# AR TARGET SHEET

The following document was too large to scan as one unit, therefore it has been broken down into sections.

DOCUMENT # B07PY8-TMA-384

EDMC # 0046235

SECTION 1 OF 2

ORIGINALS IN N2-12-070 B07P98-TMA-384

| Westinghouse Hanford Company | CHAIN OF CUSTODY | 003207 |
|---|---|---|

0046235 1/2

Custody Form Initiator: RZ Steffler

Company Contact: Jill Frain / Ron Mitchell — Telephone: 376-8941

Project Designation/Sampling Locations: White Bluffs Pickling Acid Crib ERA Saf # 92-400 — Collection Date: 12-7-92

Ice Chest No. — Field Logbook No. EFL 1060

Bill of Lading/Airbill No. — Offsite Property No.

Method of Shipment: Air Express / Samples bagged + on wet ice.

Shipped to: TMA / Norcal Richmond, CA.

Possible Sample Hazards/Remarks: Unknown

Sample Identification

B07Q10 (5 bottles)
B07Q11 (5 bottles)
B07Q12 (9 bottles)
B07Q14 (5 bottles)
B07Q15 (5 bottles)
B07Q16 (5 bottles)

RZS 12-7-92

RZS 12-7-92

1 JAN 1997 RECEIVED EDMC

☐ Field Transfer of Custody — CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RZ Steffler R.Z. Steffl | Alfonso Galafa | 12-11-92 1515 * ~~12-14-92 0800~~ KB |
| 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: |
|---|---|---|
| | | |

038

Comments: * ~~Received @ TMA/Norcal 12-12-92, opened 12-14-92 KB~~ KB

A-6000-407 (12/90

| Westinghouse Hanford Company | CHAIN OF CUSTODY 002807 |
|---|---|

Custody Form Initiator RZ. Steffler RM Arnold

Company Contact J M Frain Telephone 509 376-8941

Project Designation/Sampling Locations White Bluffs Collection Date 12-2-92

Pickling Acid Crib 100-IU-5

Ice Chest No. SML-119 Field Logbook No. EFL 1060

Bill of Lading/Airbill No. 251-900 7326 Offsite Property No. N/A

Method of Shipment Emery Air Express Overnight Delivery

Shipped to TMA

Possible Sample Hazards/Remarks NON-DETECT WITH FIELD INSTRUMENTS

Sample Identification

B07PZ1 (9) Bottles
B07PY9 (5) Bottles
B07PZ3 (5) Bottles
B07PZ2 (9) Bottles
B07PZ4 (9) Bottles

RMA 12-2-92

RMA 12-2-92

☐ Field Transfer of Custody

| CHAIN OF POSSESSION (Sign and Print Names) | | |
|---|---|---|
| Relinquished by: RM Arnold RM Arnold | Received by: Kermit Blum | Date/Time: 12-4-92 1200 |
| 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: 042 |
|---|---|---|

Comments:

A-6000-407 (12/90

| Westinghouse Hanford Company | CHAIN OF CUSTODY | 003202 |
|---|---|---|

Custody Form Initiator RZ Steffler / RM Arnold

Company Contact Jill Frain / Ron Mitchell Telephone 376-8941

Project Designation/Sampling Locations White Bluffs Pickling Acid Crib ERA Saf # 92-400 Collection Date 12-3-92

Ice Chest No. Field Logbook No. EFL 1060

Bill of Lading/Airbill No. Offsite Property No.

Method of Shipment Air Express / Samples are bagged and on wet ice.

Shipped to TMA / Norcal Richmond CA.

Possible Sample Hazards/Remarks Unknown

Sample Identification

| | |
|---|---|
| B0TPZ5 | (5) Bottles |
| B0TPZ6 | (9) Bottles |
| B07PZ7 | (9) Bottles |
| B07PZ8 | (5) Bottles |
| B07PZ9 | (5) Bottles |
| B07Q00 | (5) Bottles |
| B07Q01 | (9) Bottles |
| B07Q02 | (9) Bottles |
| B07Q03 | (9) Bottles |

RZS 12-3-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RZ Steffler R.Z. Steffler | SM Steele SM Steele | 12-4-92 / 1213 |
| SM Steele SM Steele | Kermit Blum | 12-7-92 0800 * |
| | | |
| | | |

Final Sample Disposition

| Disposal Method: | Disposed by: | Date/Time: |
|---|---|---|
| | | |

Comments: * Received @ TMA/NORCAL 12-5-92 @ 1400; opened 12-7-92 KB

047

A-6000-407 (12/90)

| Westinghouse Hanford Company | CHAIN OF CUSTODY | 002806 |
|---|---|---|

Custody Form Initiator RZ Steffler RM Arnold

Company Contact JM Frain Telephone (509) 376-8941

Project Designation/Sampling Locations White Bluffs – Pickling Acid Crib 100-IU-5 Collection Date 12-1-92

Ice Chest No. Field Logbook No.

Bill of Lading/Airbill No. Offsite Property No.

Method of Shipment Emery Air Express Overnight Express

Shipped to TMA

Possible Sample Hazards/Remarks Nothing Detectible with field instruments.

Sample Identification

B07PY8 (9 Bottles)
B07PZ0 (5 Bottles)

RMA 12-1-92

RMA 12-1-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RM Arnold RM Arnold | smSteele SMSteele | 12-2-92 1030 |
| Relinquished by: smSteele SMSteele | Received by: Kermit Blum | Date/Time: 12-3-92 1130 |
| Relinquished by: | Received by: | Date/Time: |
| Relinquished by: | Received by: | Date/Time: |

Final Sample Disposition

| Disposal Method: | Disposed by: | Date/Time: |
|---|---|---|

Comments:

048

A-6000-407 (12/90)

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C #3207

Collector RZ STEFFLER Date 12-7-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q12 | S | 12-7-92 | 1005 | (1) 250ml. plastic TAL METALS (CLP) |
| | | | | (1) 250ml. plastic ANIONS,F,CL,SO4,PO4 (EPA 300.0) NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS FOR Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000 ml. glass GAMMA SPEC. (RC-30) |
| | | | | |
| | S | | | ~~(1) 250 ml. plastic TAL METALS (CLP)~~ RZS 12-7-92 |
| | | | | ~~(1) 250 ml. plastic ANIONS F,Cl,SO4 PO4 (EPA 300.0) NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040)~~ |
| | | | | ~~(1) 250 ml. plastic ICP METALS for Zr. (6010)~~ |
| | | | | ~~(1) 125 ml. amber glass VOA (CLP)~~ |
| | | | | ~~(1) 250 ml. amber glass SEMI VOA (CLP)~~ |
| | | | | ~~(1) 250 ml. amber glass TPH diesal range (8015M)~~ |
| | | | | ~~(1) 250 ml. amber glass TPH heavier than diesal range (8015M)~~ |
| | | | | ~~(1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2)~~ |
| | | | | ~~(1) 1000ml. glass GAMMA SPEC. (RC-30)~~ RZS 12-7-92 |

*Type of Sample A = Air L = Liquid SE = Sediment T = Tissue X = Other
DL = Drum Liquids O = Oil SL = Sludge W = Water
DS = Drum Solids S = Soil SO = Solid WI = Wipe

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS.

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS

039

COC #002807

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler Date 12-2-92

Company Contact J M Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ1 | S | 12-2-92 | 1020 | ✓(1) Poly 250 ml. TAL metals (CLP) |
| | | | | ✓(1) Poly 250 ml. ICP Metals for Zr. (6010) |
| | | | | (1) Poly 250 ml. Anions F, Cl, SO4, PO4 (EPA 300.0) |
| | | | | ✓$NO_2$-$NO_3$ (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓(1) G 12-2-92 125 VOA (CLP) |
| | | | | ✓(1) aG 250 ml. Semi VOA (CLP) |
| | | | | ✓(1) aG 250 ml. TPH (Diesel Range) (8015m) |
| | | | | ✓(1) Poly 250 ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000 ml. Gamma Spec. (RC-30) |
| | | | | ✓(1) aG 250 ml. TPH (Heavier than Diesel Range (8015M) |
| | | | | (9) Total Containers |
| B07PY9 | S | 12-2-92 | 1050 | ✓(1) Poly 250 ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250 Anions F, Cl, SO4, PO4 (EPA 300.0) |
| | | | | $NO_2$-$NO_3$ (~~EPA 353.2~~) Ammonia EPA 350.2 PH (9040) |
| | | | | ✓(1) aG 250 ml. Semi VOA (CLP) |
| | | | | ✓(1) Poly 250 ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) Poly 250 ml. ICP metals for Zr. (6010) |
| | | | | (5) Total Containers |
| B07PZ3 | S | 12-2-92 | 1330 | ✓(1) Poly 250 ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250 ml. Anions F, Cl, SO4, PO4 (EPA 300.0) $NO_2$-$NO_3$ (EPA 353 Ammonia EPA 350.2 P |
| | | | | ✓(1) aG 250 ml. Semi Voa (CLP) |
| | | | | ✓(1) Poly 250 ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) Poly 250 ml. ICP Metals for Zr. (6010) |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF #92-400

Special Handling and/or Storage Samples to be kept cooled to 4°C. prior to analysis

Possible Sample Hazards Suspected contaminants are nitric and hydrofluoric acid.

A-6000-406 (06/9

COC#002807

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler Date 12-2-92

Company Contact JM Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07RZ2 | S | 12-2-92 | 1435 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr (6010) |
| | | | | ✓(1) Poly 250ml. Anions F, Cl, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (EPA 353.2) Ammonia (EPA 350.2) PH (9040 |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) AG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) aG 250ml. TPH (Diesel Range) (8015m) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | ✓(1) aG 250ml. TPH (Heavier than Diesel Range (8015 M |
| | | | | (9) Total Containers |
| B07PZ4 | S | 12-2-92 | 1500 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr (6010) |
| | | | | ✓(1) Poly 250ml. Anions F, Cl, SO4, PO4 (EPA 300.0 |
| | | | | NO2-NO3 (EPA 353.2) Ammonia (EPA 350.2) PH (9 |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) AG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) AG 250ml. TPH (Diesel Range) (8015M) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | ✓(1) aG 250ml. TPH (Heavier than Diesel Range - 8015 M) |
| | | | | (9) Total Containers |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF#92-400

Special Handling and/or Storage Samples to be kept cooled to 4°C prior to analysis.

Possible Sample Hazards Suspected contaminants are nitric and hydrofluoric-acid. PH 12-2-92

P.41

A-6000-406 (06/9

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C # 3202

Collector RZ STEFFLER Date 12-3-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q02 | S | 12-3-92 | 1350 | (1) 250ml. plastic TAL METALS (CLP) |
| | | | | (1) 250ml. plastic ANIONS,F,CL,SO4,PO4 (EPA 300.0) NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS FOR Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000 ml. glass GAMMA SPEC. (RC-30) |
| B07Q03 | S | 12-3-92 | 1415 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4 PO4 (EPA 300.0) NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000ml. glass GAMMA SPEC. (RC-30) |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS.

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS.

043

A-6000-406 (06/91)

Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C of C # 3202

Collector RZ Steffler Date 12-3-92

Company Contact Jill Frain / Ron Mitchell Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ7 | S | 12-3-92 | 1130 | ✓ (1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓ (1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓ (1) Poly 250ml. ICP Metals for Zr. (6010) |
| | | | | ✓ (1) G 125ml. VOA (CLP) |
| | | | | ✓ (1) aG 250ml. Semi VOA (CLP) |
| | | | | ✓ (1) aG 250ml. TPH (Diesel Range) (8015 M) |
| | | | | ✓ (1) aG 250ml. TPH (Heavier Than Diesel Range) (8015M) |
| | | | | ✓ (1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | ✓ | ✓ | ✓ | X (1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | (9) Total Containers |
| B07Q01 | S | 12-3-92 | 1350 | ✓ (1) 250 ml plastic TAL Metals (CLP) |
| | | | | ✓ (1) 250 ml plastic Anions FCl, SO4, PO4 (EPA 300.0) |
| | | | | NO2, NO3 (~~EPA 353.2~~), Ammonia (EPA 350.2) pH (9040) |
| | | | | ✓ (1) 250 ml plastic ICP Metals for Zr (6010) |
| | | | | ✓ (1) 125 ml amber glass VOA (CLP) |
| | | | | ✓ (1) 250 ml aG SEMI VOA (CLP) |
| | | | | ✓ (1) 250 ml aG TPH diesel range (8015M) |
| | | | | ✓ (1) 250 ml aG TPH heavier than diesal range (8015M) |
| | | | | ✓ (1) 250 ml plastic Calcium Carbonate (~~RC-30~~) 130. RS 12-9-92 |
| | ✓ | ✓ | ✓ | ✓ (1) 1000 ml glass Gamma Spec. (RC-30 |
| | | | | (9) Total Containers |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage Samples to maintain 4°C prior to analysis

Possible Sample Hazards Unknown, nothing detectable with field instruments.

041

A-6000-406 (06/91)

Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C of C # 3202

Collector RZ STEFFLER Date 12-3-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07P28 | S | 12-3-92 | 1300 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE(EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| B07P29 | S | 12-3-92 | 1330 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| B07Q00 | S | 12-3-92 | 1340 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |

| *Type of Sample | | | | | |
|---|---|---|---|---|---|
| | A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| | DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| | DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS. A45

A-6000-406 (06/91)

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C #003202

Collector RZ Steffler Date 12-3-92

Company Contact Jill Fruin / Ron Mitchell Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ5 | S | 12-3-92 | 1010 | ✓(1) Poly 250ml Tal metals (CLP) |
| | | | | ✓(1) Poly 250ml. Anions F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammoinia EPA 350.2 PH 9040 |
| | | | | ✓(1) aG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr. (6010) |
| | | | | (5) Total Containers |
| B07PZ6 | S | 12-3-92 | 1055 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr. (6010) |
| | | | | ✓(1) Poly 250ml. Anions F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) aG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) aG 250ml. TPH (Diesel Range) (8015 M) |
| | | | | ✓(1) aG 250ml. TPH (Heavier Than Diesel Range) (8015 M) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | (9) Total Containers |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF #92-400

Special Handling and/or Storage Samples to maintain 4°C prior to analysis.

