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B01025-TMA-028 2 57
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CASE NARRATIVE

LABORATORY: TMA/ARLI

CASE: 08-116

CONTRACT ID: WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE: 08-17-91

1.0 DESCRIPTION OF CASE:

Four soil samples were analyzed for full TCL Organics (Volatiles, Semivolatiles, and Pesticide/PCB's) according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision 2/88.

2.0 SAMPLE LIST:

| <u>WESTINGHOUSE ID</u> | <u>LAB ID</u> | <u>ANALYSIS REQUESTED</u> | <u>MATRIX</u> |
|------------------------|---------------|---------------------------|---------------|
| B01025 | A1-08-116-01A | SV, P | SOIL |
| B01025 | A1-08-116-01B | V | SOIL |
| B01025 MS | A1-08-116-01B | V | SOIL |
| B01025 MSD | A1-08-116-01B | V | SOIL |
| B01025 MS | A1-08-116-01C | SV, P | SOIL |
| B01025 MSD | A1-08-116-01D | SV, P | SOIL |
| B01027 | A1-08-116-02A | SV, P | SOIL |
| B01027 | A1-08-116-02B | V | SOIL |
| B01029 | A1-08-116-03A | SV, P | SOIL |
| B01029 | A1-08-116-03B | V | SOIL |
| B01031 | A1-08-116-04A | SV, P | SOIL |
| B01031 | A1-08-116-04B | V | SOIL |

3.0 COMMENTS:

3.1 SHIPPING AND DOCUMENTATION:

All samples were received unbroken and properly documented.



documented.

3.2 ANALYSIS:

3.2.1 VOLATILE ANALYSIS COMMENTS:

All QC results were within the limits specified in the EPA CLP SOW. There were no notable problems with the analysis.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS:

The QC results were within the limits specified by the EPA CLP SOW. There were no notable problems with the analysis.

3.2.3 PESTICIDE/PCB ANALYSIS COMMENTS:

All QC results were within the limits allowed by the EPA CLP SOW. There were no notable problems with the analysis.

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 in this package and on the accompanying data diskette is authorized by the Lab Manager as verified by the following signature.



Dennis D. Wells
Laboratory Manager

9613422-0893
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EPA SAMPLE NO. 4

VOLATILE ORGANICS ANALYSIS DATA SHEET

B01025

Lab Name: TMA/ARLI

Contract: WESTINHOUSE

Lab Code: TMALA

Case No.: 08116V

SAS No.: NA

SDG No.: NA

Matrix: (soil/water) SOIL

Lab Sample ID: A108116-01B

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: 823R05

Level: (low/med) LOW

Date Received: 08/17/91

% Moisture: not dec. 7

Date Analyzed: 08/23/91

Column: (pack/cap) PACK

Dilution Factor: 1.0

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

| | | | |
|------------|---------------------------------|----|---|
| 74-87-3 | -----Chloromethane | 11 | U |
| 74-83-9 | -----Bromomethane | 11 | U |
| 75-01-4 | -----Vinyl Chloride | 11 | U |
| 75-00-3 | -----Chloroethane | 11 | U |
| 75-09-2 | -----Methylene Chloride | 9 | |
| 67-64-1 | -----Acetone | 11 | U |
| 75-15-0 | -----Carbon Disulfide | 5 | U |
| 75-35-4 | -----1,1-Dichloroethene | 5 | U |
| 75-34-3 | -----1,1-Dichloroethane | 5 | U |
| 540-59-0 | -----1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | -----Chloroform | 5 | U |
| 107-06-2 | -----1,2-Dichloroethane | 5 | U |
| 78-93-3 | -----2-Butanone | 11 | U |
| 71-55-6 | -----1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | -----Carbon Tetrachloride | 5 | U |
| 108-05-4 | -----Vinyl Acetate | 11 | U |
| 75-27-4 | -----Bromodichloromethane | 5 | U |
| 78-87-5 | -----1,2-Dichloropropane | 5 | U |
| 10061-01-5 | -----cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | -----Trichloroethene | 5 | U |
| 124-48-1 | -----Dibromochloromethane | 5 | U |
| 79-00-5 | -----1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | -----Benzene | 5 | U |
| 10061-02-6 | -----trans-1,3-Dichloropropene | 5 | U |
| 110-75-8 | -----2-Chloroethoxy ethene | 11 | U |
| 75-25-2 | -----Bromoform | 5 | U |
| 108-10-1 | -----4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | -----2-Hexanone | 11 | U |
| 127-18-4 | -----Tetrachloroethene | 5 | U |
| 79-34-5 | -----1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | -----Toluene | 5 | U |
| 108-90-7 | -----Chlorobenzene | 5 | U |
| 100-41-4 | -----Ethylbenzene | 5 | U |
| 100-42-5 | -----Styrene | 5 | U |
| 1330-20-7 | -----Xylenes (total) | 5 | U |

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EPA SAMPLE NO. 5

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B01025

Lab Name: TMA/ARLI

Contract: WESTINHOUSE

Lab Code: TMALA

Case No.: 08116V

SAS No.: NA

SDG No.: NA

Matrix: (soil/water) SOIL

Lab Sample ID: A108116-01B

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: 823R05

Level: (low/med) LOW

Date Received: 08/17/91

% Moisture: not dec. 7

Date Analyzed: 08/23/91

Column (pack/cap) PACK

Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

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EPA SAMPLE NO. 6

VOLATILE ORGANICS ANALYSIS DATA SHEET

B01027

Lab Name: TMA/ARLI

Contract: WESTINHOUSE

Lab Code: TMALA

Case No.: 08116V

SAS No.: NA

SDG No.: NA

Matrix: (soil/water) SOIL

Lab Sample ID: A108116-02B

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: 823R06

Level: (low/med) LOW

Date Received: 08/17/91

% Moisture: not dec. 5

Date Analyzed: 08/23/91

Column: (pack/cap) PACK

Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.

COMPOUND

Q

| | | | |
|-----------------|----------------------------|----|---|
| 74-87-3----- | Chloromethane | 11 | U |
| 74-83-9----- | Bromomethane | 11 | U |
| 75-01-4----- | Vinyl Chloride | 11 | U |
| 75-00-3----- | Chloroethane | 11 | U |
| 75-09-2----- | Methylene Chloride | 10 | |
| 67-64-1----- | Acetone | 11 | U |
| 75-15-0----- | Carbon Disulfide | 5 | U |
| 75-35-4----- | 1,1-Dichloroethene | 5 | U |
| 75-34-3----- | 1,1-Dichloroethane | 5 | U |
| 540-59-0----- | 1,2-Dichloroethene (total) | 5 | U |
| 67-66-3----- | Chloroform | 5 | U |
| 107-06-2----- | 1,2-Dichloroethane | 5 | U |
| 78-93-3----- | 2-Butanone | 11 | U |
| 71-55-6----- | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5----- | Carbon Tetrachloride | 5 | U |
| 108-05-4----- | Vinyl Acetate | 11 | U |
| 75-27-4----- | Bromodichloromethane | 5 | U |
| 78-87-5----- | 1,2-Dichloropropane | 5 | U |
| 10061-01-5----- | cis-1,3-Dichloropropene | 5 | U |
| 79-01-6----- | Trichloroethene | 5 | U |
| 124-48-1----- | Dibromochloromethane | 5 | U |
| 79-00-5----- | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2----- | Benzene | 5 | U |
| 10061-02-6----- | trans-1,3-Dichloropropene | 5 | U |
| 110-75-8----- | 2-Chloroethoxy ethene | 11 | U |
| 75-25-2----- | Bromoform | 5 | U |
| 108-10-1----- | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6----- | 2-Hexanone | 11 | U |
| 127-18-4----- | Tetrachloroethene | 5 | U |
| 79-34-5----- | 1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3----- | Toluene | 5 | U |
| 108-90-7----- | Chlorobenzene | 5 | U |
| 100-41-4----- | Ethylbenzene | 5 | U |
| 100-42-5----- | Styrene | 5 | U |
| 1330-20-7----- | Xylenes (total) | 5 | U |

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EPA SAMPLE NO. 7

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B01027

Lab Name: TMA/ARLI

Contract: WESTINHOUSE

Lab Code: TMALA

Case No.: 08116V

SAS No.: NA

SDG No.: NA

Matrix: (soil/water) SOIL

Lab Sample ID: A108116-02B

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: 823R06

Level: (low/med) LOW

Date Received: 08/17/91

% Moisture: not dec. 5

Date Analyzed: 08/23/91

Column (pack/cap) PACK

Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

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1A-0897

EPA SAMPLE NO. 8

VOLATILE ORGANICS ANALYSIS DATA SHEET

B01029

Lab Name: TMA/ARLI Contract: WESTINHOUSE
 Lab Code: TMALA Case No.: 08116V SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-03B
 Sample wt/vol: 5.0 (g/mL) G Lab File ID: 823R13
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 5 Date Analyzed: 08/23/91
 Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> | Q |
|------------|---------------------------------|--|---|
| 74-87-3 | -----Chloromethane | 11 | U |
| 74-83-9 | -----Bromomethane | 11 | U |
| 75-01-4 | -----Vinyl Chloride | 11 | U |
| 75-00-3 | -----Chloroethane | 11 | U |
| 75-09-2 | -----Methylene Chloride | 3 | J |
| 67-64-1 | -----Acetone | 13 | |
| 75-15-0 | -----Carbon Disulfide | 5 | U |
| 75-35-4 | -----1,1-Dichloroethene | 5 | U |
| 75-34-3 | -----1,1-Dichloroethane | 5 | U |
| 540-59-0 | -----1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | -----Chloroform | 5 | U |
| 107-06-2 | -----1,2-Dichloroethane | 5 | U |
| 78-93-3 | -----2-Butanone | 11 | U |
| 71-55-6 | -----1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | -----Carbon Tetrachloride | 5 | U |
| 108-05-4 | -----Vinyl Acetate | 11 | U |
| 75-27-4 | -----Bromodichloromethane | 5 | U |
| 78-87-5 | -----1,2-Dichloropropane | 5 | U |
| 10061-01-5 | -----cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | -----Trichloroethene | 5 | U |
| 124-48-1 | -----Dibromochloromethane | 5 | U |
| 79-00-5 | -----1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | -----Benzene | 5 | U |
| 10061-02-6 | -----trans-1,3-Dichloropropene | 5 | U |
| 110-75-8 | -----2-Chloroethoxy ethene | 11 | U |
| 75-25-2 | -----Bromoform | 5 | U |
| 108-10-1 | -----4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | -----2-Hexanone | 11 | U |
| 127-18-4 | -----Tetrachloroethene | 5 | U |
| 79-34-5 | -----1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | -----Toluene | 5 | U |
| 108-90-7 | -----Chlorobenzene | 5 | U |
| 100-41-4 | -----Ethylbenzene | 5 | U |
| 100-42-5 | -----Styrene | 5 | U |
| 1330-20-7 | -----Xylenes (total) | 5 | U |

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EPA SAMPLE NO. 7

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B01029

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 08116V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-03B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 823R13

