Calc	MDA Rptd
27223	B09507	27223	0.0058	0.09	<0.09	0.0058	0.0058	0.09	<0.09
	B09507 MS	27224							
	B09507 MSD	27225							
	B09507 DUP	27226	-0.027	0.15	<0.2	0.0054	0.0055	0.09	<0.09
	BLANK	27227	0.0063	0.10	<0.1	0.0063	0.0063	0.10	<0.1
	BLANK SPIKE	27228	1	0.07	<0.07	0.0027	0.0027	0.04	<0.04
	B09519	27229							
	B094V5	27230							
	B09539	27231	0.0055	0.09	<0.09	0.0055	0.0055	0.09	<0.09
	B09525	27232							
	B09523	27233							

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053

STRONTIUM-90 RESULTS

SDG	HEIS	Lab No.	Det. ID	Spl Amt.	Yield	Ingrowth	Decay	Gross cnts	Count Time	Bkg. cpm	Det. Eff.	Sr90 Result Calc.	Result Rptd	MDA Calc.	MDA Rptd.
27223	B09507	27223	D3	0.5	0.431	0.869	0.757	40	200	0.19	0.4	7.9E-02	0.083	1.1	<1
	B09507 MS	27224													
	B09507 MSD	27225													
	B09507 DUP	27226	D4	0.5	0.598	0.869	0.757	25	200	0.19	0.39	-3.8E-01	-0.4	0.8	<0.9
	BLANK	27227	E10	0.5	0.665	0.953	0.778	20	100	0.15	0.31	2.9E-01	0.3	1.1	<1
	BLANK SPIKE	27228	E5	0.5	0.662	0.953	0.463	751	100	0.13	0.32	7.1E+01	72	1.6	<2
	B09519	27229	B1	0.5	0.428	0.898	0.648	111	800	0.17	0.37	-3.1E-01	-0.31	0.7	<0.7
	B094V5	27230	B2	0.5	0.633	0.898	0.648	154	800	0.15	0.4	2.6E-01	0.26	0.4	<0.4
	B09539	27231	B4	0.5	0.671	0.898	0.648	123	800	0.18	0.39	-1.6E-01	-0.16	0.4	<0.4
	B09525	27232	B5	0.5	0.803	0.898	0.648	123	800	0.2	0.39	-2.3E-01	-0.2	0.4	<0.5
	B09523	27233	B9	0.5	0.549	0.898	0.648	105	800	0.16	0.41	-2.0E-01	-0.2	0.5	<0.5

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TECHNETIUM-99 RESULTS

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.
27223	B09507	27223	10/15/93	B2	0.3	0.452	17	100	0.17	0.24	-0.0	0	3	<3
	B09507 MS	27224												
	B09507 MSD	27225												
	B09507 DUP	27226	10/15/93	B3	0.3	0.395	21	100	0.15	0.244	0.9	0.93	3	<3
	BLANK	27227	10/15/93	B4	0.2	0.5	17	100	0.17	0.236	-0.0	0	4	<4
	BLANK SPIKE	27228	10/15/93	B5	0.2	0.465	445	100	0.17	0.239	86.7	87	4	<4
	B09519	27229	10/15/93	B6	0.3	0.379	13790	100	0.17	0.257	2123.2	2100	3	<3
	B094V5	27230	10/15/93	B7	0.3	0.5	4382	100	0.18	0.248	528.4	530	2	<2
	B09539	27231	10/15/93	B8	0.3	0.5	553	100	0.26	0.248	63.8	64	3	<3
	B09525	27232	10/15/93	B9	0.3	0.417	31	100	0.19	0.254	1.7	1.7	3	<3
	B09523	27233	10/15/93	B10	0.3	0.428	24250	100	0.25	0.265	3207.0	3200	3	<3

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TOTAL URANIUM

SDG	HEIS#	TELEDYNE LAB ID	DATE ANALYZED	SAMPLE AMOUNT	DILUTION FACTOR	WF	WU	R	TOTAL URANIUM CALC. UG/L	TOTAL URANIUM RPTD. UG/L
27223	B09507	27223	10/05/93	6	2	0.305	0.483	0.683	2.34	2.3
	B09507 MS	27224								
	B09507 MSD	27225								
	B09507 DUP	27226	10/05/93	6	2	0.31	0.49	0.683	2.35	2.4
	BLANK	27227	10/05/93	6	1	0.003	0.245	0.683	0.01	<0.05
	BLANK SPIKE	27228	10/05/93	6	10	0.557	0.79	0.683	16.33	16
	B09519	27229	10/05/93	6	2	0.681	0.827	0.683	6.37	6.4
	B094V5	27230	10/05/93	6	2	0.327	0.475	0.683	3.02	3
	B09539	27231	10/05/93	6	2	0.541	0.727	0.683	3.97	4
	B09525	27232	10/05/93	6	2	0.145	0.337	0.683	1.03	1
	B09523	27233	10/05/93	6	2	0.765	0.921	0.683	6.70	6.7

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056