9713539.1953 0046932 57045-WES-524

START

TELEDYNE ISOTOPES

5

WESTON/WESTINGHOUSE/HANFORD

Case Narrative/Cover Sheet for Reports of Analytical Lab Data

Date 06-05-92

TI #'s 57045 - 57051

WO # 4-4650

JUN 92 RECEIVED OSM DMO

Comments:

Activity for Matrix Spike TI #57046 and Matrix Spike Dupplicate TI #57047

Nuclide	Activity pCi/l	Acceptable Range
Technetium-99	98.5	79. - 118.
Gross Alpha	37.3	28. - 47.
Gross Beta	75.	65. - 85.
Strontium-90	40.	34. - 46.
Total Uranium	1.87	1.5 - 2.2
Cesium-137	75.	53. - 98.
Tritium	1.5 E 03	1.2 - 1.8 E 03
Plutonium-239	1.09	0.9 - 1.3

Contents:

Reports of Analysis		6	Pages
Tc-99	PRO-032-78	7	Pages
Gross Alpha	PRO-032-1	2	Pages
Gross Beta		-	Pages
Sr-90	PRO-032-16	7	Pages
Total U	PRO-032-89	1	Pages
Gamma	PRO-042-5	7	Pages
H-3	PRO-052-35	2	Pages
Pu-238-239	PRO-052-32	14	Pages
C-O-C		1	Pages
Other		-	Pages

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CASE NARRATIVE CONTINUE WO # 4-4650

Gross Alpha, Gross Beta:

Spiked water samples analyzed for Alpha and Beta activity can give results which are outside the expected range because the counting situation is different from the self-absorption calibration method.

In calibration, the radioactive standard solutions are evaporated together with varying amounts of sodium carbonate and sodium nitrate salts. The counting results of these standards are used to construct a self-absorption curve which indicates the effective counting efficiency as a function of residue mass. This method gives good results for most water samples.

If a water sample produces a residue which has self-absorption characteristics significantly different from sodium carbonate/sodium nitrate, the calibration curve is not strictly applicable. This results in a bias of the calculated results. The disagreement, therefore is caused by the character of the water sample.

JUN 1992
RECEIVED
OSM DMO

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/19/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 1
4-4650	LL-0850-F4	11/06/91	12/09/91	

MS JOSIE KING
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.
57045	9111L276-001	B019N5	10/29				TC-99	7.0 +-0.2 E 02		06/02			3
							GR-A	L.T. 2. E 00		11/27			3
							GR-B	3.6 +-0.1 E 02		11/27			3
							SR-90	L.T. 8. E-01		12/12			3
							TOTAL U	2.4 +-0.4 E 00	UGM/LITER *	11/20			3
							BE-7	L.T. 3. E 02		02/16			4
							K-40	L.T. 1. E 02		02/16			4
							MN-54	L.T. 9. E 00		02/16			4
							CO-58	L.T. 2. E 01		02/16			4
							FE-59	L.T. 9. E 01		02/16			4
							CO-60	1.59+-0.68E 01		02/16			4
							ZN-65	L.T. 2. E 01		02/16			4
							ZR-95	L.T. 3. E 01		02/16			4
							RU-103	L.T. 6. E 01		02/16			4
							RU-106	L.T. 8. E 01		02/16			4
							I-131	L.T. 2. E 05		02/16			4
							CS-134	L.T. 9. E 00		02/16			4
							CS-137	L.T. 1. E 01		02/16			4
							BA-140	L.T. 5. E 03		02/16			4
							CE-141	L.T. 1. E 02		02/16			4
							CE-144	L.T. 7. E 01		02/16			4
							RA-226	L.T. 2. E 02		02/16			4
							TH-228	L.T. 2. E 01		02/16			4
							H-3	3.7 +-0.2 E 03		11/24			5
							PU-238	L.T. 3. E-01		05/11			6
							PU-239	L.T. 1. E-01		05/11			6
57046	9111L276-001	MSB019N5	10/29				TC-99	9.0 +-0.3 E 02		11/22			3
							GR-A	2.6 +-0.5 E 01		11/27			3
							GR-B	4.8 +-0.1 E 02		11/27			3
							SR-90	3.8 +-0.2 E 01		12/12			3
							TOTAL U	4.2 +-0.6 E 00	UGM/LITER *	11/20			3