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 5 Date Analyzed: 08/23/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

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1A-0899

EPA SAMPLE NO. 10

VOLATILE ORGANICS ANALYSIS DATA SHEET

B01031

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 08116V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-04B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 823R10

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 6 Date Analyzed: 08/23/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> | Q |
|------------|---------------------------------|--|---|
| 74-87-3 | -----Chloromethane | 11 | U |
| 74-83-9 | -----Bromomethane | 11 | U |
| 75-01-4 | -----Vinyl Chloride | 11 | U |
| 75-00-3 | -----Chloroethane | 11 | U |
| 75-09-2 | -----Methylene Chloride | 4 | J |
| 67-64-1 | -----Acetone | 14 | |
| 75-15-0 | -----Carbon Disulfide | 5 | U |
| 75-35-4 | -----1,1-Dichloroethene | 5 | U |
| 75-34-3 | -----1,1-Dichloroethane | 5 | U |
| 540-59-0 | -----1,2-Dichloroethene (total) | 5 | U |
| 67-66-3 | -----Chloroform | 5 | U |
| 107-06-2 | -----1,2-Dichloroethane | 5 | U |
| 78-93-3 | -----2-Butanone | 11 | U |
| 71-55-6 | -----1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | -----Carbon Tetrachloride | 5 | U |
| 108-05-4 | -----Vinyl Acetate | 11 | U |
| 75-27-4 | -----Bromodichloromethane | 5 | U |
| 78-87-5 | -----1,2-Dichloropropane | 5 | U |
| 10061-01-5 | -----cis-1,3-Dichloropropene | 5 | U |
| 79-01-6 | -----Trichloroethene | 5 | U |
| 124-48-1 | -----Dibromochloromethane | 5 | U |
| 79-00-5 | -----1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | -----Benzene | 5 | U |
| 10061-02-6 | -----trans-1,3-Dichloropropene | 5 | U |
| 110-75-8 | -----2-Chloroethoxy ethene | 11 | U |
| 75-25-2 | -----Bromoform | 5 | U |
| 108-10-1 | -----4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | -----2-Hexanone | 11 | U |
| 127-18-4 | -----Tetrachloroethene | 5 | U |
| 79-34-5 | -----1,1,2,2-Tetrachloroethane | 5 | U |
| 108-88-3 | -----Toluene | 5 | U |
| 108-90-7 | -----Chlorobenzene | 5 | U |
| 100-41-4 | -----Ethylbenzene | 5 | U |
| 100-42-5 | -----Styrene | 5 | U |
| 1330-20-7 | -----Xylenes (total) | 5 | U |

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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B01031

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 08116V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-04B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 823R10

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 6 Date Analyzed: 08/23/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|---------------|-------|------------|-------|
| ===== | ===== | ===== | ===== | ===== |

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1B

EPA SAMPLE NO. 12

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B01025

Lab Name: TMA/ARLI Contract: WESTINGHOUS

Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-01A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N13

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 8 dec. Date Extracted: 08/23/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/26/91

GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1.00

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

| | | | |
|----------|------------------------------|-----|---|
| 108-95-2 | Phenol | 33 | U |
| 62-53-3 | Aniline | 33 | U |
| 111-44-4 | bis(2-Chloroethyl) Ether | 33 | U |
| 95-57-8 | 2-Chlorophenol | 33 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 33 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 33 | U |
| 100-51-6 | Benzyl Alcohol | 33 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 33 | U |
| 95-48-7 | 2-Methylphenol | 33 | U |
| 108-60-1 | bis(2-Chloroisopropyl) Ether | 33 | U |
| 106-44-5 | 4-Methylphenol | 33 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 33 | U |
| 67-72-1 | Hexachloroethane | 33 | U |
| 98-95-3 | Nitrobenzene | 33 | U |
| 78-59-1 | Isophorone | 33 | U |
| 88-75-5 | 2-Nitrophenol | 33 | U |
| 105-67-9 | 2,4-Dimethylphenol | 33 | U |
| 65-85-0 | Benzoic Acid | 220 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 33 | U |
| 120-83-2 | 2,4-Dichlorophenol | 33 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 33 | U |
| 91-20-3 | Naphthalene | 33 | U |
| 106-47-8 | 4-Chloroaniline | 33 | U |
| 87-68-3 | Hexachlorobutadiene | 33 | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 33 | U |
| 91-57-6 | 2-Methylnaphthalene | 33 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 33 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 33 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 33 | U |
| 91-58-7 | 2-Chloronaphthalene | 33 | U |
| 88-74-4 | 2-Nitroaniline | 220 | U |
| 131-11-3 | Dimethyl Phthalate | 33 | U |
| 208-96-8 | Acenaphthylene | 33 | U |

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EPA SAMPLE NO. ¹³

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B01025

Lab Name: TMA/ARLI Contract: WESTINGHOUS
 Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-01A
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N13
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 8 dec. Date Extracted: 08/23/91
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/26/91
 GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> | Q |
|-----------|-----------------------------|--|---|
| 99-09-2 | 3-Nitroaniline | 220 | U |
| 83-32-9 | Acenaphthene | 33 | U |
| 51-28-5 | 2,4-Dinitrophenol | 220 | U |
| 100-02-7 | 4-Nitrophenol | 220 | U |
| 132-64-9 | Dibenzofuran | 33 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 33 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 33 | U |
| 84-66-2 | Diethylphthalate | 33 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 33 | U |
| 86-73-7 | Fluorene | 33 | U |
| 100-01-6 | 4-Nitroaniline | 220 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 220 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 34 | B |
| 101-55-3 | 4-Bromophenyl-phenylether | 33 | U |
| 118-74-1 | Hexachlorobenzene | 33 | U |
| 87-86-5 | Pentachlorophenol | 220 | U |
| 85-01-8 | Phenanthrene | 33 | U |
| 120-12-7 | Anthracene | 33 | U |
| 84-74-2 | Di-n-Butylphthalate | 81 | B |
| 206-44-0 | Fluoranthene | 33 | U |
| 129-00-0 | Pyrene | 33 | U |
| 85-68-7 | Butylbenzylphthalate | 33 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 65 | U |
| 56-55-3 | Benzo(a)anthracene | 33 | U |
| 117-81-7 | bis(2-Ethylhexyl) Phthalate | 88 | B |
| 218-01-9 | Chrysene | 33 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 33 | U |
| 205-99-2 | Benzo(b)fluoranthene | 33 | U |
| 207-08-9 | Benzo(k)fluoranthene | 33 | U |
| 50-32-8 | Benzo(a)pyrene | 33 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 33 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 33 | U |
| 191-24-2 | Benzo(g,h,i)perylene | 33 | U |

(1) - Cannot be separated from Diphenylamine

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1F.0903

EPA SAMPLE NO. ¹⁴

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B01025

Lab Name: TMA/ARLI Contract: WESTINGHOUS
 Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-01A
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N13
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 8 dec. Date Extracted: 08/23/91
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/26/91
 GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 12

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|------------------------------|-------|------------|---|
| 1. | UNKNOWN HYDROCARBON | 1.88 | 1300 | J |
| 2. | UNKNOWN HYDROCARBON | 3.10 | 170000 | J |
| 3. | UNKNOWN ALKANE | 3.20 | 980 | J |
| 4. | UNKNOWN HYDROCARBON | 4.10 | 3300 | J |
| 5. | UNKNOWN HYDROCARBON | 4.37 | 620 | J |
| 6. | UNKNOWN ALCOHOL | 9.94 | 510 | J |
| 7. | UNKNOWN CARBOXYLIC ACID | 17.70 | 180 | J |
| 8. | UNKNOWN PHTHALATE | 21.97 | 250 | J |
| 9. | UNKNOWN CARBOXYLIC ACID | 26.47 | 220 | J |
| 10. | UNKNOWN CARBOXYLIC ACID | 29.01 | 220 | J |
| 11. | UNKNOWN CARBOXYLIC ACID ESTE | 29.14 | 430 | J |
| 12. | UNKNOWN ALCOHOL | 38.62 | 250 | J |

1613422 0904
TB

15
EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B01027

Lab Name: TMA/ARLI Contract: WESTINGHOUS
 Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-02A
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N16
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 5 dec. Date Extracted: 08/23/91
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91
 GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.00

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

| | | | |
|----------|------------------------------|-----|---|
| 108-95-2 | Phenol | 32 | U |
| 62-53-3 | Aniline | 32 | U |
| 111-44-4 | bis(2-Chloroethyl) Ether | 32 | U |
| 95-57-8 | 2-Chlorophenol | 32 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 32 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 32 | U |
| 100-51-6 | Benzyl Alcohol | 32 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 32 | U |
| 95-48-7 | 2-Methylphenol | 32 | U |
| 108-60-1 | bis(2-Chloroisopropyl) Ether | 32 | U |
| 106-44-5 | 4-Methylphenol | 32 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 32 | U |
| 67-72-1 | Hexachloroethane | 32 | U |
| 98-95-3 | Nitrobenzene | 32 | U |
| 78-59-1 | Isophorone | 32 | U |
| 88-75-5 | 2-Nitrophenol | 32 | U |
| 105-67-9 | 2,4-Dimethylphenol | 32 | U |
| 65-85-0 | Benzoic Acid | 210 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 32 | U |
| 120-83-2 | 2,4-Dichlorophenol | 32 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 32 | U |
| 91-20-3 | Naphthalene | 32 | U |
| 106-47-8 | 4-Chloroaniline | 32 | U |
| 87-68-3 | Hexachlorobutadiene | 32 | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 32 | U |
| 91-57-6 | 2-Methylnaphthalene | 32 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 32 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 32 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 32 | U |
| 91-58-7 | 2-Chloronaphthalene | 32 | U |
| 88-74-4 | 2-Nitroaniline | 210 | U |
| 131-11-3 | Dimethyl Phthalate | 32 | U |
| 208-96-8 | Acenaphthylene | 32 | U |

16
9613422 0905
1c

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B01027

Lab Name: TMA/ARLI Contract: WESTINGHOUS

Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-02A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N16