Possible Sample Hazards Unknown, nothing detectable with field instruments

MAG

A-6000-406 (06/91)

COC# 002806

Westinghouse Hanford Company

## SAMPLE ANALYSIS REQUEST

Collector RZ Steffler RM Arnold Date 12-1-92

Company Contact J.M. Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PY8 | S | 12-1-92 | 1435 | (1) 250ml. Poly/TAL Metals/Method CLP |
| | S | | | (1) 250ml. Poly/Anions(300.0)+(353.2)Ammonia(350.2) |
| | S | | | PH (9040) |
| | S | | | (1) 125ml. GS/VOA/Method CLP |
| | S | | | (1) 250ml. aG/SemiVOA/method CLP |
| | S | | | (1) 250ml. G/TPH (Diesel Range) Method 8015M |
| | S | | | (1) 250ml. G/TPH (Heavier Than Diesel Range) ~~Method~~ RA 12 |
| | S | | | method 8015M |
| | S | | | (1) 250ml. Poly/Calcium Carbonate/Method 130.2 |
| | S | | | (1) 1000ml. G/Gamma Spec./Method RL-4303. |
| | S | | | RL-4304 |
| | S | | | (1) 250ml. Poly/ICP metals for Zirconium EPA 6010 |
| | | | | |
| | | | | |
| B07PZ0 | S | 12-1-92 | 1145 | (1) 250ml. Poly TAL Metals/CLP/ |
| | S | | | (1) 250ml. Poly/Anions(300.0)+(353.2) Ammonia(350.2 |
| | S | | | PH (9040) |
| | S | | | (1) 250ml. Poly/Calcium Carbonate/Method(130.2) |
| | S | | | (1) 250ml. Poly/ICP metals for Zirconium - |
| | S | | | EPA 6010 |
| | S | | | (1) 250ml. aG/Semi VOA/Method CLP |
| | | | | |
| | | | | |
| | | | | |

*Type of Sample: A = Air, DL = Drum Liquids, DS = Drum Solids, L = Liquid, O = Oil, S = Soil, SE = Sediment, SL = Sludge, SO = Solid, T = Tissue, W = Water, WI = Wipe, X = Other

Field Information PH Tested at 5.6 SAF#92-400

Special Handling and/or Storage Samples to be kept cooled to 4° C. prior to Analysis

Possible Sample Hazards Suspected Hydrofluoric Acid and Nitric Acid

049

A-6000-406 (06/91

EMERY WORLDWIDE

A GF Company

(15)

# SIGNATURE AND TALLY RECORD

60029-46 (8/89) Litho USA

DATE: 12-04-92 SHIPMENT NO.: 251900743 6
SHIPPE WESTINGHOUSE SHIPPING DEPT. (509) 376-
REFERENCE NO.: W93-0-0059 #45

| SHIPPER NAME AND ADDRESS | CONSIGNEE NAME AND ADDRESS |
|---|---|
| WESTINGHOUSE SHIPPING DEPT. (509) 376-6665<br>G2-06 U.S. DEPARTMENT OF ENERGY C/O<br>WESTINGHOUSE HANFORD COMPANY<br>2355 STEVENS DRIVE 1163 BUILDING<br>PO BOX 1970<br>RICHLAND WA 99352 | DELORES SANCHEZ<br>TMA/NORCAL<br>2030 WRIGHT AVENUE<br>RICHMOND CA 94804 |

| Pieces | Weight | Description/Marks | Emery Authorization No. |
|---|---|---|---|
| 1 | 46 LBS | COOLER ID: SML 255 WATER SAMPLES | |

EACH PERSON HANDLING OR TAKING CUSTODY OF THIS SHIPMENT MUST SIGN AND COMPLETE THE INFORMATION BELOW

| | Name of Person/Company | Transship Point/Destination | Signature of Person Accepting Custody | Time/Date |
|---|---|---|---|---|
| 1. | [illegible] | [illegible] | [illegible] | [illegible] |
| 2. | [illegible] | [illegible] | [illegible] | [illegible] |
| 3. | [illegible] | [illegible] | [illegible] | [illegible] |
| 4. | Mosbrucker Rx | [illegible] | [illegible] | 1600 12 |
| 5. | C. Oakes | EWW/HAY | [illegible] | 0415 12 |
| 6. | R Higgins | EWW/OAK | R. Higgins | 1000 12 |
| 7. | M. Halverson | EWW OAK | M. Halverson | 12:25 12 |
| 8. | B Stephens | TMA | B. Stephens | 14:00 12 |

SPECIAL HANDLING INSTRUCTIONS

CONSIGNEE COPY

051

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper ☒ Bill to Consignee ☐ Third Party Billing ☐

Shipper's Account Number: 850281586

EMERY WORLDWIDE

A CF Company

SERVICES **

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ AM ☐ PM ☒ Second Day ☐ Saturday Delivery

INTERNATIONAL: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery

Date: 12-9-92 | Origin: PSC | Shipment Number: 2519007568

From:
WESTINGHOUSE SHIPPING DEPT(509)376-5069
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA

Tariff Dest. | Gate

Check to Shipper $

Hold for Pick Up ☐ Canada ☐

EMERY WORLDWI will accept Consig check with all ris being assumed b Shipper, including but not limited to non-payment, fra and misrepresente

Customer's Reference Numbers: W12410 PE62K W93-0-122#28

Zip: 99352

E Consignee's Account Number

Zip: 94804

| Description | Dimensions Pcs | L | W | H | Total Pieces | Total Weight (In Lbs.) |
|---|---|---|---|---|---|---|
| 2POLYCOOLERS SOIL SAMPLES RM#2/pokey | 2 | 27 | 16 | 17 | 2 | 148# |

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

2519007568

Remarks: OVERNIGHT DELIVERY

Shipper's Signature: 12-9-92

Zip Ship ☐ For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions are applied in the area to the right apply.

Mark if Emery Packaging is used: Urgent Letter 12 ☒ Urgent Pack 12X15 ☒

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing: E

Third Party Account Number

International Customs Value | International Insurance

Total Transportation Charges

Other Charges/Advance at Origin: OC/AO- $

Use Charge

1-OAK-A

Terms and Conditions on Back

052

AIR OVERNIGHT

| Contractor | OFF-SITE PROPERTY CONTROL | CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) |
|---|---|---|
| WESTINGHOUSE HANFORD | | W93-0-0122 #28 |

PART I – TO BE COMPLETED BY ORIGINATOR

| Department | Section | Unit |
|---|---|---|
| PROCESSING & ANALYTICAL LAB | ANALYTICAL CHEMISTRY | SAMPLING & MOBILE LAB |

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing EMERY AIR EXPRESS [X] Contractor [ ] Vendor

| Shipped to | Off-site Custodian |
|---|---|
| TMA/NORCAL<br>2030 Wright Av<br>Richmond CA 94804 | Delores Sanchez |
| | Full Title |

| Quantity | Description: (Include Serial and any Government Tag Numbers) | Original Cost |
|---|---|---|
| 2 | POLYCOOLER. SAMPLES PACKED IN PLASTIC BAGS AND STORED ON WET ICE. | |
| | SAMPLE #B07Q04 thru B07Q12<br>B07Q14 thru B07Q16 | |
| WEIGHT 70 lbs | COOLER # ~~SAM-222~~ Pokey | |
| WEIGHT 78 lbs | COOLER # RM #2 | |

[ ] Classified [X] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

SAMPLES REQUIRE ANALYSIS THAT ARE NOT PRESENTLY AVAILABLE AT THIS SITE.

12-5-92

SAF #92-400
COC #003203 & 003207

BILL OF LADING # 2519007502

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

| RM Clearance for Public Release | | RM Survey No | Date |
|---|---|---|---|
| | | 125210 | 12 5 92 |
| Location of Property (Area & Bldg.) | Contact | | Phone |
| 200 WEST AREA/202-S | R. Z. Steffler | | 373-9146 |
| Date Ready for Shipment | Cost Code to be Charged | Approximate Date This Property will be Returned | |
| 12/08/92 | PE62K/ORG CODE: 12410 | N/A | |
| Originated By | Date | Authorized By | Date |
| R. Z. Steffler | 12/08/92 | R. A. Meznarich RAMeznarich | 12/08/92 |
| Signature and Name of Property Control | Custodian Date | Property Management Approval | Date |
| | | | 12/8/92 |

PART II – TO BE COMPLETED BY SHIPPING

| Signature of Recipient | Return Order No. | Date Issued | Purchase Order No. | Date Issued |
|---|---|---|---|---|
| Dan Keen | | | | |
| Date 12 5 92 | | | | |

053

DISTRIBUTION

| By Originator | Shipping Operation – Sign all Copies and Forward to: |
|---|---|
| White, Green, Yellow, Pink – Property Management | White – Property Management Green – Property Control Custodian (Issuing Office) Pink – Originator |

051

**FORM OF PAYMENT**

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper ☒ Bill to Consignee ☐ Third Party Billing ☐

**EMERY WORLDWIDE** — A CF Company

**SERVICES ****

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ AM ☐ PM ☐ Second Day ☐ Saturday Delivery ☐

INTERNATIONAL: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

E Shipper's Account Number: 850281585

Date: 12-03-92 | Origin: PSC | Shipment Number: 251900732 6

From:
WESTINGHOUSE SHIPPING DEPT. (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA 94804
Hold for Pick Up ☐ Canada ☐

Tariff Dest. | Gateway

Check to Shipper $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers: W12410 PE62P W93-0-0122 #24 97352

E Consignee's Account Number

| Description | Pcs. | L | W | H | Total Pieces | Total Weight (In Lbs.) |
|---|---|---|---|---|---|---|
| 1 COOLER SML 119 SAMPLES | 1 | 20 | 16 | 17 | 1 | 75 |

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

2 5 1 9 0 0 7 3 2 6

Remarks: OVERNIGHT DELIVERY

Shipper's Signature X [signature] 12/3/92

Zip Ship ☐ — For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used: Urgent Letter 9X12 ☒ Urgent Pack 12X15 ☒

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. E Third Party Account Number

International Customs Value | International Insurance

Base Charge

Total Transportation Charges | Other Charges/Advance at Origin ☐ OC/AO- $

1-OAK-A

Terms and Conditions on Back

AIR OVERNIGHT

| Contractor | OFF-SITE PROPERTY CONTROL | CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) |
|---|---|---|
| WESTINGHOUSE HANFORD | | W93-0-0122 #24 |

PART I – TO BE COMPLETED BY ORIGINATOR

| Department | Section | Unit |
|---|---|---|
| PROCESSING & ANALYTICAL LAB | ANALYTICAL CHEMISTRY | SAMPLING & MOBILE LAB |

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing EMERY AIR EXPRESS [X] Contractor [ ] Vendor

| Shipped to | Off-site Custodian |
|---|---|
| TMA/NORCAL<br>2030 Wright Av<br>Richmond CA 94804 | DELORES SANCHEZ<br>Full Title |

| Quantity | Description (Include Serial and any Government Tag Numbers) | Original Cost |
|---|---|---|
| 1 | POLYCOOLER. SAMPLES PACKED IN PLASTIC BAGS AND STORED ON WET ICE.<br><br>SAMPLE #B07PZ1<br>B07PY9<br>B07PZ3<br>B07PZ2<br>B07PZ4<br><br>WEIGHT 75LB COOLER # SML 119 | |

[ ] Classified [X] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

SAMPLES REQUIRE ANALYSIS THAT ARE NOT PRESENTLY AVAILABLE AT THIS SITE.

COC# 2807

SAF #92-400

BILL OF LADING # 2519007326

*CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.*

| RM Clearance for Public Release | RM Survey No. | Date |
|---|---|---|
| [illegible] | [illegible] | 12-3-92 |

| Location of Property (Area & Bldg.) | Contact | Phone |
|---|---|---|
| 200 WEST AREA/202-S | R. Z. Steffler | 373-9146 |

| Date Ready for Shipment | Cost Code to be Charged | Approximate Date This Property will be Returned |
|---|---|---|
| 12/03/92 | PE62P/ORG CODE: 12410 | N/A |

| Originated By | Date | Authorized By | Date |
|---|---|---|---|
| R. Z. Steffler | 12/03/92 | R. A. Meznarich RA Meznarich | 12/09/92 |

| Signature and Name of Property Control | Custodian Date | Property Management Approval | Date |
|---|---|---|---|
| | | [illegible] | [illegible] |

PART II – TO BE COMPLETED BY SHIPPING

| Signature of Recipient | Return Order No. | Date Issued | Purchase Order No. | Date Issued |
|---|---|---|---|---|
| Karen A Keene<br>Date 12 3 92 | | | | |

055

DISTRIBUTION

| By Originator | Shipping Operation – Sign all Copies and Forward to: | |
|---|---|---|
| White, Green, Yellow, Pink – Property Management<br>Goldenrod – Retain | White – Property Management<br>Yellow – Retain | Green – Property Control Custodian (Issuing Office)<br>Pink – Originator |

54-3000-479 (09/89)

AIR OVERNIGHT

| Contractor | OFF-SITE PROPERTY CONTROL | CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) |
|---|---|---|
| WESTINGHOUSE HANFORD | | W93-0-0132 #21 |

PART I – TO BE COMPLETED BY ORIGINATOR

| Department | Section | Unit |
|---|---|---|
| PROCESSING & ANALYTICAL LAB | ANALYTICAL CHEMISTRY | SAMPLING & MOBILE LAB |

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing EMERY AIR EXPRESS ☒ Contractor ☐ Vendor

| Shipped to | Off-site Custodian |
|---|---|
| TMA/NORCAL<br>2030 Wright Av<br>Richmond, CA 94804 | ~~DELORES SANCHEZ~~ Robert Fox<br>Full Title |

| Quantity | Description (Include Serial and any Government Tag Numbers) | Original Cost |
|---|---|---|
| 1 | POLYCOOLER. SAMPLES PACKED IN PLASTIC BAGS AND STORED ON WET ICE.<br>SAMPLE #B07PY8<br>B07PZ0 | |
| WEIGHT 51 lbs | COOLER #SAM-188 | |

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

SAMPLES REQUIRE ANALYSIS THAT ARE NOT PRESENTLY AVAILABLE ON THIS SITE.

