46253-WES-434

0047789

ISOTOPES

WESTON/WESTINGHOUSE/HANFORD

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

Date 01-03-92

TI #'s 46253

WO # 4-2879

FEB 1992
RECEIVED
OSM DMO

Comments:

Contents;

	Reports of Analysis	1	Pages
	Gross Alpha	1	Pages
	Gross Beta	-	Pages
	Gamma	2	Pages
	Sr-90	1	Pages
	Pu-238-239-240	1	Pages
	C-O-C	1	Pages
	Other	-	Pages
01/29/92	Total U	3	Pages

OCT 1997
RECEIVED
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ISOTOPES

WESTON/WESTINGHOUSE/HANFORD

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

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Other	-	Pages

JAN 1992
RECEIVED
OSM DMO

TELEDYNE ISOTOPES

Revised 01/29/92

REPORT OF ANALYSIS

RUN DATE 01/02/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 1
4-2879	LL-0850-F4	07/25/91	08/27/91	

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.
46253	B00X61	9107L081-001	07/01				GR-A	1.1 +-0.5 E 01		08/16			3
							GR-B	4.2 +-0.1 E 02		08/16			3
							SR-90	6.7 +-0.1 E 01		08/17			3
							BE-7	L.T. 6. E 00		12/18			4
							K-40	1.10+-0.11E 01		12/18			4
							MN-54	L.T. 3. E-02		12/18			4
							CO-58	L.T. 1. E-01		12/18			4
							FE-59	L.T. 5. E-01		12/18			4
							CO-60	L.T. 2. E-02		12/18			4
							ZN-65	L.T. 7. E-02		12/18			4
							ZR-95	L.T. 1. E-01		12/18			4
							RU-103	L.T. 1. E 00		12/18			4
							RU-106	L.T. 6. E-01		12/18			4
							CS-134	L.T. 3. E-02		12/18			4
							CS-137	5.05+-0.50E 01		12/18			4
							BA-140	L.T. 2. E 02		12/18			4
							CE-141	L.T. 3. E 00		12/18			4
							CE-144	L.T. 5. E-01		12/18			4
							RA-226	3.81+-0.69E 00		12/18			4
							TH-228	4.78+-0.95E-01		12/18			4
							PU-238	L.T. 4. E-02		12/24			6
							PU-239	9.9 +-8.2 E-03		12/24			6
							TOTAL U	L.T. 4. E-01		12/18			4

LAST PAGE OF REPORT

J. Guenther
APPROVED BY J. GUENTHER 01/02/92

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.

The result for Total Uranium has been added for TI #46253. GJG 1/29/92

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

RUN DATE 01/02/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 1
4-2879	LL-0850-F4	07/25/91	08/27/91	

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.
46253	B00X61 9107L081-001		07/01				GR-A	1.1 +-0.5 E 01		08/16			3
							GR-B	4.2 +-0.1 E 02		08/16			3
							SR-90	6.7 +-0.1 E 01		08/17			3
							BE-7	L.T. 6. E 00		12/18			4
							K-40	1.10+-0.11E 01		12/18			4
							MN-54	L.T. 3. E-02		12/18			4
							CO-58	L.T. 1. E-01		12/18			4
							FE-59	L.T. 5. E-01		12/18			4
							CO-60	L.T. 2. E-02		12/18			4
							ZN-65	L.T. 7. E-02		12/18			4
							ZR-95	L.T. 1. E-01		12/18			4
							RU-103	L.T. 1. E 00		12/18			4
							RU-106	L.T. 6. E-01		12/18			4
							CS-134	L.T. 3. E-02		12/18			4
							CS-137	5.05+-0.50E 01		12/18			4
							BA-140	L.T. 2. E 02		12/18			4
							CE-141	L.T. 3. E 00		12/18			4
							CE-144	L.T. 5. E-01		12/18			4
							RA-226	3.81+-0.69E 00		12/18			4
							TH-228	4.78+-0.95E-01		12/18			4
							PU-238	L.T. 4. E-02		12/24			6
							PU-239	9.9 +-8.2 E-03		12/24			6