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 5 dec. Date Extracted: 08/23/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> | Q |
|----------------|-----------------------------|--|----|
| 99-09-2----- | 3-Nitroaniline | 210 | U |
| 83-32-9----- | Acenaphthene | 32 | U |
| 51-28-5----- | 2,4-Dinitrophenol | 210 | U |
| 100-02-7----- | 4-Nitrophenol | 210 | U |
| 132-64-9----- | Dibenzofuran | 32 | U |
| 121-14-2----- | 2,4-Dinitrotoluene | 32 | U |
| 606-20-2----- | 2,6-Dinitrotoluene | 32 | U |
| 84-66-2----- | Diethylphthalate | 32 | U |
| 7005-72-3----- | 4-Chlorophenyl-phenylether | 32 | U |
| 86-73-7----- | Fluorene | 32 | U |
| 100-01-6----- | 4-Nitroaniline | 210 | U |
| 534-52-1----- | 4,6-Dinitro-2-methylphenol | 210 | U |
| 86-30-6----- | N-Nitrosodiphenylamine (1) | 21 | BJ |
| 101-55-3----- | 4-Bromophenyl-phenylether | 32 | U |
| 118-74-1----- | Hexachlorobenzene | 32 | U |
| 87-86-5----- | Pentachlorophenol | 210 | U |
| 85-01-8----- | Phenanthrene | 32 | U |
| 120-12-7----- | Anthracene | 32 | U |
| 84-74-2----- | Di-n-Butylphthalate | 45 | B |
| 206-44-0----- | Fluoranthene | 32 | U |
| 129-00-0----- | Pyrene | 32 | U |
| 85-68-7----- | Butylbenzylphthalate | 32 | U |
| 91-94-1----- | 3,3'-Dichlorobenzidine | 63 | U |
| 56-55-3----- | Benzo(a)anthracene | 32 | U |
| 117-81-7----- | bis(2-Ethylhexyl) Phthalate | 13 | BJ |
| 218-01-9----- | Chrysene | 32 | U |
| 117-84-0----- | Di-n-Octyl Phthalate | 32 | U |
| 205-99-2----- | Benzo(b)fluoranthene | 32 | U |
| 207-08-9----- | Benzo(k)fluoranthene | 32 | U |
| 50-32-8----- | Benzo(a)pyrene | 32 | U |
| 193-39-5----- | Indeno(1,2,3-cd)Pyrene | 32 | U |
| 53-70-3----- | Dibenz(a,h)Anthracene | 32 | U |
| 191-24-2----- | Benzo(g,h,i)perylene | 32 | U |

(1) - Cannot be separated from Diphenylamine

2613422-0906
1F

EPA SAMPLE NO. 17

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B01027

Lab Name: TMA/ARLI Contract: WESTINGHOUS

Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-02A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N16

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 5 dec. Date Extracted: 08/23/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 10

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|------------------------------|-------|------------|---|
| 1. | UNKNOWN ALCOHOL | 2.18 | 180 | J |
| 2. | UNKNOWN HYDROCARBON | 2.30 | 910 | J |
| 3. | UNKNOWN HYDROCARBON | 2.97 | 37000 | J |
| 4. | UNKNOWN HYDROCARBON | 3.30 | 75000 | J |
| 5. | UNKNOWN HYDROCARBON | 4.18 | 2900 | J |
| 6. | UNKNOWN HYDROCARBON | 4.42 | 530 | J |
| 7. | UNKNOWN KETONE | 4.80 | 280 | J |
| 8. | UNKNOWN ALCOHOL | 9.94 | 420 | J |
| 9. | UNKNOWN PHTHALATE | 21.99 | 210 | J |
| 10. | UNKNOWN CARBOXYLIC ACID ESTE | 29.16 | 180 | J |

7613422.0907
1B

18

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B01029

Lab Name: TMA/ARLI Contract: WESTINGHOUS

Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-03A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N17

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 6 dec. Date Extracted: 08/23/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> | Q |
|----------|------------------------------|--|---|
| 108-95-2 | Phenol | 32 | U |
| 62-53-3 | Aniline | 32 | U |
| 111-44-4 | bis(2-Chloroethyl) Ether | 32 | U |
| 95-57-8 | 2-Chlorophenol | 32 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 32 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 32 | U |
| 100-51-6 | Benzyl Alcohol | 32 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 32 | U |
| 95-48-7 | 2-Methylphenol | 32 | U |
| 108-60-1 | bis(2-Chloroisopropyl) Ether | 32 | U |
| 106-44-5 | 4-Methylphenol | 32 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 32 | U |
| 67-72-1 | Hexachloroethane | 32 | U |
| 98-95-3 | Nitrobenzene | 32 | U |
| 78-59-1 | Isophorone | 32 | U |
| 88-75-5 | 2-Nitrophenol | 32 | U |
| 105-67-9 | 2,4-Dimethylphenol | 32 | U |
| 65-85-0 | Benzoic Acid | 210 | U |
| 111-91-1 | bis(2-Chloroethoxy) Methane | 32 | U |
| 120-83-2 | 2,4-Dichlorophenol | 32 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 32 | U |
| 91-20-3 | Naphthalene | 32 | U |
| 106-47-8 | 4-Chloroaniline | 32 | U |
| 87-68-3 | Hexachlorobutadiene | 32 | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 32 | U |
| 91-57-6 | 2-Methylnaphthalene | 32 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 32 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 32 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 32 | U |
| 91-58-7 | 2-Chloronaphthalene | 32 | U |
| 88-74-4 | 2-Nitroaniline | 210 | U |
| 131-11-3 | Dimethyl Phthalate | 32 | U |
| 208-96-8 | Acenaphthylene | 32 | U |

9613422.0908
1C

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B01029

Lab Name: TMA/ARLI Contract: WESTINGHOUS

Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-03A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N17

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 6 dec. Date Extracted: 08/23/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91

GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO. COMPOUND Q

| | | | |
|----------------|-----------------------------|-----|---|
| 99-09-2----- | 3-Nitroaniline | 210 | U |
| 83-32-9----- | Acenaphthene | 32 | U |
| 51-28-5----- | 2,4-Dinitrophenol | 210 | U |
| 100-02-7----- | 4-Nitrophenol | 210 | U |
| 132-64-9----- | Dibenzofuran | 32 | U |
| 121-14-2----- | 2,4-Dinitrotoluene | 32 | U |
| 606-20-2----- | 2,6-Dinitrotoluene | 32 | U |
| 84-66-2----- | Diethylphthalate | 32 | U |
| 7005-72-3----- | 4-Chlorophenyl-phenylether | 32 | U |
| 86-73-7----- | Fluorene | 32 | U |
| 100-01-6----- | 4-Nitroaniline | 210 | U |
| 534-52-1----- | 4,6-Dinitro-2-methylphenol | 210 | U |
| 86-30-6----- | N-Nitrosodiphenylamine (1) | 33 | B |
| 101-55-3----- | 4-Bromophenyl-phenylether | 32 | U |
| 118-74-1----- | Hexachlorobenzene | 32 | U |
| 87-86-5----- | Pentachlorophenol | 210 | U |
| 85-01-8----- | Phenanthrene | 32 | U |
| 120-12-7----- | Anthracene | 32 | U |
| 84-74-2----- | Di-n-Butylphthalate | 76 | B |
| 206-44-0----- | Fluoranthene | 32 | U |
| 129-00-0----- | Pyrene | 32 | U |
| 85-68-7----- | Butylbenzylphthalate | 32 | U |
| 91-94-1----- | 3,3'-Dichlorobenzidine | 64 | U |
| 56-55-3----- | Benzo(a)anthracene | 32 | U |
| 117-81-7----- | bis(2-Ethylhexyl) Phthalate | 32 | U |
| 218-01-9----- | Chrysene | 32 | U |
| 117-84-0----- | Di-n-Octyl Phthalate | 32 | U |
| 205-99-2----- | Benzo(b)fluoranthene | 32 | U |
| 207-08-9----- | Benzo(k)fluoranthene | 32 | U |
| 50-32-8----- | Benzo(a)pyrene | 32 | U |
| 193-39-5----- | Indeno(1,2,3-cd)Pyrene | 32 | U |
| 53-70-3----- | Dibenz(a,h)Anthracene | 32 | U |
| 191-24-2----- | Benzo(g,h,i)perylene | 32 | U |

(1) - Cannot be separated from Diphenylamine

9613422.0909
IF

EPA SAMPLE NO. 20

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B01029

Lab Name: TMA/ARLI Contract: WESTINGHOUS
 Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-03A
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N17
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 6 dec. Date Extracted: 08/23/91
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91
 GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 1.00

Number TICs found: 9 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|------------------------------|-------|------------|---|
| 1. | UNKNOWN ALCOHOL | 1.90 | 1100 | J |
| 2. | UNKNOWN ALKENE | 2.05 | 500 | J |
| 3. | UNKNOWN HYDROCARBON | 3.13 | 160000 | J |
| 4. | UNKNOWN ALKANE | 3.22 | 890 | J |
| 5. | UNKNOWN HYDROCARBON | 4.10 | 2900 | J |
| 6. | UNKNOWN HYDROCARBON | 4.38 | 320 | J |
| 7. | UNKNOWN KETONE | 4.78 | 280 | J |
| 8. | UNKNOWN ALCOHOL | 9.94 | 430 | J |
| 9. | UNKNOWN CARBOXYLIC ACID ESTE | 29.14 | 210 | J |

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IB

2/
EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B01031

Lab Name: TMA/ARLI Contract: WESTINGHOUS

Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-04A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N18

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 7 dec. Date Extracted: 08/23/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> | Q |
|---------------|------------------------------|--|---|
| 108-95-2----- | Phenol | 32 | U |
| 62-53-3----- | Aniline | 32 | U |
| 111-44-4----- | bis(2-Chloroethyl) Ether | 32 | U |
| 95-57-8----- | 2-Chlorophenol | 32 | U |
| 541-73-1----- | 1,3-Dichlorobenzene | 32 | U |
| 106-46-7----- | 1,4-Dichlorobenzene | 32 | U |
| 100-51-6----- | Benzyl Alcohol | 32 | U |
| 95-50-1----- | 1,2-Dichlorobenzene | 32 | U |
| 95-48-7----- | 2-Methylphenol | 32 | U |
| 108-60-1----- | bis(2-Chloroisopropyl) Ether | 32 | U |
| 106-44-5----- | 4-Methylphenol | 32 | U |
| 621-64-7----- | N-Nitroso-Di-n-Propylamine | 32 | U |
| 67-72-1----- | Hexachloroethane | 32 | U |
| 98-95-3----- | Nitrobenzene | 32 | U |
| 78-59-1----- | Isophorone | 32 | U |
| 88-75-5----- | 2-Nitrophenol | 32 | U |
| 105-67-9----- | 2,4-Dimethylphenol | 32 | U |
| 65-85-0----- | Benzoic Acid | 220 | U |
| 111-91-1----- | bis(2-Chloroethoxy) Methane | 32 | U |
| 120-83-2----- | 2,4-Dichlorophenol | 32 | U |
| 120-82-1----- | 1,2,4-Trichlorobenzene | 32 | U |
| 91-20-3----- | Naphthalene | 32 | U |
| 106-47-8----- | 4-Chloroaniline | 32 | U |
| 87-68-3----- | Hexachlorobutadiene | 32 | U |
| 59-50-7----- | 4-Chloro-3-methylphenol | 32 | U |
| 91-57-6----- | 2-Methylnaphthalene | 32 | U |
| 77-47-4----- | Hexachlorocyclopentadiene | 32 | U |
| 88-06-2----- | 2,4,6-Trichlorophenol | 32 | U |
| 95-95-4----- | 2,4,5-Trichlorophenol | 32 | U |
| 91-58-7----- | 2-Chloronaphthalene | 32 | U |
| 88-74-4----- | 2-Nitroaniline | 220 | U |
| 131-11-3----- | Dimethyl Phthalate | 32 | U |
| 208-96-8----- | Acenaphthylene | 32 | U |

1613422 0911
IC

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B01031

Lab Name: TMA/ARLI Contract: WESTINGHOUS

Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-04A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N18