SAF #92-400
COC #002806

BILL OF LADING # 251 900 7237

*CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.*

| RM Clearance for Public Release | RM Survey No. | Date |
|---|---|---|
| | | |

| Location of Property (Area & Bldg.) | Contact | Phone |
|---|---|---|
| 200 WEST AREA/202-S | R. Z. Steffler | 373-9146 |

| Date Ready for Shipment | Cost Code to be Charged | Approximate Date This Property will be Returned |
|---|---|---|
| 12/02/92 | PE62K/ORG CODE: 12410 | N/A |

| Originated By | Date | Authorized By | Date |
|---|---|---|---|
| R. Z. Steffler | 12/02/92 | R. A. Meznarich | 12/02/92 |

| Signature and Name of Property Control | Custodian Date | Property Management Approval | Date |
|---|---|---|---|
| | | | |

PART II – TO BE COMPLETED BY SHIPPING

| Signature of Recipient | Return Order No. | Date Issued | Purchase Order No. | Date Issued |
|---|---|---|---|---|
| Date 12-2-92 | | | | |

DISTRIBUTION

056

| By Originator | Shipping Operation – Sign all Copies and Forward to: |
|---|---|
| White, Green, Yellow, Pink – Property Management<br>Goldenrod – Retain | White – Property Management Green – Property Control Custodian (Issuing Office)<br>Yellow – Retain Pink – Originator |

54-3000-479 (09/89)

12-3-92

**FORM OF PAYMENT**

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper [X] Bill to Consignee ☐ Third Party Billing ☐

**EMERY WORLDWIDE** — A CF Company

**SERVICES ****

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ AM [X] PM ☐ Second Day ☐ Saturday Delivery ☐

INTERNATIONAL: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

E Shipper's Account Number: 850281585

| Date | Origin | Shipment Number |
|---|---|---|
| 12-02-92 | PSC | 251900733 7 |

**From:**
WESTINGHOUSE SHIPPING DEPT. (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐

**To:**
[redacted] ROBERT FOX
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA
Hold for Pick Up ☐ Canada ☐

Tariff Dest. | Gateway

Check to Shipper $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers: W12410 PE62K W93-0-0122 #21 | Zip: 99352

E Consignee's Account Number | Zip: 94804

| Description | Pcs. | L | W | H | Total Pieces | Total Weight (In Lbs.) |
|---|---|---|---|---|---|---|
| 1 COOLER SML 188 SAMPLES | 1 | 17 | 16 | 17 | 1 | 51 |

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

251900733 7

Remarks: OVERNIGHT DELIVERY OVERNIGHT DELIVERY

Shipper's Signature X Karen A Keene

**Zip Ship** ☐ For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used: Urgent Letter 9X12 ☐ Urgent Pack 12X15 ☐

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. E Third Party Account Number

Base Charge

International Customs Value | International Insurance

Total Transportation Charges | Other Charges/Advance at Origin ☐ OC/AO- $

1-OAK-A

Terms and Conditions on Back

150

CASE NARRATIVE



LABORATORY : TMA/ARLI

CASE : 12-018

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : December 4, 1992 and December 7, 1992

1.0 DESCRIPTION OF CASE :

Fourteen soil samples were analyzed for TCL Organics-Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. Eight soil samples were also analyzed for extractable fuel hydrocarbons in the "Diesel" and "Heavier than Diesel" ranges according to SW-846, EPA Method 8015M.

2.0 SAMPLE LIST :

| WESTINGHOUSE ID | LAB ID | ANALYSIS REQUESTED | MATRIX |
|---|---|---|---|
| B07PZ1 | A2-12-018-01C | V | SOIL |
| B07PZ1 MS | A2-12-018-01D | V | SOIL |
| B07PZ1 MSD | A2-12-018-01E | V | SOIL |
| B07PZ1 | A2-12-018-01F | SV | SOIL |
| B07PZ1 MS | A2-12-018-01G | SV | SOIL |
| B07PZ1 MSD | A2-12-018-01H | SV | SOIL |
| B07PZ1 | A2-12-018-01I | FH | SOIL |
| B07PZ1 MS | A2-12-018-01J | FH | SOIL |
| B07PZ1 MSD | A2-12-018-01K | FH | SOIL |
| B07PY9 | A2-12-018-02C | SV | SOIL |
| B07PZ3 | A2-12-018-03B | SV | SOIL |
| B07PZ2 | A2-12-018-04B | V | SOIL |
| B07PZ2 | A2-12-018-04C | SV | SOIL |
| B07PZ2 | A2-12-018-04D | FH | SOIL |
| B07PZ4 | A2-12-018-05B | V | SOIL |
| B07PZ4 | A2-12-018-05C | SV | SOIL |
| B07PZ4 | A2-12-018-05D | FH | SOIL |
| B07PZ5 | A2-12-023-01B | SV | SOIL |
| B07PZ6 | A2-12-023-02B | V | SOIL |
| B07PZ6 | A2-12-023-02C | SV | SOIL |
| B07PZ6 | A2-12-023-02D | FH | SOIL |
| B07PZ8 | A2-12-023-03A | SV | SOIL |
| B07PZ9 | A2-12-023-04A | SV | SOIL |
| B07Q00 | A2-12-023-05A | SV | SOIL |
| B07PZ7 | A2-12-023-06A | SV | SOIL |
| B07PZ7 | A2-12-023-06B | V | SOIL |
| B07PZ7 | A2-12-023-06D | FH | SOIL |
| B07Q01 | A2-12-023-07A | SV | SOIL |
| B07Q01 | A2-12-023-07B | V | SOIL |
| B07Q01 | A2-12-023-07D | FH | SOIL |
| B07Q02 | A2-12-023-08A | SV | SOIL |
| B07Q02 | A2-12-023-08B | V | SOIL |
| B07Q02 | A2-12-023-08D | FH | SOIL |
| B07Q03 | A2-12-023-09A | SV | SOIL |
| B07Q03 | A2-12-023-09B | V | SOIL |
| B07Q03 | A2-12-023-09D | FH | SOIL |

## 3.0 COMMENTS :

### 3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received and properly documented.

### 3.2 ANALYSIS

#### 3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All of the BFB tunes are injected directly into the GC/MS instrument.

#### 3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

#### 3.2.3 EXTRACTABLE FUEL HYDROCARBONS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the SW-846 holding time. The samples were analyzed by GC/FID for Diesel and heavier than Diesel ranged hydrocarbons. Sample B07PZ1MS and B07PZ1MSD were spiked with 250 mg/Kg Diesel. Their recoveries were 63% and 73%. The results are reported on a wet weight basis.

All other QC results were within the limits specified by SW-846, Method 8015M.

We 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 hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
Nicole Roth
CLP Program Manager

Nicole Roth
for Wida Ang 2/6/93
Organics Supervisor

000004
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 5 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 11 | U |
| 67-64-1 | Acetone | 8 | BJ |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 5 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 4 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 4 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

EPA SAMPLE NO.

B07PZ4

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 6 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 11 | U |
| 67-64-1 | Acetone | 7 | BJ |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 6 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ6

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R08

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 3 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

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

000011

EPA SAMPLE NO.

B07PZ6

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R08

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 3 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

000012
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R09

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 3 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

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

| CAS NO. | COMPOUND | | Q |
|---|---|---|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 10 | U |
| 67-64-1 | Acetone | 6 | BJ |
| 75-15-0 | Carbon Disulfide | 10 | U |
| 75-35-4 | 1,1-Dichloroethene | 10 | U |
| 75-34-3 | 1,1-Dichloroethane | 10 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 10 | U |
| 67-66-3 | Chloroform | 10 | U |
| 107-06-2 | 1,2-Dichloroethane | 10 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 10 | U |
| 56-23-5 | Carbon Tetrachloride | 10 | U |
| 75-27-4 | Bromodichloromethane | 10 | U |
| 78-87-5 | 1,2-Dichloropropane | 10 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 10 | U |
| 79-01-6 | Trichloroethene | 10 | U |
| 124-48-1 | Dibromochloromethane | 10 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 10 | U |
| 71-43-2 | Benzene | 10 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 10 | U |
| 75-25-2 | Bromoform | 10 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 10 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 10 | U |
| 108-88-3 | Toluene | 10 | U |
| 108-90-7 | Chlorobenzene | 10 | U |
| 100-41-4 | Ethylbenzene | 10 | U |
| 100-42-5 | Styrene | 10 | U |
| 1330-20-7 | Xylene (total) | 10 | U |

000013

EPA SAMPLE NO.

B07PZ7

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R09

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 3 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

000014

EPA SAMPLE NO.

B07Q01

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R17

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 9 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 2 | J |
| 67-64-1 | Acetone | 9 | BJ |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

000015

EPA SAMPLE NO.

B07Q01

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R17

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 9 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

000016
EPA SAMPLE NO.

B07Q02

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 9 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 3 | J |
| 67-64-1 | Acetone | 8 | BJ |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

000017
EPA SAMPLE NO.

B07Q02

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 9 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

000018
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q03

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R12

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 4 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

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

000019

EPA SAMPLE NO.

B07Q03

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R12

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 4 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

000020

EPA SAMPLE NO.

B07PY9

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-02C

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 800 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 800 | U |
| 131-11-3 | Dimethylphthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 99-09-2 | 3-Nitroaniline | 800 | U |
| 83-32-9 | Acenaphthene | 330 | U |
| 51-28-5 | 2,4-Dinitrophenol | 800 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PY9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-02C

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 800 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 800 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 800 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 800 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PY9

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-02C

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.7

Number TICs found: 6

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 56000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.70 | 100 | J |
| 3. | UNKNOWN HYDROCARBON | 7.38 | 1200 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.73 | 130 | BJ |
| 5. | UNKNOWN AMINE | 24.82 | 130 | J |
| 6. | HEXANEDIOIC ACID ISOMER | 25.73 | 67 | BJ |

000023

EPA SAMPLE NO.

B07PZ1

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

000025

EPA SAMPLE NO.

B07PZ1

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 76000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.70 | 140 | J |
| 3. | UNKNOWN HYDROCARBON | 7.40 | 1500 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.73 | 210 | BJ |
| 5. | PROPANOIC ACID ISOMER | 18.18 | 70 | J |

000026

EPA SAMPLE NO.

B07PZ2

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04C

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 810 | U |
| 131-11-3 | Dimethylphthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 99-09-2 | 3-Nitroaniline | 810 | U |
| 83-32-9 | Acenaphthene | 330 | U |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04C

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 810 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 810 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(1) - Cannot be separated from Diphenylamine

000028

EPA SAMPLE NO.

B07PZ2

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04C

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.15 | 62000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| 3. | UNKNOWN HYDROCARBON | 8.77 | 100 | BJ |

000029

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ3

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-03B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

EPA SAMPLE NO.

B07PZ3

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-03B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

000031
EPA SAMPLE NO.

B07PZ3

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-03B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.17 | 67000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.73 | 140 | J |
| 3. | UNKNOWN HYDROCARBON | 7.42 | 1500 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.77 | 170 | BJ |

000032
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05C

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 850 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 850 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 850 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 850 | U |

000033

EPA SAMPLE NO.

B07PZ4

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05C

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 850 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 850 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 850 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 850 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

000034
EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07PZ4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05C

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.9

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.15 | 71000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.42 | 1400 | BJ |
| 3. | UNKNOWN HYDROCARBON | 8.77 | 140 | BJ |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ5

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-01B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ5

Lab Name: TMA/ABLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-01B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

000037
EPA SAMPLE NO.

B07PZ5

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-01B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

Number TICs found: 2

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.17 | 61000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 8.78 | 100 | BJ |

EPA SAMPLE NO.

B07PZ6

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02C

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

EPA SAMPLE NO.

B07PZ6

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02C

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ6

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02C

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 71000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 8.73 | 140 | BJ |
| 3. | PROPANOIC ACID ISOMER | 18.17 | 68 | J |

000041
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

000042
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

000043
EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.17 | 76000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.38 | 68 | J |
| 3. | UNKNOWN HYDROCARBON | 6.73 | 140 | J |
| 4. | UNKNOWN HYDROCARBON | 7.43 | 1500 | BJ |
| 5. | UNKNOWN HYDROCARBON | 8.77 | 170 | BJ |

000044
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 810 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 810 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U |

000045

EPA SAMPLE NO.

B07PZ8

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 810 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 810 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ8

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.15 | 66000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| 3. | UNKNOWN HYDROCARBON | 8.77 | 100 | BJ |

000047
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-04A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 380 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 380 | U |
| 95-57-8 | 2-Chlorophenol | 380 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 380 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 380 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 380 | U |
| 95-48-7 | 2-Methylphenol | 380 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 380 | U |
| 106-44-5 | 4-Methylphenol | 380 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 380 | U |
| 67-72-1 | Hexachloroethane | 380 | U |
| 98-95-3 | Nitrobenzene | 380 | U |
| 78-59-1 | Isophorone | 380 | U |
| 88-75-5 | 2-Nitrophenol | 380 | U |
| 105-67-9 | 2,4-Dimethylphenol | 380 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 380 | U |
| 120-83-2 | 2,4-Dichlorophenol | 380 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 380 | U |
| 91-20-3 | Naphthalene | 380 | U |
| 106-47-8 | 4-Chloroaniline | 380 | U |
| 87-68-3 | Hexachlorobutadiene | 380 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 380 | U |
| 91-57-6 | 2-Methylnaphthalene | 380 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 380 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 380 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 920 | U |
| 91-58-7 | 2-Chloronaphthalene | 380 | U |
| 88-74-4 | 2-Nitroaniline | 920 | U |
| 131-11-3 | Dimethylphthalate | 380 | U |
| 208-96-8 | Acenaphthylene | 380 | U |
| 99-09-2 | 3-Nitroaniline | 920 | U |
| 83-32-9 | Acenaphthene | 380 | U |
| 51-28-5 | 2,4-Dinitrophenol | 920 | U |

000048

EPA SAMPLE NO.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-04A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 920 | U |
| 132-64-9 | Dibenzofuran | 380 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 380 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 380 | U |
| 84-66-2 | Diethylphthalate | 380 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 380 | U |
| 86-73-7 | Fluorene | 380 | U |
| 100-01-6 | 4-Nitroaniline | 920 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 920 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 380 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 380 | U |
| 118-74-1 | Hexachlorobenzene | 380 | U |
| 87-86-5 | Pentachlorophenol | 920 | U |
| 85-01-8 | Phenanthrene | 380 | U |
| 120-12-7 | Anthracene | 380 | U |
| 86-74-8 | Carbazole | 380 | U |
| 84-74-2 | Di-n-Butylphthalate | 380 | U |
| 206-44-0 | Fluoranthene | 380 | U |
| 129-00-0 | Pyrene | 380 | U |
| 85-68-7 | Butylbenzylphthalate | 380 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 380 | U |
| 56-55-3 | Benzo(a)Anthracene | 380 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 380 | U |
| 218-01-9 | Chrysene | 380 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 380 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 380 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 380 | U |
| 50-32-8 | Benzo(a)Pyrene | 380 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 380 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 380 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 380 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ9

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-04A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 75000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.70 | 110 | J |
| 3. | UNKNOWN HYDROCARBON | 8.75 | 110 | BJ |
| 4. | PROPANOIC ACID ISOMER | 18.18 | 76 | J |
| 5. | HEXANEDIOIC ACID ISOMER | 25.73 | 110 | J |

000050

EPA SAMPLE NO.

B07Q00

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

000051

EPA SAMPLE NO.

B07Q00

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q00

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.10 | 52000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.38 | 1100 | BJ |
| 3. | UNKNOWN HYDROCARBON | 8.73 | 100 | BJ |
| 4. | PROPANOIC ACID ISOMER | 18.18 | 68 | J |

000053

EPA SAMPLE NO.