LAST PAGE OF REPORT

J. Guenther
APPROVED BY J. GUENTHER 01/02/92

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

Custody Transfer Record/Lab Work Request

WESTON

WESTON Analytics Use Only

Client: Weston
Work Order: 6168-02-01
Date Rec'd. _____ Date Due _____
RFW Contact: J. King
Client Contact/Phone _____

Refrigerator#											
#/Type Container				1/G							
Volume				950							
Preservative				none							
ANALYSES REQUESTED →				Radio chem							
WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected					RFW #			
	~~B007~~ 097/23/91 B00X61	Soil	7/1/91	✓				9107L081-001			
	Radiochem = Total Alpha/beta, GEA, SR90										
	CS137, C-60, PU-238, PU-239/240										
	RU-106 Total Uranium										

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

Special Instructions:

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
	P. Geiger	Fed Ex	7/24/91	6:30 pm					

WESTON Analytics Use Only

Samples Were:
1 Shipped or Hand-Delivered
NOTES:

2 Ambient or Chilled
NOTES:

3 Received Broken/Leaking (Improperly Sealed)
Y N
NOTES:

4 Properly Preserved
Y N
NOTES:

5 Received Within Holding Times
Y N
NOTES:

COC Tape Was:
1 Present on Outer Package Y N
2 Unbroken on Outer Package Y N
3 Present on Sample Y N
4 Unbroken on Sample Y N
NOTES:

COC Record Was:
1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y N
NOTES:

RFW 21-21-001/A-12/88

7-115

WESTON
MANAGERS DESIGNERS/CONSULTANTS
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE, PA 19341-1313
PHONE: (215) 524-7360
TELEX: 83-5348

December 28, 1992

DEC 1992

Mr. Karl Pool
Westinghouse Hanford Company
2355 Stevens Drive
200W/MO-246/T6-08
Richland, WA 99352

Dear Karl:

Enclosed is Teledyne's response to your fax dated 12/02/92 (this was previously faxed to you 12/18/92). Also enclosed is another package for your fax dated 11/17/92.

Please give me a call if you have any questions or should require additional information.

Very truly yours,

ROY F. WESTON, INC.

Josie Edwards

Josie Edwards
Project Information Analyst

/clk

Enclosure:

TELEDYNE ISOTOPES

50 VAN BUREN AVENUE

PO BOX 1235

WESTWOOD NJ 07675-1235

(201) 664-7070

December 14, 1992

DEC 1992

Ms. Josie Edwards
Roy F. Weston, Inc.
208 Welsh Pool Road
Pickering Creek Industrial Park
Lionville, PA 19341-1313

Re: 11/17/92 FAX Pool to Nulton

Dear Josie:

Enclosed is the information requested in the 11/17/92 FAX Pool to Nulton as listed below.

Number 1 page 1; confirmed receipt during phone conversation Hogan - Pool 11/23/92.

Number 2 page 1; confirmed receipt during phone conversation Hogan - Pool 11/23/92.

Number 3 page 1; confirmed receipt during phone conversation Hogan - Pool 11/23/92.

Number 4 page 1; on June 3, 1991 the beta gamma counting system was calibrated using a standard diluted on 1/10/91 (please refer to Ra-228 inventory of certificate standard list attached). The standard activity was 630 dpm with a measured count of 3692 in 3890 seconds. The 1/6/92 calibration was made using a standard diluted on 10/18/91 (please refer to Ra-228 inventory of certificate standard list attached). The standard activity was 1171 dpm, with a measured count of 2187 counts in 1800 seconds.

Number 5 page 1; the Lucas cell/ Ra-226 raw initial calibration data for 1991 and 1992 are enclosed along with both of the Inventory of Certified Standard Forms. The connection between them is the EPA reference number, the words emanation standards and the listed dpm.