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 7 dec. Date Extracted: 08/23/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO. COMPOUND Q

| | | | |
|----------------|-----------------------------|-----|----|
| 99-09-2----- | 3-Nitroaniline | 220 | U |
| 83-32-9----- | Acenaphthene | 32 | U |
| 51-28-5----- | 2,4-Dinitrophenol | 220 | U |
| 100-02-7----- | 4-Nitrophenol | 220 | U |
| 132-64-9----- | Dibenzofuran | 32 | U |
| 121-14-2----- | 2,4-Dinitrotoluene | 32 | U |
| 606-20-2----- | 2,6-Dinitrotoluene | 32 | U |
| 84-66-2----- | Diethylphthalate | 32 | U |
| 7005-72-3----- | 4-Chlorophenyl-phenylether | 32 | U |
| 86-73-7----- | Fluorene | 32 | U |
| 100-01-6----- | 4-Nitroaniline | 220 | U |
| 534-52-1----- | 4,6-Dinitro-2-methylphenol | 220 | U |
| 86-30-6----- | N-Nitrosodiphenylamine (1) | 32 | U |
| 101-55-3----- | 4-Bromophenyl-phenylether | 32 | U |
| 118-74-1----- | Hexachlorobenzene | 32 | U |
| 87-86-5----- | Pentachlorophenol | 220 | U |
| 85-01-8----- | Phenanthrene | 32 | U |
| 120-12-7----- | Anthracene | 32 | U |
| 84-74-2----- | Di-n-Butylphthalate | 55 | B |
| 206-44-0----- | Fluoranthene | 32 | U |
| 129-00-0----- | Pyrene | 32 | U |
| 85-68-7----- | Butylbenzylphthalate | 32 | U |
| 91-94-1----- | 3,3'-Dichlorobenzidine | 64 | U |
| 56-55-3----- | Benzo(a)anthracene | 32 | U |
| 117-81-7----- | bis(2-Ethylhexyl) Phthalate | 13 | BJ |
| 218-01-9----- | Chrysene | 32 | U |
| 117-84-0----- | Di-n-Octyl Phthalate | 32 | U |
| 205-99-2----- | Benzo(b)fluoranthene | 32 | U |
| 207-08-9----- | Benzo(k)fluoranthene | 32 | U |
| 50-32-8----- | Benzo(a)pyrene | 32 | U |
| 193-39-5----- | Indeno(1,2,3-cd) Pyrene | 32 | U |
| 53-70-3----- | Dibenz(a,h)Anthracene | 32 | U |
| 191-24-2----- | Benzo(g,h,i)perylene | 32 | U |

(1) - Cannot be separated from Diphenylamine

9613422-0912
IF

23

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B01031

Lab Name: TMA/ARLI Contract: WESTINGHOUS
 Lab Code: TMALA Case No.: 08116S SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-04A
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0826N18
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 7 dec. Date Extracted: 08/23/91
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/27/91
 GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.00

Number TICs found: 10 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|------------|------------------------------|-------|------------|---|
| 1. | UNKNOWN HYDROCARBON | 1.92 | 860 | J |
| 2. | UNKNOWN ALKENE | 2.10 | 750 | J |
| 3. | UNKNOWN HYDROCARBON | 3.15 | 140000 | J |
| 4. | UNKNOWN HYDROCARBON | 3.23 | 1100 | J |
| 5. | UNKNOWN HYDROCARBON | 4.10 | 3100 | J |
| 6. | UNKNOWN HYDROCARBON | 4.40 | 470 | J |
| 7. | UNKNOWN KETONE | 4.78 | 210 | J |
| 8. | UNKNOWN ALCOHOL | 9.95 | 430 | J |
| 9. | UNKNOWN PHTHALATE | 21.99 | 210 | J |
| 10. | UNKNOWN CARBOXYLIC ACID ESTE | 29.14 | 180 | J |

9613422-0913
ID

24
EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B01025

Lab Name: TMA/ARLI Contract: WESTINGHOUS
 Lab Code: TMALA Case No.: 08116P SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-01A
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 8 dec. _____ Date Extracted: 08/23/91
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/28/91
 GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1.00

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

| | | | |
|------------|---------------------|-----|---|
| 319-84-6 | alpha-BHC | 8.7 | U |
| 319-85-7 | beta-BHC | 8.7 | U |
| 319-86-8 | delta-BHC | 8.7 | U |
| 58-89-9 | gamma-BHC (Lindane) | 8.7 | U |
| 76-44-8 | Heptachlor | 8.7 | U |
| 309-00-2 | Aldrin | 8.7 | U |
| 1024-57-3 | Heptachlor epoxide | 8.7 | U |
| 959-98-8 | Endosulfan I | 8.7 | U |
| 60-57-1 | Dieldrin | 17 | U |
| 72-55-9 | 4,4'-DDE | 17 | U |
| 72-20-8 | Endrin | 17 | U |
| 33213-65-9 | Endosulfan II | 17 | U |
| 72-54-8 | 4,4'-DDD | 17 | U |
| 1031-07-8 | Endosulfan sulfate | 17 | U |
| 50-29-3 | 4,4'-DDT | 17 | U |
| 72-43-5 | Methoxychlor | 87 | U |
| 53494-70-5 | Endrin ketone | 17 | U |
| 5103-71-9 | alpha-Chlordane | 87 | U |
| 5103-74-2 | gamma-Chlordane | 87 | U |
| 8001-35-2 | Toxaphene | 170 | U |
| 12674-11-2 | Aroclor-1016 | 87 | U |
| 11104-28-2 | Aroclor-1221 | 87 | U |
| 11141-16-5 | Aroclor-1232 | 87 | U |
| 53469-21-9 | Aroclor-1242 | 87 | U |
| 12672-29-6 | Aroclor-1248 | 87 | U |
| 11097-69-1 | Aroclor-1254 | 170 | U |
| 11096-82-5 | Aroclor-1260 | 170 | U |

1613422-0914
1D

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B01027

Lab Name: TMA/ARLI Contract: WESTINGHOUS

Lab Code: TMALA Case No.: 08116P SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A108116-02A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 08/17/91

% Moisture: not dec. 5 dec. Date Extracted: 08/23/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/28/91

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> | Q |
|------------|---------------------|--|---|
| 319-84-6 | alpha-BHC | 8.4 | U |
| 319-85-7 | beta-BHC | 8.4 | U |
| 319-86-8 | delta-BHC | 8.4 | U |
| 58-89-9 | gamma-BHC (Lindane) | 8.4 | U |
| 76-44-8 | Heptachlor | 8.4 | U |
| 309-00-2 | Aldrin | 8.4 | U |
| 1024-57-3 | Heptachlor epoxide | 8.4 | U |
| 959-98-8 | Endosulfan I | 8.4 | U |
| 60-57-1 | Dieldrin | 17 | U |
| 72-55-9 | 4,4'-DDE | 17 | U |
| 72-20-8 | Endrin | 17 | U |
| 33213-65-9 | Endosulfan II | 17 | U |
| 72-54-8 | 4,4'-DDD | 17 | U |
| 1031-07-8 | Endosulfan sulfate | 17 | U |
| 50-29-3 | 4,4'-DDT | 17 | U |
| 72-43-5 | Methoxychlor | 84 | U |
| 53494-70-5 | Endrin ketone | 17 | U |
| 5103-71-9 | alpha-Chlordane | 84 | U |
| 5103-74-2 | gamma-Chlordane | 84 | U |
| 8001-35-2 | Toxaphene | 170 | U |
| 12674-11-2 | Aroclor-1016 | 84 | U |
| 11104-28-2 | Aroclor-1221 | 84 | U |
| 11141-16-5 | Aroclor-1232 | 84 | U |
| 53469-21-9 | Aroclor-1242 | 84 | U |
| 12672-29-6 | Aroclor-1248 | 84 | U |
| 11097-69-1 | Aroclor-1254 | 170 | U |
| 11096-82-5 | Aroclor-1260 | 170 | U |

7613422.0915
1D

EPA SAMPLE NO. 26

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B01029

Lab Name: TMA/ARLI Contract: WESTINGHOUS
 Lab Code: TMALA Case No.: 08116P SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-03A
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 6 dec. _____ Date Extracted: 08/23/91
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/28/91
 GPC Cleanup: (Y/N) N pH: 8.5 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO. COMPOUND Q

| | | | |
|------------|---------------------|-----|---|
| 319-84-6 | alpha-BHC | 8.5 | U |
| 319-85-7 | beta-BHC | 8.5 | U |
| 319-86-8 | delta-BHC | 8.5 | U |
| 58-89-9 | gamma-BHC (Lindane) | 8.5 | U |
| 76-44-8 | Heptachlor | 8.5 | U |
| 309-00-2 | Aldrin | 8.5 | U |
| 1024-57-3 | Heptachlor epoxide | 8.5 | U |
| 959-98-8 | Endosulfan I | 8.5 | U |
| 60-57-1 | Dieldrin | 17 | U |
| 72-55-9 | 4,4'-DDE | 17 | U |
| 72-20-8 | Endrin | 17 | U |
| 33213-65-9 | Endosulfan II | 17 | U |
| 72-54-8 | 4,4'-DDD | 17 | U |
| 1031-07-8 | Endosulfan sulfate | 17 | U |
| 50-29-3 | 4,4'-DDT | 17 | U |
| 72-43-5 | Methoxychlor | 85 | U |
| 53494-70-5 | Endrin ketone | 17 | U |
| 5103-71-9 | alpha-Chlordane | 85 | U |
| 5103-74-2 | gamma-Chlordane | 85 | U |
| 8001-35-2 | Toxaphene | 170 | U |
| 12674-11-2 | Aroclor-1016 | 85 | U |
| 11104-28-2 | Aroclor-1221 | 85 | U |
| 11141-16-5 | Aroclor-1232 | 85 | U |
| 53469-21-9 | Aroclor-1242 | 85 | U |
| 12672-29-6 | Aroclor-1248 | 85 | U |
| 11097-69-1 | Aroclor-1254 | 170 | U |
| 11096-82-5 | Aroclor-1260 | 170 | U |

9613422-0916
ID

EPA SAMPLE NO. 21

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B01031

Lab Name: TMA/ARLI Contract: WESTINGHOUS
 Lab Code: TMALA Case No.: 08116P SAS No.: NA SDG No.: NA
 Matrix: (soil/water) SOIL Lab Sample ID: A108116-04A
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____
 Level: (low/med) LOW Date Received: 08/17/91
 % Moisture: not dec. 7 dec. Date Extracted: 08/23/91
 Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/28/91
 GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.00