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/19/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 2
4-4650	LL-0850-F4	11/06/91	12/09/91	

MS JOSIE KING
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.
57046	9111L276-001 MSB019N5		10/29				BE-7	L.T. 6. E 02		03/12			4
							K-40	L.T. 2. E 02		03/12			4
							MN-54	L.T. 1. E 01		03/12			4
							CO-58	L.T. 4. E 01		03/12			4
							FE-59	L.T. 2. E 02		03/12			4
							CO-60	L.T. 2. E 01		03/12			4
							ZN-65	L.T. 4. E 01		03/12			4
							ZR-95	L.T. 5. E 01		03/12			4
							RU-103	L.T. 1. E 02		03/12			4
							RU-106	L.T. 1. E 02		03/12			4
							I-131	L.T. 1. E 06		03/12			4
							CS-134	L.T. 1. E 01		03/12			4
							CS-137	6.74+-1.25E 01		03/12			4
							BA-140	L.T. 2. E 04		03/12			4
							CE-141	L.T. 3. E 02		03/12			4
							CE-144	L.T. 1. E 02		03/12			4
							RA-226	L.T. 3. E 02		03/12			4
							TH-228	L.T. 3. E 01		03/12			4
							H-3	4.5 +-0.2 E 03		11/24			5
							PU-238	L.T. 3. E-01		05/12			6
							PU-239	1.1 +-0.3 E 00		05/12			6
57047	9111L276-001MSDB019N5		10/29				TC-99	8.1 +-0.3 E 02		11/22			3
							GR-A	2.6 +-0.5 E 01		11/27			3
							GR-B	4.9 +-0.1 E 02		11/27			3
							SR-90	3.5 +-0.2 E 01		12/12			3
							TOTAL U	4.3 +-0.6 E 00	UGM/LITER *	11/20			3
							BE-7	L.T. 6. E 02		03/14			4
							K-40	L.T. 2. E 02		03/14			4
							MN-54	L.T. 1. E 01		03/14			4
							CO-58	L.T. 4. E 01		03/14			4
							FE-59	L.T. 2. E 02		03/14			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/19/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 3
4-4650	LL-0850-F4	11/06/91	12/09/91	

MS JOSIE KING
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.
57047	9111L276-001MSDB019N5		10/29				CO-60	2.43+-0.92E 01		03/14			4
							ZN-65	6.38+-3.25E 01		03/14			4
							ZR-95	L.T. 4. E 01		03/14			4
							RU-103	L.T. 1. E 02		03/14			4
							RU-106	L.T. 1. E 02		03/14			4
							I-131	L.T. 2. E 06		03/14			4
							CS-134	L.T. 1. E 01		03/14			4
							CS-137	7.72+-1.21E 01		03/14			4
							BA-140	L.T. 2. E 04		03/14			4
							CE-141	L.T. 3. E 02		03/14			4
							CE-144	L.T. 1. E 02		03/14			4
							RA-226	L.T. 2. E 02		03/14			4
							TH-228	L.T. 2. E 01		03/14			4
							H-3	4.4 +-0.2 E 03		11/24			5
							PU-238	L.T. 3. E-01		05/12			6
							PU-239	1.1 +-0.2 E 00		05/12			6
57048	9111L276-004	B019R3	10/29				TC-99	9.6 +-0.2 E 02		11/22			3
							GR-A	L.T. 2. E 00		11/27			3
							GR-B	3.4 +-0.1 E 02		11/27			3
							SR-90	L.T. 8. E-01		12/12			3
							TOTAL U	4.1 +-0.6 E 00	UGM/LITER *	11/20			3
							BE-7	L.T. 2. E 02		02/18			4
							K-40	2.11+-0.69E 02		02/18			4
							MN-54	L.T. 7. E 00		02/18			4
							CO-58	L.T. 2. E 01		02/18			4
							FE-59	L.T. 7. E 01		02/18			4
							CO-60	L.T. 9. E 00		02/18			4
							ZN-65	L.T. 2. E 01		02/18			4
							ZR-95	L.T. 2. E 01		02/18			4
							RU-103	L.T. 4. E 01		02/18			4
							RU-106	L.T. 7. E 01		02/18			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/19/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 4
4-4650	LL-0850-F4	11/06/91	12/09/91	

