START 9715539.2028 0046939

59797- WES-526
7

TELEDYNE ISOTOPES

WESTON/WESTINGHOUSE/HANFORD

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

MAY 1992 RECEIVED OSM DMO

Date 04-30-92

TI #'s 59797 - 59801

WO # 4-5076

Comments:
Activity for Matrix Spike TI #59798 and Matrix Spike Duplicate TI #59799

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	0.5	0.3 - 0.6
Plutonium-239	0.329	0.26 - 0.39

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.

Contents:

Reports of Analysis	5	Pages
Tc-99	5	Pages
Gross Alpha	2	Pages
Gross Beta	-	Pages
Sr-90	5	Pages
Gamma	12	Pages
PU-238-239	5	Pages
C-O-C	1	Pages
Other	-	Pages

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 04/14/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 1
4-5076	LL-0850-F4	12/06/91	01/08/92	

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.
59797	9111L316-001	B015K9	11/04				TC-99	1.4 +-0.1 E 02		01/02			3
							GR-A	L.T. 4. E 00		12/16			3
							GR-B	1.1 +-0.1 E 02		12/16			3
							SR-90	L.T. 1. E-01		12/21			3
							GR-A	4.2 +-3.9 E 00		12/08			3
							GR-B	L.T. 2. E 00		12/08			3
							SR-90	0.0 +-.100E 00		12/21			3
							TC-99	L.T. 9. E-01		01/02			3
							BE-7	L.T. 9. E-01		03/02			4
							K-40	1.28+-0.13E 01		03/02			4
							MN-54	L.T. 4. E-02		03/02			4
							CO-58	L.T. 8. E-02		03/02			4
							FE-59	L.T. 4. E-01		03/02			4
							CO-60	1.45+-0.15E 00		03/02			4
							ZN-65	L.T. 1. E-01		03/02			4
							ZR-95	L.T. 1. E-01		03/02			4
							RU-103	L.T. 2. E-01		03/02			4
							RU-106	L.T. 3. E-01		03/02			4
							CS-134	L.T. 3. E-02		03/02			4
							CS-137	L.T. 3. E-02		03/02			4
							BA-140	L.T. 1. E 01		03/02			4
							CE-141	L.T. 4. E-01		03/02			4
							CE-144	L.T. 2. E-01		03/02			4
							RA-226	6.02+-3.26E-01		03/02			4
							TH-228	4.66+-0.47E-01		03/02			4
							PU-238	L.T. 1. E-02		03/14			6
							PU-239	L.T. 4. E-03		03/14			6
							PU-238	2.1 +-6.0 E-03		03/14			6
							PU-239	8.0 +-28.8E-04		03/14			6
							Total U	L.T. 4. E-01		03/02			4

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TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 04/14/92

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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.
59798	9111L316-001 MS8015K9		11/04				TC-99	1.7 +-0.1 E 02		01/02			3
							GR-A	1.1 +-0.2 E 02		12/16			3
							GR-B	2.3 +-0.1 E 02		12/16			3
							SR-90	4.4 +-0.3 E 00		12/21			3
							GR-A	L.T. 4. E 00		12/08			3
							GR-B	L.T. 2. E 00		12/08			3
							SR-90	L.T. 8. E-02		12/21			3
							TC-99	L.T. 9. E-01		01/02			3
							BE-7	L.T. 1. E 00		04/07			4
							K-40	1.17+-0.12E 01		04/07			4
							MN-54	L.T. 4. E-02		04/07			4
							CO-58	L.T. 1. E-01		04/07			4
							FE-59	L.T. 6. E-01		04/07			4
							CO-60	1.38+-0.14E 00		04/07			4
							ZN-65	L.T. 1. E-01		04/07			4
							ZR-95	L.T. 1. E-01		04/07			4
							RU-103	L.T. 3. E-01		04/07			4
							RU-106	L.T. 3. E-01		04/07			4
							CS-134	L.T. 3. E-02		04/07			4
							CS-137	5.14+-0.51E-01		04/07			4
							BA-140	L.T. 9. E 01		04/07			4
							CE-141	L.T. 8. E-01		04/07			4
							CE-144	L.T. 2. E-01		04/07			4
							RA-226	7.01+-3.32E-01		04/07			4
							TH-228	4.77+-0.48E-01		04/07			4
							PU-238	L.T. 1. E-02		03/14			6
							PU-239	3.4 +-0.4 E-01		03/14			6
							PU-238	4.0 +-6.3 E-03		03/14			6
							PU-239	L.T. 3. E-03		03/14			6