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

| | | | |
|------------|---------------------|-----|---|
| 319-84-6 | alpha-BHC | 8.6 | U |
| 319-85-7 | beta-BHC | 8.6 | U |
| 319-86-8 | delta-BHC | 8.6 | U |
| 58-89-9 | gamma-BHC (Lindane) | 8.6 | U |
| 76-44-8 | Heptachlor | 8.6 | U |
| 309-00-2 | Aldrin | 8.6 | U |
| 1024-57-3 | Heptachlor epoxide | 8.6 | U |
| 959-98-8 | Endosulfan I | 8.6 | U |
| 60-57-1 | Dieldrin | 17 | U |
| 72-55-9 | 4,4'-DDE | 17 | U |
| 72-20-8 | Endrin | 17 | U |
| 33213-65-9 | Endosulfan II | 17 | U |
| 72-54-8 | 4,4'-DDD | 17 | U |
| 1031-07-8 | Endosulfan sulfate | 17 | U |
| 50-29-3 | 4,4'-DDT | 17 | U |
| 72-43-5 | Methoxychlor | 86 | U |
| 53494-70-5 | Endrin ketone | 17 | U |
| 5103-71-9 | alpha-Chlordane | 86 | U |
| 5103-74-2 | gamma-Chlordane | 86 | U |
| 8001-35-2 | Toxaphene | 170 | U |
| 12674-11-2 | Aroclor-1016 | 86 | U |
| 11104-28-2 | Aroclor-1221 | 86 | U |
| 11141-16-5 | Aroclor-1232 | 86 | U |
| 53469-21-9 | Aroclor-1242 | 86 | U |
| 12672-29-6 | Aroclor-1248 | 86 | U |
| 11097-69-1 | Aroclor-1254 | 170 | U |
| 11096-82-5 | Aroclor-1260 | 170 | U |

Form Initiator C.E. Heiden 12613422.0917

COPY 50

Company Contact Richard Roos

Telephone 376-9218

Project Designation/Sampling Locations 300 Area Access Trenches

Collection Date 8/15/91

Ice Chest No. ~~111~~ ~~112~~ ~~113~~ #86

Field Logbook No. WHC-N-527

Bill of Lading/Airbill No. _____

Offsite Property No. 13637

Method of Shipment Federal Express

Shipped to Thermo Analytical - NORCAL

Possible Sample Hazards/Remarks _____

Sample Identification

B01025

B01027

B01039

B01031

Soil

Field Transfer of Custody

CHAIN OF POSSESSION

(Sign and Print Names)

Relinquished by: C.E. Heiden
C. Heiden 8/16/91

Received by: Kermit Blum

Date/Time: 8-17-91 1050

Relinquished by:

Received by:

Date/Time:

Relinquished by:

Received by:

Date/Time:

Relinquished by:

Received by:

Date/Time:

Final Sample Disposition

Disposal Method:

Disposed by:

Date/Time:

Comments:

TMA**Thermo Analytical Inc.**

9613422.0919

Skinner & Sherman Laboratories Inc.

300 Second Avenue

Post Office Box 521

Waltham, MA 02254-0521

(617) 890-7200 • FAX (617) 890-3883

Federal Express 3313258524
September 24, 1991TMA/ARLI
160 Taylor Street
Monrovia, CA 91016
Attention: Dennis WellsQuality Control NarrativeScope

Four (4) soil samples were submitted to TMA/Skinner & Sherman Laboratories, Inc. on August 20, 1991 from Westinghouse Hanford Company. The sample was analyzed for the USEPA CLP metals. The analysis was performed under Skinner and Sherman work order 9108209.

Methodology

The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88 (CLP SOW788).

Discussion

All quality control requirements were met for the samples.

Please feel free to call if there are any questions concerning the data package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manageri MC
6-6-95

1
INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B01025

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N1-08-119SAS No.: SDG No.: B01025

Matrix (soil/water): SOIL Lab Sample ID: 08209-01S

Level (low/med): LOW Date Received: 08/20/91

% Solids: 93.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

| CAS No. | Analyte | Concentration | C | Q | M |
|---------|---------|---------------|---|---|----|
| | Cyanide | 4.90 | U | | AS |

Color Before: GREY

Clarity Before:

Texture: COARSE

Color After: GREY

Clarity After:

Artifacts: YES

Comments:

STONES

1
INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B01027

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N1-08-119SAS No.: SDG No.: B01025

Matrix (soil/water): SOIL Lab Sample ID: 08209-025

Level (low/med): LOW Date Received: 08/20/91

% Solids: 94.7

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

| CAS No. | Analyte | Concentration | C | Q | M |
|---------|---------|---------------|---|---|----|
| | Cyanide | 4.90 | U | | AS |

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts: YES

Comments:

STONES

1
INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B01029

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N1-08-119SAS No.: SDG No.: B01025

Matrix (soil/water): SOIL Lab Sample ID: 08209-03S

Level (low/med): LOW Date Received: 08/20/91

% Solids: 92.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

| CAS No. | Analyte | Concentration | C | Q | M |
|---------|---------|---------------|---|---|----|
| | Cyanide | 4.90 | U | | AS |

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts: YES

Comments:

STONES

1
INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B01031

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N1-08-119SAS No.: SDG No.: B01025

Matrix (soil/water): SOIL Lab Sample ID: 08209-045

Level (low/med): LOW Date Received: 08/20/91

% Solids: 93.4

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

| CAS No. | Analyte | Concentration | C | Q | M |
|---------|---------|---------------|---|---|----|
| | Cyanide | 4.90 | U | | AS |

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts: YES

Comments:

STONES

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE

AIRBILL PACKAGE TRACKING NUMBER

6844394395

6844394395

RECIPIENT'S COPY

Date: 6-19-91

From (Your Name) Please Print: *Company Control*
 Company: TMA / NORCAL
 Street Address: 2030 WRIGHT AVE
 City: RICHMOND CA State: CA ZIP Required: 94004

Your Phone Number (Very Important): (415) 235-2633
 Department/Floor No.:
 To (Recipient's Name) Please Print: *Sample Control*
 Company: TMA / SHANNON
 Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes): 300 Second Ave
 City: Waltham MA State: MA ZIP Required: 02154

Recipient's Phone Number (Very Important): (617) 291-1224
 Department/Floor No.:

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)

IF HOLD FOR PICK-UP, Print FEDEX Address Here
 Street Address:
 City: State: ZIP Required:

PAYMENT 1 Bill Sender 2 Bill Recipient's FedEx Acct. No. 3 Bill 3rd Party FedEx Acct. No. 4 Bill Credit Card
 5 Cash

| SERVICES (Check only one box) | | DELIVERY AND SPECIAL HANDLING | | PACKAGES | WEIGHT In Pounds Only | YOUR DECLARED VALUE | OVER SIZE | Emp. No. | Date | Federal Express Use |
|---|---|---|---|----------|-----------------------------|------------------------|--------------|--|------|--|
| Priority Overnight Service (Delivery by next business morning!) | Standard Overnight Service (Delivery by next business afternoon!) | 1 <input type="checkbox"/> HOLD FOR PICK-UP (if in Box #) | 2 <input checked="" type="checkbox"/> DELIVER WEEKDAY | | | | | <input type="checkbox"/> Cash Received | | Express Charges |
| 11 <input type="checkbox"/> YOUR PACKAGING 51 <input type="checkbox"/> | 16 <input type="checkbox"/> FEDEX LETTER 56 <input type="checkbox"/> FEDEX LETTER | 3 <input type="checkbox"/> DELIVER SATURDAY (Extra charge) <small>(Not available in all locations)</small> | 4 <input type="checkbox"/> DANGEROUS GOODS (Extra charge) <small>(CSS not available for Dangerous Goods Shipments)</small> | 1 | | | | <input type="checkbox"/> Return Shipment | | Declared Value Charge |
| 12 <input type="checkbox"/> FEDEX PAK 62 <input type="checkbox"/> FEDEX PAK | 13 <input type="checkbox"/> FEDEX BOX 53 <input type="checkbox"/> FEDEX BOX | 5 <input type="checkbox"/> CONSTANT SURVEILLANCE SVC. (CSS) <small>(Extra charge) (Please Signatures Not Applicable)</small> | 6 <input type="checkbox"/> DRY ICE <small>Lib</small> | Total | 35 | Total | | <input type="checkbox"/> Third Party <input type="checkbox"/> Chg. To Del. <input type="checkbox"/> Chg. To Hold | | Other 1 |
| 14 <input type="checkbox"/> FEDEX TUBE 54 <input type="checkbox"/> FEDEX TUBE | Economy Service (formerly Standard Air) (Delivery by second business day!) | 7 <input type="checkbox"/> OTHER SPECIAL SERVICE | 8 <input type="checkbox"/> | | | | | Street Address | | Other 2 |
| 30 <input type="checkbox"/> ECONOMY SERVICE | Heavyweight Service (for Extra Large or any package over 150 lbs.) | 9 <input type="checkbox"/> SATURDAY PICK-UP (Extra charge) | 10 <input type="checkbox"/> | | | | | City State Zip | | Initial Charges |
| | 70 <input type="checkbox"/> HEAVYWEIGHT ** | 11 <input type="checkbox"/> | 12 <input type="checkbox"/> HOLIDAY DELIVERY (if allowed) (Extra charge) | | | | | Received By | | REVISION DATE 11/90 PART NUMBER PREM FORMAT 8014 |
| | 80 <input type="checkbox"/> DEFERRED HEAVYWEIGHT ** | | | | | | | Date/TIME Received | | 014 |
| | *Declared Value Limit \$100 **Call for delivery schedule. | | | | | | | FedEx Employee Number | | |
| | | | | | | | | Received At | | |
| | | | | | | | | 1 <input type="checkbox"/> Regular Stop 3 <input type="checkbox"/> Drop Box | | |
| | | | | | | | | 2 <input type="checkbox"/> On-Call Shop 4 <input type="checkbox"/> BSC | | |
| | | | | | | | | 5 <input type="checkbox"/> Station | | |
| | | | | | | | | Release Signature | | |
| | | | | | | | | Date/Time | | |
| | | | | | | | | | | |

000032

9613422.0924

CASE SUMMARY
INORGANIC/METALS DATA

CASE NO. 08-116



SCOPE

Four soil samples were analyzed for USEPA CLP metals.

METHODOLOGY

The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88 (CLP SOW788).

DISCUSSION

Priority analysis of the metals was performed at TMA/ARLI and priority analysis of the Cyanide was performed at TMA/SKINNER & SHERMAN. Separate data packages have been presented for each set of results. The following commentary refers only to the metals results.

Amounts of Copper and Nickel were found above the CRDL in the reagent blank due to residual release of metal from acid leaching of metal from the nebulizer pin in the ICP.

TMA/ARLI does not have access to the USEPA Solid Laboratory Control Sample. TMA/ARLI uses a standard soil that it purchases from the NBS for its lab control. A copy of the description of this sample is attached. The control limits expressed have been developed in house by applying three sigma to the average of a statistical population of results performed at TMA/ARLI.

Control limits for Al, Be, As, Mg, Hg, Ni, K, Ag, Th, and V have not yet been established.

Due to priority time frame constraints method of standard additions was not used for furnace metals.