B07Q01

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 360 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 | U |
| 95-57-8 | 2-Chlorophenol | 360 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 360 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 360 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 360 | U |
| 95-48-7 | 2-Methylphenol | 360 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 360 | U |
| 106-44-5 | 4-Methylphenol | 360 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 | U |
| 67-72-1 | Hexachloroethane | 360 | U |
| 98-95-3 | Nitrobenzene | 360 | U |
| 78-59-1 | Isophorone | 360 | U |
| 88-75-5 | 2-Nitrophenol | 360 | U |
| 105-67-9 | 2,4-Dimethylphenol | 360 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 | U |
| 120-83-2 | 2,4-Dichlorophenol | 360 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 | U |
| 91-20-3 | Naphthalene | 360 | U |
| 106-47-8 | 4-Chloroaniline | 360 | U |
| 87-68-3 | Hexachlorobutadiene | 360 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 | U |
| 91-57-6 | 2-Methylnaphthalene | 360 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 360 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 860 | U |
| 91-58-7 | 2-Chloronaphthalene | 360 | U |
| 88-74-4 | 2-Nitroaniline | 860 | U |
| 131-11-3 | Dimethylphthalate | 360 | U |
| 208-96-8 | Acenaphthylene | 360 | U |
| 99-09-2 | 3-Nitroaniline | 860 | U |
| 83-32-9 | Acenaphthene | 360 | U |
| 51-28-5 | 2,4-Dinitrophenol | 860 | U |

000054
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q01

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 860 | U |
| 132-64-9 | Dibenzofuran | 360 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 360 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 360 | U |
| 84-66-2 | Diethylphthalate | 360 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 | U |
| 86-73-7 | Fluorene | 360 | U |
| 100-01-6 | 4-Nitroaniline | 860 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 860 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 360 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 | U |
| 118-74-1 | Hexachlorobenzene | 360 | U |
| 87-86-5 | Pentachlorophenol | 860 | U |
| 85-01-8 | Phenanthrene | 360 | U |
| 120-12-7 | Anthracene | 360 | U |
| 86-74-8 | Carbazole | 360 | U |
| 84-74-2 | Di-n-Butylphthalate | 360 | U |
| 206-44-0 | Fluoranthene | 360 | U |
| 129-00-0 | Pyrene | 360 | U |
| 85-68-7 | Butylbenzylphthalate | 360 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 | U |
| 56-55-3 | Benzo(a)Anthracene | 360 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 360 | U |
| 218-01-9 | Chrysene | 360 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 360 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 360 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 360 | U |
| 50-32-8 | Benzo(a)Pyrene | 360 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 360 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 360 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 360 | U |

(1) - Cannot be separated from Diphenylamine

000055

EPA SAMPLE NO.

B07Q01

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 72000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.33 | 72 | J |
| 3. | UNKNOWN HYDROCARBON | 6.68 | 140 | J |
| 4. | UNKNOWN HYDROCARBON | 7.38 | 1500 | BJ |

000056

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q02

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 860 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 860 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 860 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 860 | U |

EPA SAMPLE NO.

B07Q02

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 860 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 860 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 860 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 860 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q02

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 76000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.70 | 140 | J |
| 3. | UNKNOWN HYDROCARBON | 7.40 | 1600 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.75 | 250 | BJ |
| 5. | UNKNOWN ALCOHOL | 9.07 | 110 | J |

000059

EPA SAMPLE NO.

B07Q03

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 830 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 830 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 830 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 830 | U |

000060

EPA SAMPLE NO.

B07Q03

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 830 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 830 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 830 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 830 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07Q03

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

Number TICs found: 2

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 63000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.37 | 69 | J |

# CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 12-049

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : December 11, 1992

## 1.0 DESCRIPTION OF CASE :

Twelve soil samples were analyzed for TCL Organics-Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. One soil sample was also analyzed for extractable fuel hydrocarbons according to SW-846, EPA Method 8015M.

## 2.0 SAMPLE LIST :

| WESTINGHOUSE ID | LAB ID | ANALYSIS REQUESTED | MATRIX |
|---|---|---|---|
| B07Q04 | A2-12-049-01A | SV | SOIL |
| B07Q04 MS | A2-12-049-01B | SV | SOIL |
| B07Q04 MSD | A2-12-049-01C | SV | SOIL |
| B07Q05 | A2-12-049-02A | SV | SOIL |
| B07Q06 | A2-12-049-03A | SV | SOIL |
| B07Q07 | A2-12-049-04A | SV | SOIL |
| B07Q08 | A2-12-049-05A | SV | SOIL |
| B07Q09 | A2-12-049-06A | SV | SOIL |
| B07Q10 | A2-12-049-07A | SV | SOIL |
| B07Q11 | A2-12-049-08A | SV | SOIL |
| B07Q14 | A2-12-049-09A | SV | SOIL |
| B07Q15 | A2-12-049-10A | SV | SOIL |
| B07Q16 | A2-12-049-11A | SV | SOIL |
| B07Q12 | A2-12-049-12E | SV | SOIL |
| B07Q12 | A2-12-049-12F | V & FH | SOIL |
| B07Q12 MS | A2-12-049-12G | V & FH | SOIL |
| B07Q12 MSD | A2-12-049-12H | V & FH | SOIL |

## 3.0 COMMENTS :

### 3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received and properly documented. The VOA bottle for sample B07Q12 was broken upon receipt at TMA/ARLI. VOA analysis was performed on the unopened additional sample bottle for 8015M with approval from TMA/NORCAL.

## 3.2 ANALYSIS

### 3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All of the BFB tunes are injected directly into the GC/MS instrument.

### 3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

### 3.2.3 EXTRACTABLE FUEL HYDROCARBONS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the SW-846 holding time. The samples were analyzed by GC/FID for Diesel and heavier than Diesel ranged hydrocarbons. Samples B07Q12MS and B07Q12MSD were spiked with 250 mg/Kg Diesel. The recoveries for the MS and MSD samples were 45% and 36%, respectively. The MS and MSD samples were re-extracted out of the holding times and their recoveries were 99% and 98%, respectively. The raw data for the re-extracted MS and MSD are enclosed at the end of the data package. The results a reported on a wet weight basis.

All other QC results were within the limits specified by SW-846, Method 8015M.

We 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 hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
CLP Program Manager

Wida Ang
Organics Supervisor

EPA SAMPLE NO.

B07Q12

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-12F

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21218R05

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: not dec. 2 Date Analyzed: 12/18/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

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

000003
EPA SAMPLE NO.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07Q12

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-12F

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21218R05

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: not dec. 2 Date Analyzed: 12/18/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

000004
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q04

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-01A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21229S09

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 360 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 | U |
| 95-57-8 | 2-Chlorophenol | 360 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 360 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 360 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 360 | U |
| 95-48-7 | 2-Methylphenol | 360 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 360 | U |
| 106-44-5 | 4-Methylphenol | 360 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 | U |
| 67-72-1 | Hexachloroethane | 360 | U |
| 98-95-3 | Nitrobenzene | 360 | U |
| 78-59-1 | Isophorone | 360 | U |
| 88-75-5 | 2-Nitrophenol | 360 | U |
| 105-67-9 | 2,4-Dimethylphenol | 360 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 | U |
| 120-83-2 | 2,4-Dichlorophenol | 360 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 | U |
| 91-20-3 | Naphthalene | 360 | U |
| 106-47-8 | 4-Chloroaniline | 360 | U |
| 87-68-3 | Hexachlorobutadiene | 360 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 | U |
| 91-57-6 | 2-Methylnaphthalene | 360 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 360 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 860 | U |
| 91-58-7 | 2-Chloronaphthalene | 360 | U |
| 88-74-4 | 2-Nitroaniline | 860 | U |
| 131-11-3 | Dimethylphthalate | 360 | U |
| 208-96-8 | Acenaphthylene | 360 | U |
| 99-09-2 | 3-Nitroaniline | 860 | U |
| 83-32-9 | Acenaphthene | 360 | U |
| 51-28-5 | 2,4-Dinitrophenol | 860 | U |

000005
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q04

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-01A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21229S09

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 860 | U |
| 132-64-9 | Dibenzofuran | 360 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 360 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 360 | U |
| 84-66-2 | Diethylphthalate | 360 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 | U |
| 86-73-7 | Fluorene | 360 | U |
| 100-01-6 | 4-Nitroaniline | 860 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 860 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 360 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 | U |
| 118-74-1 | Hexachlorobenzene | 360 | U |
| 87-86-5 | Pentachlorophenol | 860 | U |
| 85-01-8 | Phenanthrene | 360 | U |
| 120-12-7 | Anthracene | 360 | U |
| 86-74-8 | Carbazole | 360 | U |
| 84-74-2 | Di-n-Butylphthalate | 360 | U |
| 206-44-0 | Fluoranthene | 360 | U |
| 129-00-0 | Pyrene | 360 | U |
| 85-68-7 | Butylbenzylphthalate | 360 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 | U |
| 56-55-3 | Benzo(a)Anthracene | 360 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 360 | U |
| 218-01-9 | Chrysene | 360 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 360 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 360 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 360 | U |
| 50-32-8 | Benzo(a)Pyrene | 360 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 360 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 360 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 360 | U |

(1) - Cannot be separated from Diphenylamine

000006

EPA SAMPLE NO.

B07Q04

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-01A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21229S09

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.68 | 140 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.37 | 1500 | BJ |
| 3. | UNKNOWN ALCOHOL | 8.72 | 220 | BJ |
| 4. | UNKNOWN ALCOHOL | 9.03 | 72 | BJ |

000007

EPA SAMPLE NO.

B07Q05

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-02A

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21229S12

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

000008

EPA SAMPLE NO.

B07Q05

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-02A

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21229S12

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q05

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-02A

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21229S12

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 7.37 | 1500 | BJ |
| 2. | UNKNOWN ALCOHOL | 8.72 | 210 | BJ |
| 3. | UNKNOWN ALCOHOL | 9.03 | 68 | BJ |
| 4. | UNKNOWN CARBOXYLIC ACID ESTE | 21.13 | 480 | BJ |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q06

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21229S13

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 810 | U |
| 131-11-3 | Dimethylphthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 99-09-2 | 3-Nitroaniline | 810 | U |
| 83-32-9 | Acenaphthene | 330 | U |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U |

000011

EPA SAMPLE NO.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q06

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21229S13

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 810 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 810 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(1) - Cannot be separated from Diphenylamine

000012

EPA SAMPLE NO.

B07Q06

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21229S13

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.67 | 200 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.35 | 2000 | BJ |
| 3. | UNKNOWN ALCOHOL | 8.68 | 300 | BJ |
| 4. | UNKNOWN ALCOHOL | 9.02 | 67 | BJ |
| 5. | UNKNOWN CARBOXYLIC ACID ESTE | 21.10 | 470 | BJ |

000013
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q07

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-04A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21229S14

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 800 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 800 | U |
| 131-11-3 | Dimethylphthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 99-09-2 | 3-Nitroaniline | 800 | U |
| 83-32-9 | Acenaphthene | 330 | U |
| 51-28-5 | 2,4-Dinitrophenol | 800 | U |

000014

EPA SAMPLE NO.

B07Q07

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-04A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21229S14

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 800 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 800 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 800 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 800 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07Q07

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-04A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21229S14

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.65 | 170 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.33 | 1500 | BJ |
| 3. | UNKNOWN ALCOHOL | 8.68 | 200 | BJ |

000016

EPA SAMPLE NO.

B07Q08

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-05A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21229S16

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 10.4

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 810 | U |
| 131-11-3 | Dimethylphthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 99-09-2 | 3-Nitroaniline | 810 | U |
| 83-32-9 | Acenaphthene | 330 | U |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U |

000017

EPA SAMPLE NO.

B07Q08

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-05A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21229S16

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 10.4

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 810 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 810 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(1) - Cannot be separated from Diphenylamine

000018

EPA SAMPLE NO.

B07Q08

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-05A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21229S16

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/29/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 10.4

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 7.38 | 1600 | BJ |
| 2. | UNKNOWN ALCOHOL | 8.72 | 200 | J |
| 3. | UNKNOWN CARBOXYLIC ACID ESTE | 21.13 | 540 | BJ |
| 4. | UNKNOWN ALKANE | 30.37 | 100 | J |

000019

EPA SAMPLE NO.

B07Q09

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-06A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21230S02

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

EPA SAMPLE NO.

B07Q09

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-06A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21230S02

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 110 | J |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

000021
EPA SAMPLE NO.

B07Q09

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-06A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21230S02

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.5

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | SUBST. BENZENE | 6.38 | 100 | J |
| 2. | UNKNOWN HYDROCARBON | 6.65 | 140 | BJ |
| 3. | UNKNOWN HYDROCARBON | 7.35 | 1400 | BJ |
| 4. | UNKNOWN ALCOHOL | 8.68 | 240 | BJ |
| 5. | UNKNOWN ALKANE | 30.33 | 68 | J |

000022

EPA SAMPLE NO.

B07Q10

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S03

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

EPA SAMPLE NO.

B07Q10

# 1C
## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S03

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q10

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S03

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.8

Number TICs found: 7

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.63 | 170 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.32 | 1600 | BJ |
| 3. | UNKNOWN ALCOHOL | 8.67 | 240 | BJ |
| 4. | UNKNOWN ALCOHOL | 8.98 | 70 | BJ |
| 5. | UNKNOWN ALKANE | 28.03 | 170 | J |
| 6. | UNKNOWN ALKANE | 30.32 | 660 | J |
| 7. | UNKNOWN ALKANE | 33.83 | 380 | J |

000025
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q11

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-08A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S04

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.4

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

EPA SAMPLE NO.

B07Q11

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-08A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S04

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.4

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q11

# 1F
## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
## TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-08A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S04

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.4

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | SUBST. BENZENE | 6.37 | 100 | J |
| 2. | UNKNOWN HYDROCARBON | 7.33 | 1400 | BJ |
| 3. | UNKNOWN ALCOHOL | 8.68 | 270 | BJ |
| 4. | UNKNOWN ALCOHOL | 9.00 | 100 | BJ |
| 5. | UNKNOWN ALKANE | 30.33 | 170 | J |

EPA SAMPLE NO.