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TELEDYNE ISOTOPES

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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.
59799	9111L316-001MSDB015K9		11/04				TC-99	1.9 +-0.1 E 02		01/02			3
							GR-A	8.9 +-1.4 E 01		12/16			3
							GR-B	2.1 +-0.1 E 02		12/16			3
							SR-90	4.1 +-0.3 E 00		12/21			3
							GR-A	L.T. 4. E 00		12/08			3
							GR-B	L.T. 2. E 00		12/08			3
							SR-90	L.T. 7. E-02		12/21			3
							TC-99	L.T. 2. E 00		01/02			3
							BE-7	L.T. 2. E 00		04/09			4
							K-40	1.16+-0.12E 01		04/09			4
							MN-54	L.T. 5. E-02		04/09			4
							CO-58	L.T. 1. E-01		04/09			4
							FE-59	L.T. 9. E-01		04/09			4
							CO-60	1.44+-0.14E 00		04/09			4
							ZN-65	L.T. 1. E-01		04/09			4
							ZR-95	L.T. 2. E-01		04/09			4
							RU-103	L.T. 4. E-01		04/09			4
							RU-106	L.T. 4. E-01		04/09			4
							CS-134	L.T. 4. E-02		04/09			4
							CS-137	4.80+-0.48E-01		04/09			4
							BA-140	L.T. 1. E 02		04/09			4
							CE-141	L.T. 1. E 00		04/09			4
							CE-144	L.T. 3. E-01		04/09			4
							RA-226	7.71+-4.15E-01		04/09			4
							TH-228	4.57+-0.46E-01		04/09			4
							PU-238	L.T. 9. E-03		03/14			6
							PU-239	3.3 +-0.3 E-01		03/14			6
							PU-238	2.4 +-5.4 E-03		03/14			6
							PU-239	L.T. 4. E-03		03/14			6

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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 4
4-5076	LL-0850-F4	12/06/91	01/08/92	

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.
59800	9111L316-002	B015L1	11/04				TC-99	L.T. 1. E 00		01/02			3
							GR-A	9.9 +-5.2 E 00		12/16			3
							GR-B	3.4 +-0.3 E 01		12/16			3
							SR-90	1.3 +-0.6 E-01		12/21			3
							GR-A	L.T. 4. E 00		12/08			3
							GR-B	L.T. 2. E 00		12/08			3
							SR-90	L.T. 8. E-02		12/21			3
							TC-99 -	1.0 +-5.95E-01		01/02			3
							BE-7	L.T. 5. E-01		02/29			4
							K-40	1.25+-0.13E 01		02/29			4
							MN-54	L.T. 2. E-02		02/29			4
							CO-58	L.T. 3. E-02		02/29			4
							FE-59	L.T. 2. E-01		02/29			4
							CO-60	L.T. 1. E-02		02/29			4
							ZN-65	L.T. 4. E-02		02/29			4
							ZR-95	L.T. 4. E-02		02/29			4
							RU-103	L.T. 9. E-02		02/29			4
							RU-106	L.T. 1. E-01		02/29			4
							CS-134	L.T. 2. E-02		02/29			4
							CS-137	8.38+-0.84E-01		02/29			4
							BA-140	L.T. 5. E 00		02/29			4
							CE-141	L.T. 2. E-01		02/29			4
							CE-144	L.T. 1. E-01		02/29			4
							RA-226	9.77+-2.14E-01		02/29			4
							TH-228	6.55+-0.66E-01		02/29			4
							PU-238	L.T. 1. E-02		03/14			6
							PU-239	L.T. 4. E-03		03/14			6
							PU-238	9.0 +-10.4E-03		03/14			6
							PU-239	8.7 +-31.2E-04		03/14			6
							Total U	L.T. 3. E-01		02/29			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	PAGE 5
4-5076	LL-0850-F4	12/06/91	01/08/92	

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.
59801	9111L316-003	B015L3	11/04				TC-99	L.T. 1. E 00		01/02			3
							GR-A	L.T. 4. E 00		12/16			3
							GR-B	3.0 +-0.3 E 01		12/16			3
							SR-90	L.T. 1. E-01		12/21			3
							GR-A	3.7 +-3.8 E 00		12/08			3
							GR-B	L.T. 2. E 00		12/08			3
							SR-90	0.0 +-.100E 00		12/21			3
							TC-99	2.0 +-7.66E-01		01/02			3
							BE-7	L.T. 1. E 00		02/27			4
							K-40	9.98+-1.00E 00		02/27			4
							MN-54	L.T. 3. E-02		02/27			4
							CO-58	L.T. 6. E-02		02/27			4
							FE-59	L.T. 3. E-01		02/27			4
							CO-60	L.T. 2. E-02		02/27			4
							ZN-65	L.T. 7. E-02		02/27			4
							ZR-95	L.T. 8. E-02		02/27			4
							RU-103	L.T. 2. E-01		02/27			4
							RU-106	L.T. 3. E-01		02/27			4
							I-131	L.T. 5. E 02		02/27			4
							CS-134	L.T. 3. E-02		02/27			4
							CS-137	8.25+-0.82E-01		02/27			4
							BA-140	L.T. 1. E 01		02/27			4
							CE-141	L.T. 5. E-01		02/27			4
							CE-144	L.T. 3. E-01		02/27			4
							RA-226	L.T. 6. E-01		02/27			4 SPEC
							TH-228	5.20+-0.52E-01		02/27			4
							TOTAL-U	L.T. 8. E-01		02/27			4
							PU-238	L.T. 3. E-02		03/15			6
							PU-239	L.T. 6. E-03		03/15			6
							PU-238	1.1 +-1.8 E-02		03/15			6
							PU-239	3.4 +-32.8E-04		03/15			6

LAST PAGE OF REPORT

APPROVED BY J. GUENTHER 04/14/92

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.

9713539.2033

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
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														
	B015K9			S	11/4/91						✓					9111L316-001				
	B015L1			⊥	⊥						⊥					⊥	⊥	002		
	B015L3																	003		

Radiochem = Total Alpha, Beta, Gamma Scan, TC99, SR-90
CS-137, CO-60, PU238, PU239/240, RU-106.
Total Uranium
Run ① 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

Relinquished by	Received by	Date	Time
[signature]	[signature]	11/4/91	1800
	[signature]	12/6/91	1200

Relinquished by	Received by	Date	Time

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

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

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