Dennis D. Wells
Laboratory Manager

Instructions for Drying: When nonvolatile elements are to be determined, samples should be dried for 2 hours at 110 °C. Volatile elements (i.e., Hg, As, Se) should be determined on samples as received; separate samples should be dried as previously described to obtain a correction factor for moisture. Correction for moisture is to be made to the data for volatile elements before comparing to the certified values. This procedure, which was used for the certification of volatile elements, ensures that these elements are not lost during drying. The approximate weight loss on drying has been found to be 0.8%.

Source and Preparation of Material: The river sediment for this SRM was collected from the Buffalo River in the area of the Ohio Street Bridge, Buffalo, N.Y. The U.S. Army Corps of Engineers, under contract to NIST, collected and screened approximately 908 kg of river sediment and placed it in six 55-gallon, Teflon-lined drums. The drums were loaded onto a refrigerated truck and transported to the Technimed Corporation, Fort Lauderdale, FL for freeze-drying of the contents. The freeze-dried sediment was shipped to an NIST contractor's laboratory where it was screened and passed through a 100 mesh sieve (nominal sieve opening of 150 μm) and retained on a 400 mesh sieve (nominal sieve opening of 38 μm). The sieved sediment was returned to NIST, radiation sterilized, blended, and bottled into 50-g units.

Analysis: The homogeneity of the bottled units was assessed using x-ray fluorescence spectrometry. Duplicate one gram samples from 8 randomly selected bottles were analyzed for the following elements: Al, Si, K, Ca, Ti, Fe, Zn, Sr, P, Mn, Rb, and Zr. No statistically significant differences in the composition of samples within or between bottles were observed relative to the uncertainty of the XRF measurements, which is less than 0.4%. Sample inhomogeneity of about 4% for lead was observed in measurements on 250 mg samples by thermal-ionization isotope dilution mass spectrometry. Sample inhomogeneity for lead is reflected in the uncertainty limits placed on the certified value for lead.

Table 1. Certified Values

| <u>Element</u> | <u>Wt. %</u> | <u>Element</u> | <u>Wt. %</u> |
|----------------|---------------|----------------|-----------------|
| Aluminum | 6.11 ± 0.16 | Phosphorus | 0.0998 ± 0.0028 |
| Calcium | 2.60 ± 0.03 | Potassium | 2.00 ± 0.04 |
| Carbon | 3.348 ± 0.016 | Silicon | 29.08 ± 0.13 |
| Iron | 4.11 ± 0.10 | Sodium | 0.547 ± 0.014 |
| Magnesium | 1.20 ± 0.02 | Sulfur | 0.397 ± 0.004 |
| | | Titanium | 0.457 ± 0.018 |

| <u>Element</u> | <u>μg/g</u> | <u>Element</u> | <u>μg/g</u> |
|----------------|-------------|----------------|-------------|
| Antimony | 3.79 ± 0.15 | Manganese | 555 ± 19 |
| Arsenic | 23.4 ± 0.8 | Mercury | 1.47 ± 0.07 |
| Barium | 414 ± 12 | Nickel | 44.1 ± 3.0 |
| Cadmium | 3.45 ± 0.22 | Selenium | 1.12 ± 0.05 |
| Chromium | 135 ± 5 | Thallium | 1.06 ± 0.07 |
| Cobalt | 14.0 ± 0.6 | Uranium | 3.13 ± 0.13 |
| Copper | 98.6 ± 5.0 | Vanadium | 95 ± 4 |
| Lead | 161 ± 17 | Zinc | 438 ± 12 |
| Lithium | 47.5 ± 4.1 | | |

Certified Values and Uncertainty: The certified values are weighted means of results from two or more analytical methods. The weights for the weighted means were computed according to the iterative procedure of Paule and Mandel (NBS Journal of Research 87, 1982, pp. 377-385). Each uncertainty is obtained from a 95% prediction interval plus an allowance for systematic error among the methods used. The allowance for systematic error is equal to the greatest difference between the weighted mean (certified value) and the component means for the analytical methods used. In the absence of systematic error, the resulting uncertainty limits will cover the concentration of approximately 95% of all samples of this SRM having a minimum size of 250 mg.

19613422.0927

WESTINGHOUSE/HANFORD

3

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Lab Name: TMA/ARLI

Lab Code: TMAARL

Case No: 08-116

WHC Sample Number

Lab Sample ID

B01025

A1-08-116-01C

B01027

A1-08-116-02C

B01027D

A1-08-116-02CD

B01029

A1-08-116-03C

B01031

A1-08-116-04C

B01031S

A1-08-116-04CS

Where Interelement corrections applied?

Yes/No Yes

Were ICP background corrections applied?

Yes/No No

If yes-were raw data generated before application of background corrections?

Yes/No No

Comments: _____

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 the hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, As verified by the following signature.

Signature: *Dennis D. Wells*

Name: Dennis D. Wells

Date: 10/5/91

Title: Laboratory Manager

WHC - CLP
1
INORGANIC ANALYSIS DATA SHEET

Lab Name: TMA ARLI Contract: WHC WHC Sample No.: B01025
 Lab Code: TMAARL Case No.: 08-116 Lab Sample ID: 01C
 Matrix (soil/water): soil Date Received : 8/17/91
 % Solids: 91.5

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg dry

| CAS No. | Analyte | Concentration | C | Q | M |
|-----------|-----------|---------------|---|---|----|
| 7429-90-5 | Aluminum | 3339 | | | P |
| 7440-36-0 | Antimony | 1.07 | U | N | P |
| 7440-38-2 | Arsenic | 0.90 | | | F |
| 7440-39-3 | Barium | 84.3 | | | P |
| 7440-41-7 | Beryllium | 0.1 | U | | P |
| 7440-43-9 | Cadmium | 0.39 | B | | P |
| 7440-70-2 | Calcium | 4064 | | | P |
| 7440-47-3 | Chromium | 0.3 | U | | P |
| 7440-48-4 | Cobalt | 6.9 | | | P |
| 7440-50-8 | Copper | 111 | | | P |
| 7439-89-6 | Iron | 15,180 | | | P |
| 7439-92-1 | Lead | 1.3 | | | F |
| 7439-95-4 | Magnesium | 3166 | | | P |
| 7439-96-5 | Manganese | 178 | | | P |
| 7439-97-6 | Mercury | 0.07 | | | CV |
| 7440-02-0 | Nickel | 9.4 | | | P |
| 7440-09-7 | Potassium | 308 | | | F |
| 7782-49-2 | Selenium | 0.22 | U | | F |
| 7440-22-4 | Silver | 0.94 | B | | P |
| 7440-23-5 | Sodium | 175 | | | P |
| 7440-28-0 | Thallium | 0.22 | U | | F |
| 7440-62-2 | Vanadium | 12.0 | | | P |
| 7440-66-6 | Zinc | 39.8 | | N | P |
| | Cyanide | 11 | U | | |

Comments:

Color Before - Grey Texture - Medium
 Color After - Grey Artifacts - Yes

WHC - CLP
1
INORGANIC ANALYSIS DATA SHEET

Lab Name: TMA ARLI Contract: WHC WHC Sample No.: B01027
 Lab Code: TMAARL Case No.: 08-116 Lab Sample ID: 02C
 Matrix (soil/water): soil Date Received : 8/17/91
 % Solids: 92.1

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg dry

| CAS No. | Analyte | Concentration | C | Q | M |
|-----------|-----------|---------------|---|---|----|
| 7429-90-5 | Aluminum | 2980 | | | P |
| 7440-36-0 | Antimony | 0.26 | U | N | P |
| 7440-38-2 | Arsenic | 0.76 | | | F |
| 7440-39-3 | Barium | 73.0 | | | P |
| 7440-41-7 | Beryllium | 0.1 | U | | P |
| 7440-43-9 | Cadmium | 0.24 | B | | P |
| 7440-70-2 | Calcium | 3915 | | | P |
| 7440-47-3 | Chromium | -1.26 | U | | P |
| 7440-48-4 | Cobalt | 6.6 | | | P |
| 7440-50-8 | Copper | 75.4 | | | P |
| 7439-89-6 | Iron | 13,388 | | | P |
| 7439-92-1 | Lead | 1.53 | | | F |
| 7439-95-4 | Magnesium | 2851 | | | P |
| 7439-96-5 | Manganese | 231 | | | P |
| 7439-97-6 | Mercury | 0.07 | | | CV |
| 7440-02-0 | Nickel | 9.9 | | | P |
| 7440-09-7 | Potassium | 275 | | | F |
| 7782-49-2 | Selenium | 0.22 | U | | F |
| 7440-22-4 | Silver | 2.28 | B | | P |
| 7440-23-5 | Sodium | 126 | | | P |
| 7440-28-0 | Thallium | 0.22 | U | | F |
| 7440-62-2 | Vanadium | 11.4 | | | P |
| 7440-66-6 | Zinc | 45.7 | | N | P |
| | Cyanide | 11 | U | | |

Comments:

Color Before - Grey Texture - Medium
 Color After - Grey Artifacts - Yes

WHC - CLP
1
INORGANIC ANALYSIS DATA SHEET

Lab Name: TMA ARLI Contract: WHC WHC Sample No.: B01029
 Lab Code: TMAARL Case No.: 08-116 Lab Sample ID: 03C
 Matrix (soil/water): soil Date Received : 8/17/91
 % Solids: 94.1

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg dry

| CAS No. | Analyte | Concentration | C | Q | M |
|-----------|-----------|---------------|---|---|----|
| 7429-90-5 | Aluminum | 2,906 | | | P |
| 7440-36-0 | Antimony | 1.4 | U | N | P |
| 7440-38-2 | Arsenic | 0.74 | | | F |
| 7440-39-3 | Barium | 47.6 | | | P |
| 7440-41-7 | Beryllium | 0.17 | B | | P |
| 7440-43-9 | Cadmium | 0.04 | U | | P |
| 7440-70-2 | Calcium | 3,234 | | | P |
| 7440-47-3 | Chromium | 0.3 | U | | P |
| 7440-48-4 | Cobalt | 5.2 | | | P |
| 7440-50-8 | Copper | 19.3 | | | P |
| 7439-89-6 | Iron | 10,468 | | | P |
| 7439-92-1 | Lead | 1.49 | | | F |
| 7439-95-4 | Magnesium | 2,387 | | | P |
| 7439-96-5 | Manganese | 159.5 | | | P |
| 7439-97-6 | Mercury | 0.07 | | | CV |
| 7440-02-0 | Nickel | 16.7 | | | P |
| 7440-09-7 | Potassium | 218 | | | F |
| 7782-49-2 | Selenium | 0.21 | U | | F |
| 7440-22-4 | Silver | 43.2 | | | P |
| 7440-23-5 | Sodium | 190 | | | P |
| 7440-28-0 | Thallium | 0.21 | U | | F |
| 7440-62-2 | Vanadium | 9.7 | | | P |
| 7440-66-6 | Zinc | 21.1 | | N | P |
| | Cyanide | 11 | U | | |

Comments:

Color Before - Grey Texture - Medium
Color After - Grey Artifacts - Yes

WHC - CLP
1
INORGANIC ANALYSIS DATA SHEET

Lab Name: TMA ARLI Contract: WHC WHC Sample No.: B01031
 Lab Code: TMAARL Case No.: 08-116 Lab Sample ID: 04C
 Matrix (soil/water): soil Date Received : 8/17/91
 % Solids : 93.1