B07Q12

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-12E

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21230S08

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 810 | U |
| 131-11-3 | Dimethylphthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 99-09-2 | 3-Nitroaniline | 810 | U |
| 83-32-9 | Acenaphthene | 330 | U |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q12

Lab Name: TMA/ARLI Contract: NHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-12E

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21230S08

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 810 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 810 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q12

# 1F
## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
## TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-12E

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21230S08

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 7

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | SUBST. BENZENE | 6.38 | 67 | J |
| 2. | UNKNOWN HYDROCARBON | 6.67 | 170 | BJ |
| 3. | UNKNOWN HYDROCARBON | 7.37 | 1500 | BJ |
| 4. | UNKNOWN ALCOHOL | 8.70 | 270 | BJ |
| 5. | UNKNOWN ALCOHOL | 9.02 | 67 | BJ |
| 6. | UNKNOWN ALKANE | 28.08 | 67 | J |
| 7. | UNKNOWN ALKANE | 30.37 | 130 | J |

EPA SAMPLE NO.

B07Q14

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-09A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S05

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

EPA SAMPLE NO.

B07Q14

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-09A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S05

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q14

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-09A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21230S05

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 7.37 | 1300 | BJ |
| 2. | UNKNOWN ALCOHOL | 8.72 | 210 | BJ |
| 3. | UNKNOWN ALCOHOL | 9.03 | 70 | BJ |
| 4. | UNKNOWN ALKANE | 30.37 | 70 | J |

EPA SAMPLE NO.

B07Q15

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-10A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21230S06

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 830 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 830 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 830 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 830 | U |

EPA SAMPLE NO.

B07Q15

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-10A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21230S06

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 830 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 830 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 830 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 830 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q15

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-10A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21230S06

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

Number TICs found: 9

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | SUBST. BENZENE | 6.40 | 100 | J |
| 2. | UNKNOWN HYDROCARBON | 6.68 | 140 | BJ |
| 3. | UNKNOWN HYDROCARBON | 7.37 | 1600 | BJ |
| 4. | UNKNOWN ALCOHOL | 8.72 | 280 | BJ |
| 5. | UNKNOWN ALCOHOL | 9.03 | 100 | BJ |
| 6. | PROPANOIC ACID ISOMER | 18.13 | 69 | J |
| 7. | UNKNOWN ALKANE | 28.10 | 240 | J |
| 8. | UNKNOWN ALKANE | 30.37 | 590 | J |
| 9. | UNKNOWN ALKANE | 33.87 | 170 | J |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q16

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-11A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21230S07

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

EPA SAMPLE NO.

B07Q16

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-11A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21230S07

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

000039
EPA SAMPLE NO.

B07Q16

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12049 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212049-11A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21230S07

Level: (low/med) LOW Date Received: 12/11/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/18/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.0

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 7.35 | 1700 | BJ |
| 2. | UNKNOWN ALCOHOL | 8.70 | 280 | BJ |
| 3. | UNKNOWN ALCOHOL | 9.02 | 70 | BJ |
| 4. | UNKNOWN HYDROCARBON | 29.55 | 110 | J |

# CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 12-011

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : December 3, 1992

## 1.0 DESCRIPTION OF CASE :

Two soil samples were analyzed for TCL Organics-Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. One soil sample was also analyzed for extractable fuel hydrocarbons according to EPA SW-846, Method 8015M.

## 2.0 SAMPLE LIST :

| WESTINGHOUSE ID | LAB ID | ANALYSIS REQUESTED | MATRIX |
|---|---|---|---|
| B07PY8 | A2-12-011-01C | V | SOIL |
| B07PY8 MS | A2-12-011-01D | V | SOIL |
| B07PY8 MSD | A2-12-011-01E | V | SOIL |
| B07PY8 | A2-12-011-01F | SV | SOIL |
| B07PY8 MS | A2-12-011-01G | SV | SOIL |
| B07PY8 MSD | A2-12-011-01H | SV | SOIL |
| B07PY8 | A2-12-011-01I | FH | SOIL |
| B07PY8 MS | A2-12-011-01J | FH | SOIL |
| B07PY8 MSD | A2-12-011-01K | FH | SOIL |
| B07PZ0 | A2-12-011-02D | SV | SOIL |

## 3.0 COMMENTS :

### 3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received and properly documented.

### 3.2 ANALYSIS

#### 3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All of the BFB tunes are injected directly into the GC/MS instrument.

000001B
~~000002~~
NSR
2/6/93

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

3.2.3 EXTRACTABLE FUEL HYDROCARBONS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the SW-846 holding time. The samples were analyzed by GC/FID for Diesel and heavier than Diesel ranged hydrocarbons. Sample B07PY8MS and B07PY8MSD were spiked with 250 mg/Kg Diesel. The recoveries for the MS and MSD samples were 50% and 57%. The MS and MSD samples were re-extracted out of the holding times and their recoveries were around 99%. This data package only includes the results for the original extraction/analyses. The results are reported on a wet weight basis.

All other QC results were within the limits specified by SW-846, Method 8015M.

We 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 hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
Nicole Roth
CLP Program Manager

Nicole Roth
for Wida Ang 2/6/93
Organics Supervisor

000002

EPA SAMPLE NO.

B07PY8

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21208R20

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: not dec. 8 Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 2 | BJ |
| 67-64-1 | Acetone | 12 | B |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PY8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21208R20

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: not dec. 8 Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

000004

EPA SAMPLE NO.

B07PY8

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 360 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 | U |
| 95-57-8 | 2-Chlorophenol | 360 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 360 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 360 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 360 | U |
| 95-48-7 | 2-Methylphenol | 360 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 360 | U |
| 106-44-5 | 4-Methylphenol | 360 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 | U |
| 67-72-1 | Hexachloroethane | 360 | U |
| 98-95-3 | Nitrobenzene | 360 | U |
| 78-59-1 | Isophorone | 360 | U |
| 88-75-5 | 2-Nitrophenol | 360 | U |
| 105-67-9 | 2,4-Dimethylphenol | 360 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 | U |
| 120-83-2 | 2,4-Dichlorophenol | 360 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 | U |
| 91-20-3 | Naphthalene | 360 | U |
| 106-47-8 | 4-Chloroaniline | 360 | U |
| 87-68-3 | Hexachlorobutadiene | 360 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 | U |
| 91-57-6 | 2-Methylnaphthalene | 360 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 360 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 870 | U |
| 91-58-7 | 2-Chloronaphthalene | 360 | U |
| 88-74-4 | 2-Nitroaniline | 870 | U |
| 131-11-3 | Dimethylphthalate | 360 | U |
| 208-96-8 | Acenaphthylene | 360 | U |
| 99-09-2 | 3-Nitroaniline | 870 | U |
| 83-32-9 | Acenaphthene | 360 | U |
| 51-28-5 | 2,4-Dinitrophenol | 870 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PY8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 870 | U |
| 132-64-9 | Dibenzofuran | 360 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 360 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 360 | U |
| 84-66-2 | Diethylphthalate | 360 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 | U |
| 86-73-7 | Fluorene | 360 | U |
| 100-01-6 | 4-Nitroaniline | 870 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 870 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 360 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 | U |
| 118-74-1 | Hexachlorobenzene | 360 | U |
| 87-86-5 | Pentachlorophenol | 870 | U |
| 85-01-8 | Phenanthrene | 360 | U |
| 120-12-7 | Anthracene | 360 | U |
| 86-74-8 | Carbazole | 360 | U |
| 84-74-2 | Di-n-Butylphthalate | 42 | BJ |
| 206-44-0 | Fluoranthene | 360 | U |
| 129-00-0 | Pyrene | 360 | U |
| 85-68-7 | Butylbenzylphthalate | 360 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 | U |
| 56-55-3 | Benzo(a)Anthracene | 360 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 360 | U |
| 218-01-9 | Chrysene | 360 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 360 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 360 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 360 | U |
| 50-32-8 | Benzo(a)Pyrene | 360 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 360 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 360 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 360 | U |

(1) - Cannot be separated from Diphenylamine

000006
EPA SAMPLE NO.

B07PY8

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 65000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.73 | 140 | BJ |
| 3. | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.77 | 180 | BJ |
| 5. | HEXANEDIOIC ACID ESTER | 25.80 | 12000 | J |

EPA SAMPLE NO.

B07PZ0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 320 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 320 | U |
| 95-57-8 | 2-Chlorophenol | 320 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 320 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 320 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 320 | U |
| 95-48-7 | 2-Methylphenol | 320 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 320 | U |
| 106-44-5 | 4-Methylphenol | 320 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 320 | U |
| 67-72-1 | Hexachloroethane | 320 | U |
| 98-95-3 | Nitrobenzene | 320 | U |
| 78-59-1 | Isophorone | 320 | U |
| 88-75-5 | 2-Nitrophenol | 320 | U |
| 105-67-9 | 2,4-Dimethylphenol | 320 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 320 | U |
| 120-83-2 | 2,4-Dichlorophenol | 320 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 320 | U |
| 91-20-3 | Naphthalene | 320 | U |
| 106-47-8 | 4-Chloroaniline | 320 | U |
| 87-68-3 | Hexachlorobutadiene | 320 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 320 | U |
| 91-57-6 | 2-Methylnaphthalene | 320 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 320 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 320 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 780 | U |
| 91-58-7 | 2-Chloronaphthalene | 320 | U |
| 88-74-4 | 2-Nitroaniline | 780 | U |
| 131-11-3 | Dimethylphthalate | 320 | U |
| 208-96-8 | Acenaphthylene | 320 | U |
| 99-09-2 | 3-Nitroaniline | 780 | U |
| 83-32-9 | Acenaphthene | 320 | U |
| 51-28-5 | 2,4-Dinitrophenol | 780 | U |

EPA SAMPLE NO.

B07PZ0

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 780 | U |
| 132-64-9 | Dibenzofuran | 320 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 320 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 320 | U |
| 84-66-2 | Diethylphthalate | 320 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 320 | U |
| 86-73-7 | Fluorene | 320 | U |
| 100-01-6 | 4-Nitroaniline | 780 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 780 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 320 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 320 | U |
| 118-74-1 | Hexachlorobenzene | 320 | U |
| 87-86-5 | Pentachlorophenol | 780 | U |
| 85-01-8 | Phenanthrene | 320 | U |
| 120-12-7 | Anthracene | 320 | U |
| 86-74-8 | Carbazole | 320 | U |
| 84-74-2 | Di-n-Butylphthalate | 130 | BJ |
| 206-44-0 | Fluoranthene | 320 | U |
| 129-00-0 | Pyrene | 320 | U |
| 85-68-7 | Butylbenzylphthalate | 320 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 320 | U |
| 56-55-3 | Benzo(a)Anthracene | 320 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 320 | U |
| 218-01-9 | Chrysene | 320 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 320 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 320 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 320 | U |
| 50-32-8 | Benzo(a)Pyrene | 320 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 320 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 320 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 320 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ0

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 8

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 54000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.38 | 98 | BJ |
| 3. | UNKNOWN HYDROCARBON | 6.73 | 98 | BJ |
| 4. | UNKNOWN HYDROCARBON | 7.42 | 1100 | BJ |
| 5. | UNKNOWN HYDROCARBON | 8.77 | 65 | BJ |
| 6. | UNKNOWN CARBOXYLIC ACID ESTE | 21.22 | 360 | BJ |
| 7. | HEXANEDIOIC ACID ISOMER | 25.78 | 2600 | BJ |
| 8. | UNKNOWN HYDROCARBON | 29.40 | 65 | J |

# CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 12-011

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : December 3, 1992

## 1.0 DESCRIPTION OF CASE :

Two soil samples were analyzed for TCL Organics-Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. One soil sample was also analyzed for extractable fuel hydrocarbons according to EPA SW-846, Method 8015M.

## 2.0 SAMPLE LIST :

| WESTINGHOUSE ID | LAB ID | ANALYSIS REQUESTED | MATRIX |
|---|---|---|---|
| B07PY8 | A2-12-011-01C | V | SOIL |
| B07PY8 MS | A2-12-011-01D | V | SOIL |
| B07PY8 MSD | A2-12-011-01E | V | SOIL |
| B07PY8 | A2-12-011-01F | SV | SOIL |
| B07PY8 MS | A2-12-011-01G | SV | SOIL |
| B07PY8 MSD | A2-12-011-01H | SV | SOIL |
| B07PY8 | A2-12-011-01I | FH | SOIL |
| B07PY8 MS | A2-12-011-01J | FH | SOIL |
| B07PY8 MSD | A2-12-011-01K | FH | SOIL |
| B07PZ0 | A2-12-011-02D | SV | SOIL |

## 3.0 COMMENTS :

### 3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received and properly documented.

### 3.2 ANALYSIS

#### 3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All of the BFB tunes are injected directly into the GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

3.2.3 EXTRACTABLE FUEL HYDROCARBONS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the SW-846 holding time. The samples were analyzed by GC/FID for Diesel and heavier than Diesel ranged hydrocarbons. Sample B07PY8MS and B07PY8MSD were spiked with 250 mg/Kg Diesel. The recoveries for the MS and MSD samples were 50% and 57%. The MS and MSD samples were re-extracted out of the holding times and their recoveries were around 99%. This data package only includes the results for the original extraction/analyses. The results are reported on a wet weight basis.

All other QC results were within the limits specified by SW-846, Method 8015M.

We 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 hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
Nicole Roth
CLP Program Manager

Nicole Roth
for Wida Ang 2/6/93
Organics Supervisor

EPA SAMPLE NO.

B07PY8

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21208R20

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: not dec. 8 Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 2 | BJ |
| 67-64-1 | Acetone | 12 | B |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

000035

EPA SAMPLE NO.

B07PY8

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21208R20

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: not dec. 8 Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PY8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 360 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 | U |
| 95-57-8 | 2-Chlorophenol | 360 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 360 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 360 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 360 | U |
| 95-48-7 | 2-Methylphenol | 360 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 360 | U |
| 106-44-5 | 4-Methylphenol | 360 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 | U |
| 67-72-1 | Hexachloroethane | 360 | U |
| 98-95-3 | Nitrobenzene | 360 | U |
| 78-59-1 | Isophorone | 360 | U |
| 88-75-5 | 2-Nitrophenol | 360 | U |
| 105-67-9 | 2,4-Dimethylphenol | 360 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 | U |
| 120-83-2 | 2,4-Dichlorophenol | 360 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 | U |
| 91-20-3 | Naphthalene | 360 | U |
| 106-47-8 | 4-Chloroaniline | 360 | U |
| 87-68-3 | Hexachlorobutadiene | 360 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 | U |
| 91-57-6 | 2-Methylnaphthalene | 360 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 360 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 870 | U |
| 91-58-7 | 2-Chloronaphthalene | 360 | U |
| 88-74-4 | 2-Nitroaniline | 870 | U |
| 131-11-3 | Dimethylphthalate | 360 | U |
| 208-96-8 | Acenaphthylene | 360 | U |
| 99-09-2 | 3-Nitroaniline | 870 | U |
| 83-32-9 | Acenaphthene | 360 | U |
| 51-28-5 | 2,4-Dinitrophenol | 870 | U |

000112

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PY8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 870 | U |
| 132-64-9 | Dibenzofuran | 360 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 360 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 360 | U |
| 84-66-2 | Diethylphthalate | 360 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 | U |
| 86-73-7 | Fluorene | 360 | U |
| 100-01-6 | 4-Nitroaniline | 870 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 870 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 360 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 | U |
| 118-74-1 | Hexachlorobenzene | 360 | U |
| 87-86-5 | Pentachlorophenol | 870 | U |
| 85-01-8 | Phenanthrene | 360 | U |
| 120-12-7 | Anthracene | 360 | U |
| 86-74-8 | Carbazole | 360 | U |
| 84-74-2 | Di-n-Butylphthalate | 42 | BJ |
| 206-44-0 | Fluoranthene | 360 | U |
| 129-00-0 | Pyrene | 360 | U |
| 85-68-7 | Butylbenzylphthalate | 360 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 | U |
| 56-55-3 | Benzo(a)Anthracene | 360 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 360 | U |
| 218-01-9 | Chrysene | 360 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 360 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 360 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 360 | U |
| 50-32-8 | Benzo(a)Pyrene | 360 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 360 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 360 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 360 | U |

(1) - Cannot be separated from Diphenylamine

000113

EPA SAMPLE NO.

