9713539.1831 0046920 64029-WES-597 8

START

TELEDYNE ISOTOPES

WESTON/WESTINGHOUSE/HANFORD

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

Date 05-29-92

TI #'s 64029 - 64032

WO # 4-5978

JUN 1992 RECEIVED OSM DMO

Comments:
Activity for Matrix Spike TI #64030

Nuclide	Activity pCi/g	Acceptable Range
Technetium-99	20.	16. - 24.
Gross Alpha	33.6	25. - 42.
Gross Beta	68.	58. - 78.
Strontium-90	4.0	3.4 - 4.6
Cesium-137	0.52	0.36 - 0.67
Plutonium-239	0.318	0.26 - 0.39

FEB 1997 RECEIVED EDMC

Activity for Matrix Spike Duplicate TI #64031

Nuclide	Activity pCi/g	Acceptable Range
Technetium-99	20.	16. - 24.
Gross Alpha	33.6	25. - 42.
Gross Beta	68.	58. - 78.
Strontium-90	4.0	3.4 - 4.6
Cesium-137	0.66	0.46 - 0.86
Plutonium-239	0.318	0.26 - 0.39

Contents:

Reports of Analysis		5	Pages
Tc-99	PRO-032-78	4	Pages
Gross Alpha	PRO-032-1	4	Pages
Gross Beta		-	Pages
Sr-90	PRO-032-38	4	Pages
Gamma	PRO-042-5	9	Pages
Pu-238-239	PRO-052-32	8	Pages
C-O-C		1	Pages
Other		-	Pages

CASE NARRATIVE CONTINUE WO #4-5978

Gross Alpha, Gross Beta:

Spiked soil 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. Experiments have shown that this method gives good agreement with finely divided silt sediments which have been spiked with standard solutions.

When soil samples are coarse, or contain mineral grains, the spiking solution does not penetrate to the interior of the solid particles. This results in a more efficient counting situation, so that the results are higher than expected. The disagreement, therefore is caused by the character of the soil sample.

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/27/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 1
4-5978	LL-0850-F4	01/17/92	02/19/92	

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

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
64029	9112L747-001	B015P3	12/10				TC-99	L.T. 1. E 00		02/23			3
							GR-A	L.T. 3. E 00		03/05			3
							GR-B	2.7 +-0.3 E 01		03/05			3
							SR-90	1.3 +-0.5 E-01		02/15			3
							GR-A	3.1 +-3.31E 00		03/05			3
							GR-B	L.T. 2. E 00		03/05			3
							SR-90	L.T. 6. E-02		02/15			3
							TC-99	1.4 +-6.93E-01		02/23			3
							BE-7	L.T. 3. E-01		03/01			4
							K-40	1.25+-0.13E 01		03/01			4
							MN-54	L.T. 1. E-02		03/01			4
							CO-58	L.T. 2. E-02		03/01			4
							FE-59	L.T. 9. E-02		03/01			4
							CO-60	L.T. 1. E-02		03/01			4
							ZN-65	L.T. 4. E-02		03/01			4
							ZR-95	L.T. 3. E-02		03/01			4
							RU-103	L.T. 4. E-02		03/01			4
							RU-106	L.T. 1. E-01		03/01			4
							I-131	L.T. 1. E 01		03/01			4
							CS-134	L.T. 1. E-02		03/01			4
							CS-137	1.13+-0.11E-01		03/01			4
							BA-140	L.T. 9. E-01		03/01			4
							CE-141	L.T. 9. E-02		03/01			4
							CE-144	L.T. 8. E-02		03/01			4
							RA-226	8.72+-1.69E-01		03/01			4
							TH-228	5.89+-0.59E-01		03/01			4
							TOTAL-U	8.40+-3.20E-01		03/01			4
							PU-238	L.T. 2. E-02		05/12			6
							PU-239	L.T. 6. E-03		05/12			6
							PU-238	1.9 +-11.9E-03		05/12			6
							PU-239	1.7 +-5.0 E-03		05/12			6

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/27/92

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

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
64030	9112L747-001MS B015P3		12/10				TC-99	2.3 +-0.2 E 01		02/24			3
							GR-A	6.6 +-1.2 E 01		03/05			3
							GR-B	1.2 +-0.1 E 02		03/05			3
							SR-90	3.7 +-0.2 E 00		02/15			3
							GR-A	L.T. 3. E 00		03/05			3
							GR-B	L.T. 2. E 00		03/05			3
							SR-90	L.T. 5. E-02		02/15			3
							TC-99	L.T. 1. E 00		02/24			3
							BE-7	L.T. 2. E 00		05/14			4
							K-40	1.19+-0.12E 01		05/14			4
							MN-54	L.T. 4. E-02		05/14			4
							CO-58	L.T. 1. E-01		05/14			4
							FE-59	L.T. 6. E-01		05/14			4
							CO-60	L.T. 3. E-02		05/14			4
							ZN-65	L.T. 1. E-01		05/14			4
							ZR-95	L.T. 2. E-01		05/14			4
							RU-103	L.T. 4. E-01		05/14			4
							RU-106	L.T. 3. E-01		05/14			4
							I-131	L.T. 2. E 04		05/14			4
							CS-134	L.T. 4. E-02		05/14			4
							CS-137	5.80+-0.58E-01		05/14			4
							BA-140	L.T. 1. E 02		05/14			4
							CE-141	L.T. 1. E 00		05/14			4
							CE-144	L.T. 3. E-01		05/14			4
							RA-226	1.15+-0.47E 00		05/14			4
							TH-228	6.26+-0.63E-01		05/14			4
							TOTAL-U	2.33+-0.96E 00		05/14			4
							PU-238	L.T. 4. E-02		05/12			6
							PU-239	2.9 +-0.6 E-01		05/12			6
							PU-238	1.6 +-2.5 E-02		05/12			6
							PU-239	L.T. 9. E-03		05/12			6