Number 6 page 1; it is important to note that Teledyne Isotopes uses the **Isotope Dilution** method to quantify alpha sample activities. In determining sample activity only the ratio of the unknown nuclide to that of the tracer isotope is needed. The distinct advantage is that the measurement of an activity ratio may be done very precisely. **The ratio measurement for two alpha-emitting nuclides on the same source is independent of instrumental drift and the activity determination does not require knowledge of the detector efficiency or yield of the source preparation** (although these may be determined for information).

Surface Barrier detectors are 100% efficient. They will record an event every time an alpha particle strikes its active surface. However, since alpha particles travel in random directions away from the source, only a certain fraction of these particles will strike the active surface of the detector and be counted. Therefore the counting efficiency is that fraction of the total alpha radiation emitted by the source which is recorded by the detector. It is

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

Revised 12/14/92
RUN DATE 08/25/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE
4-1378	LL-1140-54	05/01/92	06/03/92	1

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.
75119	9204L041-001	B01SD8	04/14	1244			TC-99	L. T. 1.	E 00	06/11			3
							GR-A	8.4 ± 5.1	E 00	06/12			3
							GR-B	3.7 ± 0.3	E 01	06/12			3
							SR-90	2.3 ± 0.5	E-01	06/03			3
							GR-A	L. T. 5.	E 00	06/12			3
							GR-B	L. T. 2.	E 00	06/12			3
							SR-90	L. T. 3.	E-02	06/03			3
							TC-99	5.8 ± 64.1	E-02	06/11			3
							BE-7	L. T. 2.	E 00	08/18			4
							K-40	1.5 ± 0.2	E 01	08/18			4
							MN-54	L. T. 4.	E-02	08/18			4
							CO-58	L. T. 1.	E-01	08/18			4
							FE-59	L. T. 5.	E-01	08/18			4
							CO-60	L. T. 4.	E-02	08/18			4
							ZN-65	L. T. 1.	E 01	08/18			4
							ZR-95	L. T. 1.	E 01	08/18			4
							RU-103	L. T. 4.	E-01	08/18			4
							RU-106	L. T. 5.	E-01	08/18			4
							I-131	L. T. 3.	E 03	08/18			4
							CS-134	L. T. 5.	E-02	08/18			4
							CS-137	6.9 ± 0.7	E 00	08/18			4
							BA-140	L. T. 3.	E 01	08/18			4
							CE-141	L. T. 9.	E-01	08/18			4
							CE-144	L. T. 4.	E-01	08/18			4
							EU-152	L. T. 1.	E-01	08/18			4
							EU-154	L. T. 1.	E-01	08/18			4
							EU-155	L. T. 1.	E-01	08/18			4
							RA-226	1.2 ± 0.7	E 00	08/18			4
							TH-228	9.4 ± 0.9	E-01	08/18			4
							TH-234	L. T. 8.	E-01	08/18			4
							PU-238	L. T. 3.	E-02	08/07			6
							PU-239	L. T. 1.	E-02	08/07			6

The gamma results have been revised using the corrected sample weight.

GA 12/14/92

Revised 12/14/92

Revised 01/29/92

RUN DATE 01/02/92

TELEDYNE ISOTOPES

REPORT OF ANALYSIS

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 1
4-2879	LL-0850-F4	07/25/91	08/27/91	