B07PY8

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 65000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.73 | 140 | BJ |
| 3. | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.77 | 180 | BJ |
| 5. | HEXANEDIOIC ACID ESTER | 25.80 | 12000 | J |

EPA SAMPLE NO.

B07PZ0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 320 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 320 | U |
| 95-57-8 | 2-Chlorophenol | 320 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 320 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 320 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 320 | U |
| 95-48-7 | 2-Methylphenol | 320 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 320 | U |
| 106-44-5 | 4-Methylphenol | 320 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 320 | U |
| 67-72-1 | Hexachloroethane | 320 | U |
| 98-95-3 | Nitrobenzene | 320 | U |
| 78-59-1 | Isophorone | 320 | U |
| 88-75-5 | 2-Nitrophenol | 320 | U |
| 105-67-9 | 2,4-Dimethylphenol | 320 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 320 | U |
| 120-83-2 | 2,4-Dichlorophenol | 320 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 320 | U |
| 91-20-3 | Naphthalene | 320 | U |
| 106-47-8 | 4-Chloroaniline | 320 | U |
| 87-68-3 | Hexachlorobutadiene | 320 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 320 | U |
| 91-57-6 | 2-Methylnaphthalene | 320 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 320 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 320 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 780 | U |
| 91-58-7 | 2-Chloronaphthalene | 320 | U |
| 88-74-4 | 2-Nitroaniline | 780 | U |
| 131-11-3 | Dimethylphthalate | 320 | U |
| 208-96-8 | Acenaphthylene | 320 | U |
| 99-09-2 | 3-Nitroaniline | 780 | U |
| 83-32-9 | Acenaphthene | 320 | U |
| 51-28-5 | 2,4-Dinitrophenol | 780 | U |

000133

EPA SAMPLE NO.

B07PZ0

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 780 | U |
| 132-64-9 | Dibenzofuran | 320 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 320 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 320 | U |
| 84-66-2 | Diethylphthalate | 320 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 320 | U |
| 86-73-7 | Fluorene | 320 | U |
| 100-01-6 | 4-Nitroaniline | 780 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 780 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 320 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 320 | U |
| 118-74-1 | Hexachlorobenzene | 320 | U |
| 87-86-5 | Pentachlorophenol | 780 | U |
| 85-01-8 | Phenanthrene | 320 | U |
| 120-12-7 | Anthracene | 320 | U |
| 86-74-8 | Carbazole | 320 | U |
| 84-74-2 | Di-n-Butylphthalate | 130 | BJ |
| 206-44-0 | Fluoranthene | 320 | U |
| 129-00-0 | Pyrene | 320 | U |
| 85-68-7 | Butylbenzylphthalate | 320 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 320 | U |
| 56-55-3 | Benzo(a)Anthracene | 320 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 320 | U |
| 218-01-9 | Chrysene | 320 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 320 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 320 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 320 | U |
| 50-32-8 | Benzo(a)Pyrene | 320 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 320 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 320 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 320 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ0

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 8

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 54000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.38 | 98 | BJ |
| 3. | UNKNOWN HYDROCARBON | 6.73 | 98 | BJ |
| 4. | UNKNOWN HYDROCARBON | 7.42 | 1100 | BJ |
| 5. | UNKNOWN HYDROCARBON | 8.77 | 65 | BJ |
| 6. | UNKNOWN CARBOXYLIC ACID ESTE | 21.22 | 360 | BJ |
| 7. | HEXANEDIOIC ACID ISOMER | 25.78 | 2600 | BJ |
| 8. | UNKNOWN HYDROCARBON | 29.40 | 65 | J |

TNA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92

Results by Sample

SAMPLE ID B07PY8 FRACTION 01I TEST CODE 8015MS NAME EPA 8015M EXTRACT.

Date & Time Collected 12/01/92 Category

MODIFIED 8015 - EXTRACTABLE FUEL HYDROCARBONS

Matrix: SOIL
Date Analyzed: 12/15/92
Dilution factor: 1.00
Concentration Units: mg/Kg

| Compound | Sample Result | PQL |
|---|---|---|
| Kerosene Range | NA | NA |
| C10 - C16 Jet Fuel Range | ND | 5 |
| C9 - C22 Diesel Range | ND | 10 |
| Hydraulic Range | ND | 5 |

ND = Not detected at the specified limits

Form I

PAGE 1 TMA/Normal CHAIN OF CUSTODY: ORD # N2-12-014

RCVD: 12/03/92 DUE: 01/02/93 12/03/92 15:36:16 KEEP: 04/02/93 DISP: S

000002

| DASH | SAMPLE IDENTIFICATION | | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 01A-S | B07PY8 | | ARLI | : WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 01C-S | B07PY8 | MS | ARLI | : WH014 | WH016 | WH195 | WH232 | WH236 | | |
| 01D-S | B07PY8 | MSD | ARLI | : WH014 | WH016 | WH195 | | | | |
| 01E-S | B07PY8 | DUP | ARLI | : WH217 | WH226 | WH232 | WH236 | | | |
| 02A-S | B07PZ0 | | ARLI | : WH016 | WH217 | WH226 | WH232 | WH236 | | |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| | | | | | |
| [illegible] | 12-3-92 | ARLI | 12-3-92 | [illegible] | 12/3/92 |
| | | | | | |
| | | | | | |
| | | | | | |

00000C

| Westinghouse Hanford Company | CHAIN OF CUSTODY | 002806 |
|---|---|---|

Custody Form Initiator RZ Steffler RM Arnold

Company Contact JM Frain Telephone (509) 376-8941

Project Designation/Sampling Locations White Bluffs – Pickling Acid Crib 100-IU-5 Collection Date 12-1-92

Ice Chest No. Field Logbook No.

Bill of Lading/Airbill No. Offsite Property No.

Method of Shipment Emery Air Express Overnight Express

Shipped to TMA

Possible Sample Hazards/Remarks Nothing Detectible with field instruments.

Sample Identification

B07PY8 (9 Bottles)
B07PZ0 (5 Bottles)

RMA 12-1-92

RMA 12-1-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| Rm Arnold RM Arnold | smSteele SMSteele | 12-2-92 1030 |
| Relinquished by: smSteele SMSteele | Received by: Kermit Blum | Date/Time: 12-3-92 1130 |
| Relinquished by: | Received by: | Date/Time: |
| Relinquished by: | Received by: | Date/Time: |

Final Sample Disposition

| Disposal Method: | Disposed by: | Date/Time: |
|---|---|---|

Comments:

A-6000-407 (12/90)

00000

COC# 002806

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler RM Arnold Date 12-1-92

Company Contact J.M. Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PY8 | S | 12-1-92 | 1435 | (1) 250ml. Poly/TAL Metals/Method CLP |
| | S | | | (1) 250ml. Poly/Anions (300.0) + (353.2) Ammonia (350.2) |
| | S | | | PH (9040) |
| | S | | | (1) 125ml. GS/VOA/Method CLP |
| | S | | | (1) 250ml. aG/SemiVOA/method CLP |
| | S | | | (1) 250ml. G/TPH (Diesel Range) Method 8015M |
| | S | | | (1) 250ml. G/TPH (Heavier Than Diesel Range) ~~Method~~ RA 12-1-9 |
| | S | | | method 8015M |
| | S | | | (1) 250ml. Poly/Calcium Carbonate/Method 130.2 |
| | S | | | (1) 1000ml. G/Gamma Spec./Method RL-4303, |
| | S | | | RL-4304 |
| | S | | | (1) 250ml. Poly/ICP metals for Zirconium EPA 6010 |
| | | | | |
| | | | | |
| B07PZ0 | S | 12-1-92 | 1145 | (1) 250ml. Poly TAL Metals/CLP/ |
| | S | | | (1) 250ml. Poly/Anions (300.0) + (353.2) Ammonia (350.2) |
| | S | | | PH (9040) |
| | S | | | (1) 250ml. Poly/Calcium Carbonate/Method (130.2) |
| | S | | | (1) 250ml. Poly/ICP metals for Zirconium - |
| | S | | | EPA 6010 |
| | S | | | (1) 250ml. aG/Semi VOA/Method CLP |
| | | | | |
| | | | | |
| | | | | |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information PH Tested at 5.6 SAF#92-400

Special Handling and/or Storage Samples to be kept cooled to 4° C. prior to Analysis.

Possible Sample Hazards Suspected Hydrofluoric Acid and Nitric Acid

A-6000-406 (06/91)

SAMPLE LOG-IN SHEET

LAB NAME : TMA/ARLI

PAGE : 1 OF 000003

RECEIVED BY (PRINT NAME): Trudy Galub

LOG-IN-DATE : 12/4/92

RECEIVED BY (SIGNATURE): Trudy Galub

CASE NUMBER:
SAMPLE DELIVERY GROUP NO.:
SAS NUMBER:

REMARKS: SMC-2321

1. Custody Seal(s) — Present/Absent* Intact/Broken
2. Custody Seal Nos: _____
3. Chain of Custody Records — Present/Absent*
4. Traffic Reports or Packing List — Present/Absent*
5. Airbill — Airbill/Sticker Present/Absent*
6. Airbill No.: 5188042646
7. Sample Tags — Present/Absent*
8. Sample Tags Numbers — Listed/Not Listed on Chain of Custody
9. Sample Condition: — Intact/Broken*/Leaking
10. Does information on custody records, traffic reports, and sample tags agree — Yes/No*
11. Date Recieved at Lab: ~~12/~~ 12/4/92
12. Temp of ice chest 4 °C
13. Time Recieved: 1000

SAMPLE TRANSFER

Fraction: _____
Area #: _____
By: _____
On: _____

| EPA SAMPLE # | CORRESPONDING SAMPLE TAG # | CORRESPONDING ASSIGNED LAB # | REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC |
|---|---|---|---|
| | B07P48 | | |
| | B07P20 | | |

* Contact SMO and attach record of resolution

Reviewed By: _____ Logbook No.: _____

Date: _____ Logbook Page No.: _____

FORM DC-1

DOC2/LOGIN.TBL

TMA/ARLI
Thermo Analytical Inc.

# RADIATION DOSE RATE SURVEY FORM

Date 12/04/92 COMPANY Local (WHC) OTHER ORD # 5188042646

Surveyor's Name MARK S. McCray

Model No. HP-210 / ESP-1 Model No. AC-3-7 / ESP-1

Serial Nos. 710289 / 02619 Serial Nos. 407726 / 02628

Calibration Date N/A BEING CALIBRATED Calibration Date 8/01/92

Instrument Calibration Factor N/A Instrument Calibration Factor 0.188

| Sample | Location | HP-210 CPM | HP-210 Factor | HP-210 DPM | AC-3-7 CPM | AC-3-7 Factor | AC-3-7 DPM | Spillage or Breakage? | Activity, uCi/mL or uCi/g |
|---|---|---|---|---|---|---|---|---|---|
| Background | | | | | 1.0 | | | | |
| Consistency | | | | | 5,090 | 0.1871 | | | |
| Smears: SML234 | | | | | 9.0 | | | | |
| | | | | | | | | | |
| Reported (WHC) | | 2 samples | | each | | < 50 | pCi/gram | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Comments:

All OK ✓ Approved MSM

Not OK Date 12/04/92

000005

QUESTIONS? CALL 800-238-5355 TOLL FREE.

TRACKING NUMBER

2.371 518804264 6

# RECIPIENT'S COPY

1 Date 12.3.92

From (Your Name) Please Print: SAMPLE CONTROL

Your Phone Number (Very Important): (213)423-2331

Company: T.R.A. MEDICAL

Department/Floor No:

Street Address: 2030 WRIGHT AVE

City: RICHMOND State: CA ZIP Required: 94804

2 To (Recipient's Name) Please Print: SAMPLE CONTROL

Recipient's Phone Number (Very Important): ( )

Company: THRA/ANI

Department/Floor No:

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes): 160 TAYLOR STREET

City: MONROVIA State: CA ZIP Required: 91016

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320 6400

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

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

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning)
11 [x] YOUR PACKAGING
16 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon; No Saturday delivery†)
51 [ ] YOUR PACKAGING
56 [ ] FEDEX LETTER*
52 [ ] FEDEX PAK*
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 [ ] ECONOMY

Government Overnight (Guaranteed for authorized users only)
46 [ ] GOVT LETTER
41 [ ] GOVT PACKAGE

Freight Service (For packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT**

†Delivery commitment may be later in some areas
*Declared Value Limit $500
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [x] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ] (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
[ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT In Pounds Only | YOUR DECLARED VALUE
Total | Total 1 35 | Total

DIM SHIPMENT (Chargeable Weight) [ ] lbs.
L x W x H

Received At
1 [x] Regular Stop 3 [ ] Drop Box
2 [ ] On-Call Stop 4 [ ] B S C 5 [ ] Station

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

7 Release Signature:

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137204 FXEM 8/92
FORMAT #126
126

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# GENERAL CHEMISTRY RESULTS

CASE NO. 12-011

Soil Sample #:

B07PY8 B07PZ0

## CASE NARRATIVE

The holding time for the pH and Ammonia analyses was exceeded. Careful review of the QC data indicate that the data is reliable.

The % RPD for the Fluoride analysis reported for soil sample B07PZ0 (A2-12-011-02) was 40%. The results for the sample and duplicate were near the instrument detection limit. These results are acceptable based on the level of the fluoride concentration.

No other problems were encountered during sample analysis. All QC results were acceptable.