MS JOSIE KING
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.
57048	9111L276-004	B019R3	10/29				I-131	L.T. 1. E 05		02/18			4
							CS-134	L.T. 7. E 00		02/18			4
							CS-137	L.T. 7. E 00		02/18			4
							BA-140	L.T. 3. E 03		02/18			4
							CE-141	L.T. 9. E 01		02/18			4
							CE-144	L.T. 5. E 01		02/18			4
							RA-226	L.T. 1. E 02		02/18			4
							TH-228	L.T. 1. E 01		02/18			4
							H-3	5.5 +-0.2 E 03		11/24			5
							PU-238	L.T. 3. E-01		05/11			6
							PU-239	L.T. 7. E-02		05/11			6
57049	9111L276-006	B019P7	10/29				TC-99	3.3 +-0.1 E 02		11/22			3
							GR-A	L.T. 2. E 00		11/27			3
							GR-B	1.6 +-0.1 E 02		11/27			3
							SR-90	L.T. 7. E-01		12/12			3
							TOTAL U	3.8 +-0.6 E 00	UGM/LITER *	11/20			3
							BE-7	L.T. 2. E 02		02/19			4
							K-40	L.T. 2. E 02		02/19			4
							MN-54	L.T. 8. E 00		02/19			4
							CO-58	L.T. 2. E 01		02/19			4
							FE-59	L.T. 7. E 01		02/19			4
							CO-60	L.T. 8. E 00		02/19			4
							ZN-65	L.T. 2. E 01		02/19			4
							ZR-95	L.T. 2. E 01		02/19			4
							RU-103	L.T. 5. E 01		02/19			4
							RU-106	L.T. 7. E 01		02/19			4
							I-131	L.T. 1. E 05		02/19			4
							CS-134	L.T. 7. E 00		02/19			4
							CS-137	L.T. 8. E 00		02/19			4
							BA-140	L.T. 3. E 03		02/19			4
							CE-141	L.T. 1. E 02		02/19			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/19/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 5
4-4650	LL-0850-F4	11/06/91	12/09/91	

MS JOSIE KING
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.
57049	9111L276-006	B019P7	10/29				CE-144	L.T. 6. E 01		02/19			4
							RA-226	L.T. 1. E 02		02/19			4
							TH-228	L.T. 1. E 01		02/19			4
							H-3	1.6 +-0.1 E 04		11/24			5
							PU-238	L.T. 3. E-01		05/11			6
							PU-239	L.T. 1. E-01		05/11			6
57050	9111L276-008	B019Q5	10/30				TC-99	L.T. 5. E 00		11/22			3
							GR-A	L.T. 2. E 00		11/27			3
							GR-B	1.2 +-0.2 E 01		11/27			3
							SR-90	L.T. 6. E-01		12/14			3
							TOTAL U	1.7 +-0.2 E 00	UGM/LITER *	11/20			3
							BE-7	L.T. 2. E 02		02/19			4
							K-40	L.T. 1. E 02		02/19			4
							MN-54	L.T. 8. E 00		02/19			4
							CO-58	L.T. 1. E 01		02/19			4
							FE-59	L.T. 6. E 01		02/19			4
							CO-60	L.T. 7. E 00		02/19			4
							ZN-65	L.T. 2. E 01		02/19			4
							ZR-95	L.T. 2. E 01		02/19			4
							RU-103	L.T. 4. E 01		02/19			4
							RU-106	L.T. 6. E 01		02/19			4
							I-131	L.T. 8. E 04		02/19			4
							CS-134	L.T. 7. E 00		02/19			4
							CS-137	L.T. 9. E 00		02/19			4
							BA-140	L.T. 3. E 03		02/19			4
							CE-141	L.T. 1. E 02		02/19			4
							CE-144	L.T. 5. E 01		02/19			4
							RA-226	L.T. 1. E 02		02/19			4
							TH-228	L.T. 1. E 01		02/19			4
							H-3	3.8 +-0.2 E 03		11/24			5
							PU-238	L.T. 3. E-01		05/14			6