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	TIME	STOP DATE	TIME	NUCLIDE	ACTIVITY (PCI/GM DRY)	NUCL-UNIT-% U/M *	MID-COUNT TIME DATE	TIME	VOLUME - UNITS ASH-WGHT-% *	LAB.
46253	B00X61 9107L081-001		07/01				GR-A	1.1 +-0.5 E 01		08/16			3
							GR-B	4.2 +-0.1 E 02		08/16			3
							SR-90	6.7 +-0.1 E 01		08/17			3
							BE-7	L.T. 6. E 00		12/18			4
							K-40	1.10+-0.11E 01		12/18			4
							MN-54	L.T. 3. E-02		12/18			4
							CO-58	L.T. 1. E-01		12/18			4
							FE-59	L.T. 5. E-01		12/18			4
							CO-60	L.T. 2. E-02		12/18			4
							ZN-65	L.T. 7. E-02		12/18			4
							ZR-95	L.T. 1. E-01		12/18			4
							RU-103	L.T. 1. E 00		12/18			4
							RU-106	L.T. 6. E-01		12/18			4
							CS-134	L.T. 3. E-02		12/18			4
							CS-137	5.05+-0.50E 01		12/18			4
							BA-140	L.T. 2. E 02		12/18			4
							CE-141	L.T. 3. E 00		12/18			4
							CE-144	L.T. 5. E-01		12/18			4
							RA-226	L.T. 1. E 00		12/18			4
							TH-228	4.78+-0.95E-01		12/18			4
							PU-238	L.T. 4. E-02		12/24			6
							PU-239	9.9 +-8.2 E-03		12/24			6
							TOTAL U	L.T. 4. E-01		12/18			4

LAST PAGE OF REPORT

J. Guenther
APPROVED BY J. GUENTHER 01/02/92

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.

The result for Total Uranium has been added for TI #46253. GJG 1/29/92

Ra-226 for TI #46253 is not a gamma ray peak, rather a "knee" on a compton plateau produced by the very high activity level of Cs-137. GJG 12/14/92

TELEDYNE ISOTOPES

Revised 12/14/92

REPORT OF ANALYSIS

RUN DATE 03/26/92

WORK ORDER NUMBER	CUSTOMER P.O. NUMBER	DATE RECEIVED	DELIVERY DATE	PAGE 4
4-4050	LL-0850-F4	10/07/91	11/09/91	

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.
53422	9109L775-002	B00XD1	09/18				CE-144	L.T. 3. E 01		02/20			4
							RA-226	L.T. 8. E 01		02/20			4
							TH-228	L.T. 9. E 00		02/20			4
							TOTAL-U	L.T. 6. E 01		02/20			4
							PU-238	L.T. 1. E-02		02/28			6
							PU-239	L.T. 5. E-03		02/28			6
53423	9109L775-003	B00XD3	09/19				TC-99	L.T. 7. E-01		10/27			3
							GR-A	9.9 +-5.6 E 00		10/27			3
							GR-B	1.2 +-0.1 E 02		10/27			3
							SR-90	L.T. 6. E-02		10/31			3
							BE-7	L.T. 6. E 00		02/18			4
							K-40	1.64+-0.16E 01		02/18			4
							MN-54	L.T. 3. E-02		02/18			4
							CO-58	L.T. 8. E-02		02/18			4
							FE-59	L.T. 5. E-01		02/18			4
							CO-60	L.T. 2. E-02		02/18			4
							ZN-65	L.T. 8. E-02		02/18			4
							ZR-95	L.T. 1. E-01		02/18			4
							RU-103	L.T. 1. E 00		02/18			4
							RU-106	L.T. 8. E-01		02/18			4
							I-131	L.T. 4. E 04		02/18			4
							CS-134	L.T. 3. E-02		02/18			4
							CS-137	6.84+-0.68E 01		02/18			4
							BA-140	L.T. 8. E 01		02/18			4
							CE-141	L.T. 2. E 00		02/18			4
							CE-144	L.T. 6. E-01		02/18			4
							RA-226	L.T. 1. E 00		02/18			4
							TH-228	4.97+-1.07E-01		02/18			4
							TOTAL-U	L.T. 1. E 00		02/18			4
							PU-238	L.T. 2. E-02		02/28			6
							PU-239	L.T. 1. E-02		02/28			6

LAST PAGE OF REPORT

APPROVED BY J. GUENTHER 03/26/92

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Ra-226 for TI #'s 53422 and 53423 is not a gamma ray peak, rather a "knee" on a compton plateau produced by the very high activity level of Cs-137.

12/14/92