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg dry

| CAS No. | Analyte | Concentration | C | Q | M |
|-----------|-----------|---------------|---|---|----|
| 7429-90-5 | Aluminum | 2,314 | | | P |
| 7440-36-0 | Antimony | 2.18 | B | N | P |
| 7440-38-2 | Arsenic | 0.83 | | | F |
| 7440-39-3 | Barium | 51.3 | | | P |
| 7440-41-7 | Beryllium | 0.14 | B | | P |
| 7440-43-9 | Cadmium | 0.16 | U | | P |
| 7440-70-2 | Calcium | 3,090 | | | P |
| 7440-47-3 | Chromium | 0.3 | U | | P |
| 7440-48-4 | Cobalt | 4.9 | | | P |
| 7440-50-8 | Copper | 15.5 | | | P |
| 7439-89-6 | Iron | 10,186 | | | P |
| 7439-92-1 | Lead | 1.43 | | | F |
| 7439-95-4 | Magnesium | 2,017 | | | P |
| 7439-96-5 | Manganese | 294.5 | | | P |
| 7439-97-6 | Mercury | 0.01 | | | CV |
| 7440-02-0 | Nickel | 6.0 | | | P |
| 7440-09-7 | Potassium | 2.89 | | | F |
| 7782-49-2 | Selenium | 0.21 | U | | F |
| 7440-22-4 | Silver | 0.24 | | | P |
| 7440-23-5 | Sodium | 120 | | | P |
| 7440-28-0 | Thallium | 0.21 | U | | F |
| 7440-62-2 | Vanadium | 8.8 | | | P |
| 7440-66-6 | Zinc | 24.5 | | N | P |
| | Cyanide | 11 | U | | |

Comments:

Color Before - Grey Texture - Medium
 Color After - Grey Artifacts - Yes

TMA LABORATORY

| <u>Analysis</u> | <u>Method</u> | <u>DL</u> | <u>Preservative</u> | <u>Volume/Container</u> | <u>Cost/sample</u> |
|--------------------|----------------|-----------------|---------------------|--------------------------------|--------------------|
| 1. VOA | CLP | CRDL | None | 200g/Voa Vial | 600 |
| 2. Semi-VOA | CLP | CRDL | None | 500ml/aG † | 1140 |
| 3. Pest/PCBs | CLP | CRDL | None | † | 410 |
| 4. ICP metals(1) | CLP | CRDL | None | 1000ml/G † | 250 |
| 5. GFAA metals(2) | CLP | CRDL | None | † | 290 |
| 6. Mercury CV | CLP | CRDL | None | † | 88 |
| 7. CN | CLP | CRDL | None | † | 100 |
| 8. Gamma Scan | TMA SOP | 0.01pCi/g | None | 1000ml/G † | 380 |
| 9. Tc 99 | TMA SOP | 0.5 pCi/g | None | † | 540 |
| 10. Sr90 | TMA SOP | 0.46pCi/g | None | † | 456 # |
| 11. Total U | TMA SOP | 1.0 pCi/g | None | † | 140 |
| 12. Gross Alpha | TMA SOP | 3.5 pCi/g | None | † | 200 |
| 13. U isotopes | TMA SOP | 0.08pCi/g | None | † | 430 |
| 14. Pu238/239/240 | TMA SOP | 0.5 pCi/g | None | † | 430 |
| 15. Gross Beta | TMA SOP | 2.1pCi/g | None | † | 200 |
| 16. TMA | CLP | CRDL | None | 500ml/aG (1000ml/G) | 1140 |

(~~1000ml/G composite sample only~~)

(G = Glass, a = amber)

†Total volume needed for all analysis noted.

(1)Includes - Ag, Al, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Sb, V, Zn

(2)Includes - As, Pb, Se, Tl

#Priority turnaround 20 days

Custody Form Initiator C.E. Heiden

Company Contact Richard Roos

Telephone 376-9218

Project Designation/Sampling Locations 300 Area Process Trenches

Collection Date 8/15/91

Ice Chest No. ~~134~~ ~~135~~ #66

Field Logbook No. WHC-N-527

Bill of Lading/Airbill No. _____

RSR
Offsite Property No. 13637

Method of Shipment Federal Express

Shipped to Thermo Analytical - NORCAL

Possible Sample Hazards/Remarks _____

Sample Identification

BC1025
BC1027
BC1029 } Soil
BC1031

Field Transfer of Custody

CHAIN OF POSSESSION

(Sign and Print Names)

Relinquished by: C.E. Heiden
C.E. Heiden 8/10/91

Received by: Kermit Blum

Date/Time: 8-17-91 1050

Relinquished by:

Received by:

Date/Time:

Relinquished by:

Received by:

Date/Time:

Relinquished by:

Received by:

Date/Time:

Final Sample Disposition

Disposal Method:

Disposed by:

Date/Time:

Comments:

10594

9642181625

RECIPIENT'S COPY

Date: 8-16-91

From (Your Name) Please Print: **G.O. BONESS**
 U.S. DEPT. OF ENERGY c/o
 WESTINGHOUSE HANFORD
 Street Address: 1100 AREA 1143 BLDG
 City: RICHLAND WA

Your Phone Number (Very Important): (509) 376-7627
 Department/Floor No.:

To (Recipient's Name) Please Print: **ROBERT FOX**
 Company: THERMO ANALYTICAL-NORCAL
 Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 2030 WRIGHT AVE
 City: RICHMOND CA
 State: CA
 ZIP Required: 94804

Recipient's Phone Number (Very Important):

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)

RADIOACTIVE MATERIAL, EXCEPTED PACKAGE-LIMITED QUANTITY OF MATERIAL
 DOT EMERGENCY RESPONSE GUIDE NUMBER 61 ATTACHED

IF HOLD FOR PICK-UP, Print FEDEX Address Here (Not available at all locations)

Street Address:
 City: State: ZIP Required:

PAYMENT: Bill Sender Bill Recipient's FedEx Acct No Bill 3rd Party FedEx Acct No Bill Credit Card

Cash Check

| SERVICES (Check only one box) | DELIVERY AND SPECIAL HANDLING (Check services required) | PACKAGES | WEIGHT in Pounds Only | YOUR DECLARED VALUE | Emp. No | Date | Federal Express US-Base Charges |
|--|--|--|-----------------------|---------------------|---|--|---|
| Priority Overnight Service (Delivery by next business morning!) <input type="checkbox"/> Standard Overnight Service (Delivery by next business afternoon!) <input type="checkbox"/> Economy Two-Day Service (Delivery by second business day!) <input type="checkbox"/> Heavyweight Service (for Extra Large or any package over 150 lbs) <input type="checkbox"/> HEAVYWEIGHT** <input type="checkbox"/> DEFERRED HEAVYWEIGHT** <input type="checkbox"/> *Delivery commitment may be later in some areas **Call for delivery schedule | 1 <input type="checkbox"/> HOLD FOR PICK-UP (Fill in Box H) 2 <input type="checkbox"/> DELIVER WEEKDAY 3 <input checked="" type="checkbox"/> DELIVER SATURDAY (Extra charge) (Not available to all locations) 4 <input checked="" type="checkbox"/> DANGEROUS GOODS (Extra charge) 6 <input type="checkbox"/> DRY ICE Lbs • Dangerous Goods Shipper's Declaration not required • Dry Ice 9, UN 1845 7 <input type="checkbox"/> OTHER SPECIAL SERVICE 11 <input type="checkbox"/> 12 <input type="checkbox"/> HOLIDAY DELIVERY (if offered) (Extra charge) | 1 Total Total Total 1 78 -0- DIM SHIPMENT (Chargeable Weight) <input type="checkbox"/> lbs | 78 -0- | -0- -0- | <input type="checkbox"/> Cash Received <input type="checkbox"/> Return Shipment <input type="checkbox"/> Third Party <input type="checkbox"/> Chg To Del <input type="checkbox"/> Chg To Hold Street Address: City: State: Zip: Received By: X Date/Time Received: FedEx Employee Number: | Federal Express US-Base Charges Declared Value Charge: Other 1 Other 2 Total Charges | REVISION DATE 8/90 PART #105591 FORMAT #043 043 © 1991 F.E.C. PRINTED IN U.S.A. |

INSTRUCTIONS (Check only one box)

- Dangerous Goods as per attached Shipper's Declaration
- Dangerous Goods Shipper's Declaration not required
- Cargo Aircraft only

Received At:
 Regular Stop Drop Box BSC
 On-Cat. Stop Station

Date-Time: SIGNATURE RELEASE UNAVAILABLE



SHIP TO:

7613422.0736

OFFSITE RADIOACTIVE SHIPMENT RECORD

13637

- EXTERIOR INSPECTION PERMITTED -

SHIPPING INST.

Company: Thermo Analytical - NORCAL
Address: 2030 Wright Ave
City, State, Zip: Richmond, VA 94804
Attention: Robert Fox

Contractor: PNL KEH WHC
Site Carrier: J.G. Lucas
PR No: 55152 Veh. No: 1H-793

Ship: Prepaid Collect Via:
 Motor-Rail Air Psgr.
 Excl. Use Air Cargo
 DOE Veh. Mail
 UPS Sur.

Proper Shipping Name: Radioactive Material
UN Number:
1. Empty Packages UN 2908
2. Low Specific Activity, n.o.s. UN 2912
3. Limited quantity, n.o.s. UN 2910
4. N.O.S. UN 2982
5. Fissile n.o.s. UN 2918
6. Special Form, n.o.s. UN 2974
7. Instruments & Articles UN 2911
8.