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/27/92

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4-5978	LL-0850-F4	01/17/92	02/19/92	

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

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
64031	9112L747-001MSDB015P3		12/10				TC-99	1.8 +-0.2 E 01		04/29			3
							GR-A	6.2 +-1.2 E 01		03/05			3
							GR-B	1.0 +-0.1 E 02		03/05			3
							SR-90	4.6 +-0.2 E 00		02/15			3
							GR-A	L.T. 3. E 00		03/05			3
							GR-B	L.T. 2. E 00		03/05			3
							SR-90	L.T. 5. E-02		02/15			3
							TC-99	L.T. 1. E 00		04/29			3
							BE-7	L.T. 2. E 00		05/15			4
							K-40	1.65+-0.17E 01		05/15			4
							MN-54	L.T. 5. E-02		05/15			4
							CO-58	L.T. 1. E-01		05/15			4
							FE-59	L.T. 8. E-01		05/15			4
							CO-60	L.T. 4. E-02		05/15			4
							ZN-65	L.T. 1. E-01		05/15			4
							ZR-95	L.T. 2. E-01		05/15			4
							RU-103	L.T. 5. E-01		05/15			4
							RU-106	L.T. 4. E-01		05/15			4
							I-131	L.T. 3. E 04		05/15			4
							CS-134	L.T. 5. E-02		05/15			4
							CS-137	7.05+-0.71E-01		05/15			4
							BA-140	L.T. 2. E 02		05/15			4
							CE-141	L.T. 1. E 00		05/15			4
							CE-144	L.T. 3. E-01		05/15			4
							EU-152	L.T. 1. E-01		05/15			4
							EU-154	L.T. 1. E-01		05/15			4
							EU-155	L.T. 1. E-01		05/15			4
							RA-226	1.33+-0.57E 00		05/15			4
							TH-228	8.02+-0.80E-01		05/15			4
							TH-234	L.T. 7. E-01		05/15			4
							PU-238	L.T. 4. E-02		05/12			6
							PU-239	2.8 +-0.5 E-01		05/12			6
							TOTAL U	1.7 +-0.8 E 00		05/15			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/27/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 4
4-5978	LL-0850-F4	01/17/92	02/19/92	

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

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
64031	9112L747-001MSDB015P3		12/10				PU-238	5.9 +-19.0E-03		05/12			6
							PU-239	L.T. 1. E-02		05/12			6
64032	9112L747-002	B015P7	12/11				TC-99	L.T. 1. E 00		02/24			3
							GR-A	6.8 +-4.3 E 00		03/05			3
							GR-B	3.1 +-0.3 E 01		03/05			3
							SR-90	8.9 +-4.7 E-02		02/15			3
							GR-A	L.T. 3. E 00		03/05			3
							GR-B	L.T. 2. E 00		03/05			3
							SR-90	L.T. 6. E-02		02/15			3
							TC-99	2.2 +-5.45E-01		02/24			3
							BE-7	L.T. 6. E-01		03/03			4
							K-40	1.19+-0.12E 01		03/03			4
							MN-54	L.T. 3. E-02		03/03			4
							CO-58	L.T. 5. E-02		03/03			4
							FE-59	L.T. 2. E-01		03/03			4
							CO-60	L.T. 3. E-02		03/03			4
							ZN-65	L.T. 8. E-02		03/03			4
							ZR-95	L.T. 7. E-02		03/03			4
							RU-103	L.T. 9. E-02		03/03			4
							RU-106	L.T. 2. E-01		03/03			4
							I-131	L.T. 3. E 01		03/03			4
							CS-134	L.T. 3. E-02		03/03			4
							CS-137	1.14+-0.28E-01		03/03			4
							BA-140	L.T. 2. E 00		03/03			4
							CE-141	L.T. 2. E-01		03/03			4
							CE-144	L.T. 2. E-01		03/03			4
							RA-226	8.75+-4.24E-01		03/03			4
							TH-228	7.85+-0.79E-01		03/03			4
							TOTAL-U	L.T. 5. E-01		03/03			4
							PU-238	L.T. 2. E-02		05/14			6
							PU-239	L.T. 8. E-03		05/14			6

9713539.1836

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 05/27/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 5
4-5978	LL-0850-F4	01/17/92	02/19/92	

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

S O I L

TELEDYNE SAMPLE NUMBER	CUSTOMER'S IDENTIFICATION	STA NUM	COLLECTION-DATE START DATE	START TIME	STOP DATE	STOP TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	MID-COUNT TIME TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
64032	9112L747-002	8015P7	12/11				PU-238	9.4 +-122.E-04		05/14			6
							PU-239	2.2 +-6.5 E-03		05/14			6

LAST PAGE OF REPORT

APPROVED BY J. GUENTHER 05/27/92

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.

9713539.1837

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client: Weston
Est. Final Proj. Sampling Date:
Work Order #: 6168-02-01-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas, Josie King
QC: Chf Del: Chf TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #		
#/Type Container	Liquid	
	Solid	16
Volume	Liquid	
	Solid	100
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															
	B015P3			S	12-10-91						✓				RFW#	91	2L	747-001			
	B015P7			⊥	12-11-91						✓						⊥	-002			

Radio Chem = total alpha/Beta, ~~GEA~~ gamma scan, TC-99, Sr-90, Cs-137, Co-60, Pu-238, Pu-239/240, Ru-106, total uranium

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

ms/msD required on each batch and each matrix

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	1/15/92	6:30 PM
	[signature]	1-17-92	1200

Relinquished by	Received by	Date	Time

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

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

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

9713539.1838