Ernesto Vázquez

Ernesto Vazquez

TMA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92 02/04/93 06:48:22

REPORT TO: Westinghouse Hanford Company
2355 Stevens Dr.
Richland,WA,99352
MO-346/200 West/T6-08
ATTEN: Jeanette Duncan

PREPARED BY: Thermo Analytical, Inc.
160 Taylor Street
Monrovia, CA 91016
ATTEN: Ms. Carole Harris
PHONE: 818-357-3247

CERTIFIED BY: Ernest Vaigney
CONTACT: EVV CIH

CLIENT: WHC SAMPLES: 3
COMPANY: Westinghouse Hanford Company
FACILITY:

This report is for the sole and exclusive use of the client to whom it is addressed and represents only those samples herein described. Samples not destroyed in testing are retained a maximum of 30 days unless otherwise requested.

WORK ID: Pickling Acid Crib 100-IU-5
TAKEN: By Westinghouse Staff
TRANS: By Federal Express
TYPE: Soil
P.O. #: N2-12-014-SU-AR
INVOICE: under separate cover

**SAMPLE IDENTIFICATION**

| | |
|---|---|
| 01 | B07PY8 |
| 01 | B07PY8 MS |
| 01 | B07PY8 |
| 01 | B07PY8 MS |
| 01 | B07PY8 MSD |
| 01 | B07PY8 |
| 01 | B07PY8 MS |
| 01 | B07PY8 MSD |
| 01 | B07PY8 |
| 01 | B07PY8 MS |
| 01 | B07PY8 MSD |
| 01 | B07PY8 |
| 01 | B07PY8 Duplicate |
| 02 | B07PZ0 |
| 02 | B07PZ0 Duplicate |
| 02 | B07PZ0 |
| 03 | Wet Chemistry Blank |
| 03 | Fuels Blank |

**TEST CODES and NAMES used on this workorder**

| | |
|---|---|
| 8015E3 | 8015M (Extractable) Form 3 |
| 8015MS | EPA 8015M EXTRACT. |
| BNCLPS | CLP Semivol. Sol. - WH016 |
| IC AN | Anions Extraction Solids |
| PH SOL | pH of Solids - WH217 |
| VOCLPS | CLP Vol. Org.Soils - WH014 |
| WCACO3 | Calcium Carbonate WH226 |
| WCCLPS | Anions in Solids - WH232 |
| WCL S | Chloride in Solids - WH216 |
| WCQCD | Quality Control Summary |
| WCQCS | Quality Control Summary |
| WF S | Fluoride in Solids |
| WMOIST | Moisture |
| WNH3 | Ammonia in Soil - WH236 |
| WPO4 S | Phosphate in Solids |
| WSO4 S | Sulfate (in Solids) |

TMA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92

Results by Sample

SAMPLE ID B07PY8 FRACTION 01A TEST CODE VCCLPS NAME Anions in Solids - VH232

Date & Time Collected 12/01/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 5.5 | pH | 0.1 |
| Sulfate | 300.0 | 25 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92

Results by Sample

SAMPLE ID B07PY8 FRACTION 01L TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/01/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 8400 | mg/Kg | 50 |
| | | | | |

FORM I

000011

TMA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92

Results by Sample

SAMPLE ID B07PZ0 FRACTION 02A TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/01/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 3.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.2 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 7.6 | pH | 0.1 |
| Sulfate | 300.0 | 3 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92

Results by Sample

SAMPLE ID B07PZ0 FRACTION 02C TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/01/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 140 | mg/Kg | 50 |
| | | | | |

FORM I

 TMA/Norcal CHAIN OF CUSTODY ORD # N2-12-025

RCVD: 12/04/92 DUE: 01/03/93 12/04/92 15:00:24 KEEP: 04/03/93 DISP: S

000002

| DASH | SAMPLE IDENTIFICATION | | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 01A-S | B07PZ1 | | ARLI | WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 02A-S | B07PZ2 | | ARLI | WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 03A-S | B07PZ4 | | ARLI | WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 03C-S | B07PZ4 | MS | ARLI | WH014 | WH016 | WH195 | WH232 | WH236 | | |
| 03D-S | B07PZ4 | MSD | ARLI | WH014 | WH016 | WH195 | WH226 | | | |
| 03E-S | B07PZ4 | DUP | ARLI | WH217 | WH226 | WH232 | WH236 | | | |
| 04A-S | B07PY9 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 05A-S | B07PZ3 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| | | | | | |
| Yamamoto | 12-4-92 | ARLI | 12-4-92 | [illegible] | 12/7/92 |
| | | | | | |
| | | | | | |
| | | | | | |

000002A

| Westinghouse Hanford Company | CHAIN OF CUSTODY 002807 |
|---|---|

Custody Form Initiator RZ. Steffler RM Arnold

Company Contact J M Frain — Telephone 509 376-8941

Project Designation/Sampling Locations White Bluffs — Collection Date 12-2-92

Pickling Acid Crib 100-IU-5

Ice Chest No. SML-119 — Field Logbook No. EFL 1060

Bill of Lading/Airbill No. 251-900 7326 — Offsite Property No. N/A

Method of Shipment Emery Air Express Overnight Delivery

Shipped to TMA

Possible Sample Hazards/Remarks NON-DETECT WITH FIELD INSTRUMENTS

Sample Identification

B07PZ1 (9) Bottles
B07PY9 (5) Bottles
B07PZ3 (5) Bottles
B07PZ2 (9) Bottles
B07PZ4 (9) Bottles

RMA 12-2-92

RMA 12-2-92

☐ Field Transfer of Custody — CHAIN OF POSSESSION — (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RM Arnold RM Arnold | Kermit Blum | 12-4-92 1200 |
| 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:

A-6000-407 (12/90)

00000

COC # 002807

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler Date 12-2-92

Company Contact J M Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ1 | S | 12-2-92 | 1020 | X (1) Poly 250 ml. TAL metals (CLP) |
| | | | | X (1) Poly 250 ml. ICP metals for Zr. (6010) |
| | | | | (1) Poly 250 ml. Anions F, Cl, SO4, PO4 (EPA 300.0) |
| | | | | X NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | X (1) G 12-2-92 ~~35mA~~ 125 VOA (CLP) |
| | | | | X (1) aG 250 ml. Semi VOA (CLP) |
| | | | | X (1) aG 250 ml. TPH (Diesel Range) (8015m) |
| | | | | X (1) Poly 250 ml. Calcium Carbonate (EPA 130.2) |
| | | | | X (1) G 1000 ml. Gamma Spec. (RC-30) |
| | | | | X (1) aG 250 ml. TPH (Heavier than Diesel Range (8015M) |
| | | | | (9) Total Containers |
| B07PY9 | S | 12-2-92 | 1050 | ✓ (1) Poly 250 ml. TAL Metals (CLP) |
| | | | | ✓ (1) Poly 250 Anions F, Cl, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia EPA 350.2 PH (9040) |
| | | | | ✓ (1) aG 250 ml. Semi VOA (CLP) |
| | | | | ✓ (1) Poly 250 ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓ (1) Poly 250 ml. ICP metals for Zr. (6010) |
| | | | | (5) Total Containers |
| B07PZ3 | S | 12-2-92 | 1330 | ✓ (1) Poly 250 ml. TAL Metals (CLP) |
| | | | | ✓ (1) Poly 250 ml. Anions F, Cl, SO4, PO4 (EPA 300.0) NO2-NO3 (EPA 353.2 Ammonia EPA 350.2 PH |
| | | | | ✓ (1) aG 250 ml. Semi Voa (CLP) |
| | | | | ✓ (1) Poly 250 ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓ (1) Poly 250 ml. ICP Metals for Zr. (6010) |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage Samples to be kept cooled to 4°C. prior to analysis.

Possible Sample Hazards Suspected contaminants are nitric and hydrofluoric acid.

A-6000-406 (06/91)

00000.

COC#002807

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler Date 12-2-92

Company Contact JM Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07RZ2 | S | 12-2-92 | 1435 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr (6010) |
| | | | | ✓(1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) AG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) aG 250ml. TPH (Diesel Range) (8015m) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | ✓(1) aG 250ml. TPH (Heavier than Diesel Range) (8015M) |
| | | | | (9) Total Containers |
| B07PZ4 | S | 12-2-92 | 1500 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr (6010) |
| | | | | ✓(1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (EPA 353.2) Ammonia (EPA 350.2) PH (904 |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) AG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) AG 250ml. TPH (Diesel Range) (8015m) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | ✓(1) aG 250ml. TPH (Heavier than Diesel Range - 8015M) |
| | | | | (9) Total Containers |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF#92-400

Special Handling and/or Storage Samples to be kept cooled to 4°C prior to analysis.

Possible Sample Hazards Suspected contaminants are nitric and hydrofluoric acid. 12-2-92

A-6000-406 (06/91)

 TMA/Norcal CHAIN OF CUSTODY ORD # N2-12-038

RCVD: 12/07/92 DUE: 01/06/93 12/07/92 15:14:22 KEEP: 04/06/93 DISP: S 000003

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 01A-S | B07PZ6 | ARLI | : WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 02A-S | B07PZ7 | ARLI | : WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 03A-S | B07Q01 | ARLI | : WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 04A-S | B07Q002 | ARLI | : WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 05A-S | B07Q003 | ARLI | : WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 05C-S | B07Q003 MS | ARLI | : WH014 | WH016 | WH195 | WH232 | WH236 | | |
| 05D-S | B07Q003 MSD | ARLI | : WH014 | WH016 | WH195 | | | | |
| 05E-S | B07Q003 DUP | ARLI | : WH217 | WH226 | WH232 | WH236 | | | |
| 06A-S | B07PZ5 | ARLI | : WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 07A-S | B07PZ8 | ARLI | : WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 08A-S | B07PZ9 | ARLI | : WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 09A-S | B07Q00 | ARLI | : WH016 | WH217 | WH226 | WH232 | WH236 | | |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| eyamamoto | 12-7-92 | ARLI | 12-7-92 | [illegible] | 12/8/92 |
| | | | | | |
| | | | | | |
| | | | | | |

0000034

| Westinghouse Hanford Company | CHAIN OF CUSTODY 003202 |
|---|---|

Custody Form Initiator RZ Steffler / RM Arnold

Company Contact Jill Frain / Ron Mitchell Telephone 376-8941

Project Designation/Sampling Locations White Bluffs Pickling Acid Crib ERA Saf # 92-400 Collection Date 12-3-92

Ice Chest No. Field Logbook No. EFL 1060

Bill of Lading/Airbill No. Offsite Property No.

Method of Shipment Air Express / Samples are bagged and on wet ice.

Shipped to TMA / Norcal Richmond CA.

Possible Sample Hazards/Remarks Unknown

Sample Identification

| | |
|---|---|
| B0TPZ5 | (5) Bottles |
| B0TPZ6 | (9) Bottles |
| B07PZT | (9) Bottles |
| B07PZ8 | (5) Bottles |
| B07PZ9 | (5) Bottles |
| B07Q00 | (5) Bottles |
| B07Q01 | (9) Bottles |
| B07Q02 | (9) Bottles |
| B07Q03 | (9) Bottles |

RZS 12-3-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RZ Steffler (signature) | SM Steele (signature) | 12-4-92 / 1213 |
| SM Steele (signature) | Kermit Blum | 12-7-92 0800 * |
| | | |
| | | |

Final Sample Disposition

| Disposal Method: | Disposed by: | Date/Time: |
|---|---|---|
| | | |

Comments: * Received @ TMA/NORCAL 12-5-92 @ 1400; opened 12-7-92 KB

A-6000-407 (12/90)

0000036

Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C of C # 003202

Collector RZ Steffler Date 12-3-92

Company Contact Jill Frain / Ron Mitchell Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ5 | S | 12-3-92 | 1010 | ✓(1) Poly 250ml Tal metals (CLP) |
| | | | | ✓(1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammoinia EPA 350.2 PH (9040) |
| | | | | ✓(1) aG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr. (6010) |
| | | | | (5) Total Containers |
| | | | | |
| B07PZ6 | S | 12-3-92 | 1055 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr. (6010) |
| | | | | ✓(1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) aG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) aG 250ml. TPH (Diesel Range) (8015 M) |
| | | | | ✓(1) aG 250ml. TPH (Heavier than Diesel Range) (8015 M) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | (9) Total Containers |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF #92-400

Special Handling and/or Storage Samples to maintain 4°C prior to analysis.

Possible Sample Hazards Unknown, nothing detectable with field instruments

A-6000-406 (11/91)

00000 3C

Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C of C # 3202

Collector RZ STEFFLER Date 12-3-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ8 | S | 12-3-92 | 1300 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE(EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 ~~(EPA 353.2)~~ AMMONIA (EPA 350.2) pH (9040) |
| B07PZ9 | S | 12-3-92 | 1330 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 ~~(EPA 353.2)~~ AMMONIA (EPA 350.2) pH (9040) |
| B07Q00 | S | 12-3-92 | 1340 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 ~~(EPA 353.2)~~ AMMONIA (EPA 350.2) pH (9040) |

*Type of Sample

| | | | | |
|---|---|---|---|---|
| A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS.

A-6000-

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Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C.f.C # 3202

Collector RZ Steffler Date 12-3-92

Company Contact Jill Frain / Ron Mitchell Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ7 | S | 12-3-92 | 1130 | ✓ (1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓ (1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓ (1) Poly 250ml. ICP Metals for Zr. (6010) |
| | | | | ✓ (1) G 125ml. VOA (CLP) |
| | | | | ✓ (1) aG 250ml. Semi VOA (CLP) |
| | | | | ✓ (1) aG 250ml. TPH (Diesel Range) (8015 M) |
| | | | | ✓ (1) aG 250ml. TPH (Heavier Than Diesel Range) (8015M) |
| | | | | ✓ (1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | ✓ | ✓ | ✓ | × (1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | (9) Total Containers |
| B07Q01 | S | 12-3-92 | 1350 | ✓ (1) 250 ml plastic TAL Metals (CLP) |
| | | | | ✓ (1) 250 ml plastic Anions F Cl, SO4, PO4 (EPA 300.0) |
| | | | | NO2, NO3 (~~EPA 353.2~~), Ammonia (EPA 350.2) pH (9040) |
| | | | | ✓ (1) 250 ml plastic ICP Metals for Zr (6010) |
| | | | | ✓ (1) 125 ml amber glass VOA (CLP) |
| | | | | ✓ (1) 250 ml aG SEMI VOA (CLP) |
| | | | | ✓ (1) 250 ml aG TPH diesel range (8015M) |
| | | | | ✓ (1) 250 ml aG TPH heavier than diesel range (8015M) |
| | | | | ✓ (1) 250 ml plastic Calcium Carbonate (~~RC-30~~) 130.2 RB 12-4-92 |
| | ✓ | ✓ | ✓ | ✓ (1) 1000 ml glass Gamma Spec. (RC-30 |
| | | | | (9) Total Containers |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage Samples to maintain 4°C prior to analysis

Possible Sample Hazards Unknown, nothing detectable with field instruments.