Material Form: Special (A1) Normal (A2)
Labels Applied:
 Empty
 Radioactive LSA
 White I
 Yellow II
 Yellow III
 None
 Danger (Air Cargo)
 Secondary
Material Category:
 Empty
 Low Specific Act. (LSA)
 Limited Quantity
 Type A Quantity
 Type B Quantity
 Highway Route
 Controlled Quantity

For Normal Form Identify:
Physical Form: Solid Liquid Gas
Chemical Form:
 Metal Oxide
 Elemental Nitrate
Other: Soil

SHIPMENT DESCRIPTION AND CERTIFICATION

TYPE PACKAGE: Strong Tight, Type A, Type B, Type B (U), Type B (M)
CONSTRUCTION: Box, FB, Wood, Steel, Drum, Cask, Other Poly Cooler
FISSILE CLASS: Non Fissile, Fissile Exempt, Fissile I, Fissile II, Fissile III, Grams Fissile
SNM: No, Yes, <1 gr, Category I, Category II, Category III

ACCOUNTABILITY/SECURITY CONTROL:
 Classified Unclassified
Consignee authorized to receive this qty
Sig. Security Svc. Reg. NA
Security Escorts Req. Not. Req.
External Cask Temperature: N/A
(Max. 122° F LTL, 180° F Ex. Use)

Packaging conforms to appropriate packaging procedure N/A Yes
Complies with D. O. T. packaging marking and labeling requirements N/A Yes
Container acceptability documented (incl. 7A cert.) N/A Yes
Container examined: No evidence of deterioration or damage Yes
QA Inspection Current Yes N/A Seals required No Yes
Shipping Doc. 49 CFR 173.421 Authorization No. NA

| No. Pkgs. | Model Package | COC/Spec. No. | Serial No. | Seal No. | Isotopes | Curies/Pkg | T.I. | Gr. Wt. | |
|---|--------------------------|---------------|------------|----------|---------------|------------|-------|---------|--------|
| 1 | Strong Tight Poly Cooler | NA | # 86 | NA | Cs-137, U-238 | <.001 | NA | 78 lbs | |
| "This package conforms to the conditions & limitations specified in 49 CFR 173.421 for excepted radioactive material, Limited Quantity, NOS UN2910" | | | | | | | | | |
| (Shipper may describe package in detail on one of unused lines above) | | | | | | TOTAL | <.001 | NA | 78 lbs |

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable federal, state, local and international regulations for the transportation of hazardous materials.
Certifier's Signature: [Signature] Date: 8-16-91 Organization: Environ. Engineering Complete Cost Code (inc. end function): EN31K 91223

AREA MONITOR

Surface Dose Rate of Package: ≤ 0.5 or ___ mrem/hr (N + BY)
Dose Rate at 1 Meter from Surface of Package: ≤ 0.5 or ___ mrem/hr (N + BY)
Smears of Outer Container: ≤ 22 dpm β/cm², ≤ 2.2 dpm α/cm²
TRUCK LOAD OR EXCLUSIVE USE:
Surface: ≤ 200 mrem/hr (N + BY)
@ 6 feet: ≤ 10 mrem/hr (N + BY)
@ Cab or Steeper: ≤ 2.0 mrem/hr (N + BY)
Additional Data and Instructions (inc. Readings on Internal Packaging): N/A
Signature - Radiation Monitoring: [Signature] Bldg. 3706 Survey No. 36 X 34 Date 8/16/91

AUTHORIZATION FOR SHIPMENT

AIR TRANSPORT CERTIFICATION: Cargo Only: Danger Labels Applied, Passenger: 1. Ltd. Qty, 3. Research or Medical Diagnosis, 2. ≤ 3 T.I, 4. Human Medical Research, Pkg. Dimensions

Traffic has inspected and verified preshipment compliance to DOT regulations.
Authorized Signature: [Signature] Printed Name: James H. Eide Date: 8-16-91

APPROVED FOR OFFSITE SHIPMENT

B.L. No. RMW-75-26 Date Shipped 8/16/91 E.T.A. Routing: SAT, DEL, X N/A
Placards: Yes No
Route Plan: Yes No
Surveyed By: [Signature] Date: 8/16/91 Approved for Shipment: [Signature] Westinghouse Hanford Company Date: 8/16/91

2.6
9613422.0937
TMA

Thermo Analytical Inc.

TMA/Norcal

2030 Wright Avenue

P.O. Box 4040

Richmond, CA 94804-0040

(415) 235-2633 Fax No. (415) 235-0438

November 12, 1991

SENT BY FEDERAL EXPRESS

Ref. TMA/Norcal N1-08-119-9522

Mr. John Bourgeault
Westinghouse Hanford Company
2355 Stevens Drive
Richland, WA 99352

Dear Mr. Bourgeault:

Enclosed in Section 1, Attachment 1, are the Gross Alpha, Gross Beta, ^{90}Sr , ^{99}Tc , isotopic uranium, isotopic plutonium, total uranium, and gamma scan results for the soil samples from 300 Area Process Trenches, we received 17 August 1991. The QA/QC results are shown on Attachment 2.

Please call if you have any questions concerning this data.

Sincerely,



Dinkar P. Kharkar, Ph.D.
Manager, Nuclear Programs

Sections 1 through 13



ATTACHMENT 1 DATA TABLE

Collection date: 8/15/91

| Customer I.D. | TMA/Norcal Group No. 9522 | Analysis | Results pCi/g $\pm 2 \sigma$ | |
|-----------------------|---------------------------------|-----------------------|---------------------------------|-------------|
| BO1025 | 1 | Gross Alpha | 4 \pm 5 | |
| | | Gross Beta | 9 \pm 2 | |
| | | ⁹⁰ Sr | <7 | E-01 |
| | | ⁹⁹ Tc | 0.8 \pm 0.1 | |
| | | ²³⁴ U | (7.1 \pm 0.6) | E+00 |
| | | ²³⁵ U | (1.0 \pm 0.2) | E+00 |
| | | ²³⁸ U | (5.4 \pm 0.5) | E+00 |
| | | ²³⁸ Pu | <4 | E-02 |
| | | ^{239,240} Pu | <2 | E-02 |
| | | Total Uranium | <30 | |
| | | Gamma Scan: | | |
| | | ⁴⁰ K | (7.848 \pm 0.686) | E+00 |
| | | ⁶⁰ Co | (5.060 \pm 3.051) | E-02 |
| | | ¹³⁷ Cs | (2.376 \pm 0.425) | E-01 |
| | | ²²⁶ Ra | (3.489 \pm 0.731) | E-01 |
| | | ²²⁸ Th | (4.437 \pm 0.614) | E-01 |
| | | ²³² Th | (4.834 \pm 1.494) | E-01 |
| | | ²³⁵ U | (2.838 \pm 1.626) | E-01 |
| | | ²³⁸ U | (7.410 \pm 4.114) | E+00 |
| | | BO1027 | 2 | Gross Alpha |
| Gross Beta | 15 \pm 2 | | | |
| ⁹⁰ Sr | <2 | | | E-01 |
| ⁹⁹ Tc | 1.7 \pm 0.1 | | | |
| ²³⁴ U | (6.2 \pm 0.6) | | | E+00 |
| ²³⁵ U | (9. \pm 2.) | | | E-01 |
| ²³⁸ U | (4.7 \pm 0.5) | | | E+00 |
| ²³⁸ Pu | <2 | | | E-02 |
| ^{239,240} Pu | <3 | | | E-02 |
| Total Uranium | <29 | | | |
| Gamma Scan: | | | | |
| ⁴⁰ K | (6.337 \pm 0.563) | | | E+00 |
| ⁶⁰ Co | (3.224 \pm 0.512) | | | E-01 |
| ¹³⁷ Cs | (6.981 \pm 0.500) | | | E-01 |
| ²²⁶ Ra | (2.557 \pm 0.507) | | | E-01 |
| ²²⁸ Th | (3.741 \pm 0.375) | | | E-01 |
| ²³² Th | (3.797 \pm 1.545) | | | E-01 |
| ²³⁵ U | (2.041 \pm 1.517) | | | E-01 |

ATTACHMENT 1 DATA TABLE (cont'd, page 2)

Collection date: 8/15/91

| Customer I.D. | TMA/Norcal Group No. 9522 | Analysis | Results pCi/g \pm 2 σ | |
|------------------|---------------------------------|-----------------------|-----------------------------------|------|
| B01029 | 3 | Gross Alpha | 7 \pm 4 | |
| | | Gross Beta | 16 \pm 2 | |
| | | ⁹⁰ Sr | (3.9 \pm 2.2) | E-01 |
| | | ⁹⁹ Tc | 0.3 \pm 0.1 | |
| | | ²³⁴ U | (8.6 \pm 0.9) | E+00 |
| | | ²³⁵ U | (1.1 \pm 0.2) | E+00 |
| | | ²³⁸ U | (6.0 \pm 0.7) | E+00 |
| | | ²³⁸ Pu | <1 | E-02 |
| | | ^{239,240} Pu | <2 | E-02 |
| | | Total Uranium | <33 | |
| | | Gamma Scan: | | |
| | | ⁴⁰ K | (6.491 \pm 0.617) | E+00 |
| | | ⁹⁵ Nb | (6.478 \pm 4.621) | E-02 |
| | | ¹³⁷ Cs | (2.137 \pm 1.984) | E-02 |
| | | ²²⁶ Ra | (2.665 \pm 0.543) | E-01 |
| | | ²²⁸ Th | (3.479 \pm 0.354) | E-01 |
| | | ²³² Th | (3.670 \pm 1.339) | E-01 |
| | | ²³⁵ U | (2.544 \pm 1.417) | E-01 |
| B01031 | 4 | Gross Alpha | 3 \pm 4 | |
| | | Gross Beta | 15 \pm 2 | |
| | | ⁹⁰ Sr | <2 | E+00 |
| | | ⁹⁹ Tc | 0.5 \pm 0.2 | |
| | | ²³⁴ U | (3.5 \pm 0.2) | E+00 |
| | | ²³⁵ U | (4 \pm 1) | E-01 |
| | | ²³⁸ U | (2.5 \pm 0.2) | E+00 |
| | | ²³⁸ Pu | <1 | E-01 |
| | | ^{239,240} Pu | <1 | E-01 |
| | | Total Uranium | <32 | |
| | | Gamma Scan: | | |
| | | ⁴⁰ K | (6.404 \pm 0.607) | E+00 |
| | | ¹³⁷ Cs | (3.528 \pm 2.895) | E-02 |
| | | ²²⁶ Ra | (2.372 \pm 0.565) | E-01 |
| | | ²²⁸ Th | (3.338 \pm 0.353) | E-01 |
| | | ²³² Th | (2.665 \pm 1.177) | E-01 |

CASE NARRATIVE

1. Project 300 Area Process Trenches Soil Sample results of analysis are reported. The sample ID's are:

| <u>Customer Sample ID</u> | <u>TMA/Norcal Group No.</u> |
|-------------------------------|---------------------------------|
| B01025 | 9522-1 |
| B01027 | 9522-2 |
| B01029 | 9522-3 |
| B01031 | 9522-4 |

2. The analysis reported are: Gross alpha, gross beta, ^{90}Sr , ^{99}Tc , isotopic uranium, isotopic plutonium, total uranium, and gamma scan.
3. Results are reported pCi/gram dry material with 2 σ errors.
4. Sample numbers 9509-1 and 2; 9510-1 and 2, 9511-1, 2, 3, 4, and 5, 9512-1; 9515- 1,2, and 9522-1, 2, 3, and 4 were processed together. The following QC samples were processed with this batch:

9509-3 (Duplicate of 1) was processed for gross alpha and beta, isotopic uranium, and ^{99}Tc .

9515-2 (Duplicate of 1) was processed for gross alpha and beta, ^{90}Sr , isotopic uranium, and gamma scan.

9522-5 (Duplicate of 1) was processed for gross alpha and beta, isotopic uranium, ^{99}Tc , ^{90}Sr , isotopic plutonium, total uranium, and gamma scan.

9522-6 and 7 were processed for QC ^{99}Tc .

9516-3 was processed for QC of gross alpha and beta, isotopic uranium, ^{90}Sr , and gamma scan.

9511-6 was processed for QC of gross alpha and beta, isotopic uranium, ^{99}Tc , and gamma scan.

9511-7 was processed for QC of ^{99}Tc only.

QC results are reported with every sample batch. However, the data sheets are included in the respective sample batches.