9713539.1959

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/19/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 6
4-4650	LL-0850-F4	11/06/91	12/09/91	

MS JOSIE KING
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.
57050	9111L276-008	B019Q5	10/30				PU-239	L.T. 2. E-01		05/14			6
57051	9111L276-011	B019Q9	10/30				TC-99	1.0 +-0.1 E 02		11/22			3
							GR-A	L.T. 2. E 00		11/27			3
							GR-B	5.7 +-0.3 E 01		11/27			3
							SR-90	L.T. 5. E-01		12/14			3
							TOTAL U	3.2 +-0.5 E 00	UGM/LITER *	11/20			3
							BE-7	L.T. 2. E 02		02/19			4
							K-40	L.T. 9. E 01		02/19			4
							MN-54	L.T. 8. E 00		02/19			4
							CO-58	L.T. 2. E 01		02/19			4
							FE-59	L.T. 6. E 01		02/19			4
							CO-60	L.T. 7. E 00		02/19			4
							ZN-65	L.T. 1. E 01		02/19			4
							ZR-95	L.T. 2. E 01		02/19			4
							RU-103	L.T. 4. E 01		02/19			4
							RU-106	L.T. 6. E 01		02/19			4
							I-131	L.T. 9. E 04		02/19			4
							CS-134	L.T. 7. E 00		02/19			4
							CS-137	L.T. 8. E 00		02/19			4
							BA-140	L.T. 2. E 03		02/19			4
							CE-141	L.T. 1. E 02		02/19			4
							CE-144	L.T. 5. E 01		02/19			4
							RA-226	L.T. 1. E 02		02/19			4
							TH-228	L.T. 1. E 01		02/19			4
							H-3	4.7 +-0.2 E 03		11/24			5
							PU-238	L.T. 5. E-01		05/11			6
							PU-239	L.T. 2. E-01		05/11			6

LAST PAGE OF REPORT

J Guenther
APPROVED BY J. GUENTHER 05/19/92

SEND 1 COPIES TO WE884S MS JOSIE KING

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

9713539.1960

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client: Weston
Est. Final Proj. Sampling Date:
Work Order #: 61680201
Project Contact/Phone #:
AD Project Manager: J King
QC: CLP Del: CLP TAT:
Date Rec'd: Date Due:
Account #:

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

ANALYSES REQUESTED →

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

WESTON Analytics Use Only

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	VOA	BNA	Pest/PCB	Herb	Radio chem			Metal	CN					
	B019N5			W	10/29/91						✓						9111	276	-001	
	B019R3																		-004	
	B019P7																		-006	
	B019Q5				10/30/91														-008	
	B019Q9																		-011	

Radiochem = Gross Alpha Beta TC99, SR-90, CS137, CO-60, PU238, PU239/240 Total Uranium Tritium.

Run @ MS/MSD

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

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

WESTON Analytics Use Only

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

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
P Bugh	[illegible]	11/5/91	6:30
	S. [illegible]	11/6/91	1200

Relinquished by	Received by	Date	Time

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

9713539.1961