A-6000-408 (04/91)

0000c

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C # 3202

Collector RZ STEFFLER Date 12-3-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q02 | S | 12-3-92 | 1350 | (1) 250ml. plastic TAL METALS (CLP) |
| | | | | (1) 250ml. plastic ANIONS,F,CL,SO4,PO4 (EPA 300.0) NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS FOR Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000 ml. glass GAMMA SPEC. (RC-30) |
| | | | | |
| B07Q03 | S | 12-3-92 | 1415 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4 PO4 (EPA 300.0) NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000ml. glass GAMMA SPEC. (RC-30) |
| | | | | |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS.

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS

A-6000-406 (05/91)

SAMPLE LOG-IN SHEET

LAB NAME : TMA/ARLI

PAGE : 1 OF 000004

RECEIVED BY (PRINT NAME): Trudy Golub

LOG-IN-DATE : 12/8/92

RECEIVED BY (SIGNATURE): Trudy Golub

A2-12-018

CASE NUMBER:

SAMPLE DELIVERY GROUP NO.:

SAS NUMBER:

REMARKS:

1. Custody Seal(s) — Present/Absent* Intact/Broken
2. Custody Seal Nos:
3. Chain of Custody Records — Present/Absent*
4. Traffic Reports or Packing List — Present/Absent*
5. Airbill — Airbill/Sticker Present/Absent*
6. Airbill No.: 5188042705
7. Sample Tags — Present/Absent*
8. Sample Tags Numbers — Listed/Not Listed on Chain of Custody
9. Sample Condition: — Intact/Broken*/Leaking
10. Does information on custody records, traffic reports, and sample tags agree — Yes/No*
11. Date Recieved at Lab: 12/8/92
12. Temp of ice chest 3 °C
13. Time Recieved: 0930

SAMPLE TRANSFER

Fraction:

Area #:

By:

On:

| EPA SAMPLE # | CORRESPONDING SAMPLE TAG # | CORRESPONDING ASSIGNED LAB # | REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC |
|---|---|---|---|
| | B07PZ1 | A2-12-018-01 | |
| | B07PZ3 | A2-12-018-03 | |
| | B07PZ2 | A2-12-018-04 | |
| | B07PY9 | A2-12-018-02 | |

* Contact SMO and attach record of resolution

Reviewed By:

Date:

Logbook No.:

Logbook Page No.:

FORM DC-1

* Samples B07PZ2 Anion/Semi Voa
B07PY9 Anion
B07P23 Anion
B07P21 A

} sent to Skinner & Sherman erroneously
Received at TMA ARLI 12/8/92, int

DOC2/LOGIN.TBL

LAB NAME : TMA/ARLI PAGE : OF 000005

RECEIVED BY (PRINT NAME): Trudy Gollub LOG-IN-DATE : 12/7/92

RECEIVED BY (SIGNATURE): [signature]

CASE NUMBER:
SAMPLE DELIVERY GROUP NO.:
SAS NUMBER:

REMARKS: CT-5

1. Custody Seal(s) Present/Absent* Intact/Broken
2. Custody Seal Nos:
3. Chain of Custody Records Present/Absent*
4. Traffic Reports or Packing List Present/Absent*
5. Airbill Airbill/Sticker Present/Absent*
6. Airbill No.: 5188042742
7. Sample Tags Present/Absent*
8. Sample Tags Numbers Listed/Not Listed on Chain of Custody
9. Sample Condition: Intact/Broken*/ Leaking
10. Does information on custody records, traffic reports, and sample tags agree Yes/No*
11. Date Recieved at Lab: 12/7/92
12. Temp of ice chest °C
13. Time Recieved: 0945

SAMPLE TRANSFER

Fraction:
Area #:
By:
On:

| EPA SAMPLE # | CORRESPONDING SAMPLE TAG # | ASSIGNED LAB # | REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC |
|---|---|---|---|
| | B07PZ4 | A2-12-018-05 | |
| | B07PY9 | A2-12-018-02 | |
| | B07PZ3 | A2-12-018-03 | |
| | B07PZ2 | A2-12-018-04 | |
| | B07PZ1 | A2-12-018-01 | |
| | B07MK9 | A2-12-017-01 | |
| | B07MK2 | A2-12-017-02 | |

* Contact SMO and attach record of resolution

Reviewed By: Logbook No.:

Date: Logbook Page No.:

FORM DC-1

DACS/LOGIN.TBL

SAMPLE LOG-IN SHEET

LAB NAME : TMA/ARLI PAGE : 1 of 000006

RECEIVED BY (PRINT NAME): Trudy Golub LOG-IN-DATE : 12/8/92

RECEIVED BY (SIGNATURE): Trudy Golub

CASE NUMBER:
SAMPLE DELIVERY GROUP NO.:
SAS NUMBER:

REMARKS: SML-200

1. Custody Seal(s) Present/Absent* Intact/Broken
2. Custody Seal Nos:
3. Chain of Custody Records Present/Absent*
4. Traffic Reports or Packing List Present/Absent*
5. Airbill Airbill/Sticker Present/Absent*
6. Airbill No.: 5188042705
7. Sample Tags Present/Absent*
8. Sample Tags Numbers Listed/Not Listed on Chain of Custody
9. Sample Condition: Intact/Broken*/Leaking
10. Does information on custody records, traffic reports, and sample tags agree Yes/No*
11. Date Recieved at Lab: 12/8/92
12. Temp of ice chest 2 °C
13. Time Recieved: 0930

SAMPLE TRANSFER

Fraction:
Area #:
By:
On:

| EPA SAMPLE # | CORRESPONDING SAMPLE TAG # | CORRESPONDING ASSIGNED LAB # | REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC |
|---|---|---|---|
| | B07Q87 | A2-12-025-01 | |
| | B07Q88 | A2-12-025-02 | |
| | B07Q89 | A2-12-025-03 | * VOA BOTTLE BROKEN |
| | B07Q00 | A2-12-023-05 | |
| | B07Q01 | A2-12-023-07 | |
| | B07Q02 | A2-12-023-08 | |
| | B07Q03 | A2-12-023-09 | |
| | B07P27 | A2-12-023-06 | |
| | B07P26 | A2-12-023-02 | |
| | | TG. 12/8/9 | |

* Contact SMO and attach record of resolution

Reviewed By: Logbook No.:

Date: Logbook Page No.:

FORM DC-1

DACE/LOGIN.VBL

SAMPLE LOG-IN SHEET

000007

LAB NAME : TNA/ARLI

PAGE : 1 OF

RECEIVED BY (PRINT NAME): Trudy Galub

LOG-IN-DATE : 12/8/92

RECEIVED BY (SIGNATURE): Trudy Galub

CASE NUMBER:

SAMPLE DELIVERY GROUP NO.:

SAS NUMBER:

REMARKS: CT-46

1. Custody Seal(s) — Present/Absent* Intact/Broken
2. Custody Seal Nos: _____
3. Chain of Custody Records — Present/Absent*
4. Traffic Reports or Packing List — Present/Absent*
5. Airbill — Airbill/Sticker Present/Absent*
6. Airbill No.: 5188042705
7. Sample Tags — Present/Absent*
8. Sample Tags Numbers — Listed/Not Listed on Chain of Custody
9. Sample Condition: — Intact/Broken*/Leaking
10. Does information on custody records, traffic reports, and sample tags agree — Yes/No*
11. Date Recieved at Lab: 12/8/92
12. Temp of ice chest 2 °C
13. Time Recieved: 0930

SAMPLE TRANSFER

Fraction: _____

Area #: _____

By: _____

On: _____

| EPA SAMPLE # | CORRESPONDING SAMPLE TAG # | CORRESPONDING ASSIGNED LAB # | REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC |
|---|---|---|---|
| | B07Q00 | A2-12-023-05 | |
| | B07Q01 | A2-12-023-07 | |
| | B07Q02 | A2-12-023-08 | |
| | B07Q03 | A2-12-023-09 | |
| | B07P25 | A2-12-023-01 | |
| | B07P26 | A2-12-023-02 | |
| | B07P27 | A2-12-023-06 | |
| | B07P28 | A2-12-023-03 | |
| | B07P29 | A2-12-023-04 | |
| | B07P91 | → | Sample returned to TNA |
| | B07P90 | A2-12-024-01 | |
| | B07P91 | A2-12-024-02 | |

* Contact SMO and attach record of resolution

Reviewed By: _____ Logbook No.: _____

Date: _____ Logbook Page No.: _____

FORM DC-1

FEDERAL EXPRESS

[redacted]

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 5188042705

000010

2237 5188042705

**RECIPIENT'S COPY**

1 [redacted] Date 12.7.92

From (Your Name) Please Print: SAMPLE CONTROL

Your Phone Number (Very Important): (510)235-2033

Company: T M A /NORCAL

Department/Floor No.:

Street Address: 2030 WRIGHT AVE

City: RICHMOND State: CA ZIP Required: 94804

2 To (Recipient's Name) Please Print: SAMPLE CONTROL

Recipient's Phone Number (Very Important): ( )

Company: TMA / ARL.

Department/Floor No.:

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes): 160 TAYLOR STREET

City: MONROVIA State: CA ZIP Required: 91016

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320 6406

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

3 PAYMENT: 1 [x] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash/Check [redacted]

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning): 11 [x] YOUR PACKAGING; 16 [ ] FEDEX LETTER*; 12 [ ] FEDEX PAK*; 18 [ ] FEDEX BOX; 64 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon to Saturday delivery): 51 [ ] YOUR PACKAGING; 56 [ ] FEDEX LETTER*; 52 [ ] FEDEX PAK*; 53 [ ] FEDEX BOX; 54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day): 30 [ ] ECONOMY

Government Overnight (Restricted to authorized users only): 45 [ ] GOVT LETTER; 41 [ ] GOVT PACKAGE

Freight Service (for packages over 150 lbs.): 70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required); 80 [ ] TWO-DAY FREIGHT**

*Delivery (overnight/next day) lbs. over in same grade. **Declared Value Limit $500. **Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [x] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ] (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES / WEIGHT in Pounds Only / YOUR DECLARED VALUE

Total 3 Total 116 Total

DIM SHIPMENT (Chargeable Weight) [ ] lbs.

L x W x H

Received At: 1 [x] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] BSC 5 [ ] Station

Emp. No. Date

[ ] Cash Received [ ] Return Shipment [ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold

Street Address

City State Zip

Received By: X

Date/Time Received FedEx Employee Number

7 Release Signature

Federal Express: Base Charges; Declared Value Ch; Other 1; Other 2; Total Charges

REVISION DATE 2/92 PART #137204 FXEX FORMAT #126

126

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FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 5188042742

000011

2237M 5188042742

**RECIPIENT'S COPY**

1 Date 12.4.92

From (Your Name) Please Print: Sample control
Your Phone Number (Very Important): 510-235-2633
Company: T M A / NUNCAL
Department/Floor No.:
Street Address: 2030 WRIGHT AVE
City: RICHMOND State: CA ZIP Required: 94804

2 To (Recipient's Name) Please Print: Sample control
Recipient's Phone Number (Very Im...): ( )
Company: TMA / ARI
Department/Flo...
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 160 Taylor Street
City: MONROVIA State: CA ZIP Required: 91016

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2220 6406

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

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

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 ☑ YOUR PACKAGING
16 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*
13 ☐ FEDEX BOX
14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon, by Saturday delivery)
51 ☐ YOUR PACKAGING
56 ☐ FEDEX LETTER*
52 ☐ FEDEX PAK*
53 ☐ FEDEX BOX
54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 ☐ ECONOMY

Government Overnight (Restricted for authorized users only)
46 ☐ GOVT LETTER
41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** (Continuous transmission required)
80 ☐ TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas. *Declared Value Limit $500 **Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)
1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☐ DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) (Not available to all locations) ☑
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐
6 ☐ DRY ICE Lbs
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
10 ☐
☐
12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT In Pounds Only | YOUR DECLARED VALUE
Total 1 | Total 60 | Total

DIM SHIPMENT (Chargeable Weight) ☐ ? lbs.
L x W x H

Received At
1 ☑ Regular Stop 2 ☐ On-Call Stop 3 ☐ Drop Box # ☐ B S C 5 ☐ Station

Emp. No. Date
☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del ☐ Chg. To Hold
Street Address
City State Zip
Received By: X Nicole [signature]
Date/Time Received: 12/5/92 9:45am FedEx Employee Number:

7 Release Signature:

Federal Express U...
Base Charges
Declared Value Cha...
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137204 FXEM
FORMAT #126
126

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FEDERAL EXPRESS

[redacted]

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 5188042705

000012

2237 5188042705

**RECIPIENT'S COPY**

1 [redacted] Date 12.7.92

From (Your Name) Please Print: SAMPLE CONTROL

Your Phone Number (Very Important): (510)235-2633

Company: T M A /NORCAL

Department/Floor No.:

Street Address: 2030 WRIGHT AVE

City: RICHMOND State: CA ZIP Required: 94804

2 To (Recipient's Name) Please Print: SAMPLE CONTROL

Recipient's Phone Number (Very I

Company: TMA / ARL.

Department/Fl

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 160 TAYLOR STREET

City: MONROVIA State: CA ZIP Required: 9106

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320 6406

H IF HOLD FOR PICK-UP, Print FEDEX Address Here

Street Address

City State ZIP Required

3 PAYMENT 1 [x] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No 3 [ ] Bill 3rd Party FedEx Acct. No 4 [ ] Bill Credit Card 5 [ ] Cash/Check [redacted]

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning)
- 11 [x] YOUR PACKAGING
- 15 [ ] FEDEX LETTER*
- 12 [ ] FEDEX PAK*
- 13 [ ] FEDEX BOX
- 14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon, No Saturday delivery)
- 51 [ ] YOUR PACKAGING
- 56 [ ] FEDEX LETTER*
- 52 [ ] FEDEX PAK*
- 53 [ ] FEDEX BOX
- 54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day)
- 30 [ ] ECONOMY

Government Overnight (Restricted for authorized users only)
- 45 [ ] GOV'T LETTER
- 41 [ ] GOV'T PACKAGE

Freight Service (for packages over 150 lbs.)
- 79 [ ] OVERNIGHT FREIGHT** (Continued reservation required)
- 80 [ ] TWO-DAY FREIGHT**

*Delivery commitment may be later in some areas. **Declared Value Limit $500. **Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)
- 1 [ ] HOLD FOR PICK-UP (Fill in Box H)
- 2 [x] DELIVER WEEKDAY
- 3 DELIVER SATURDAY (Extra charge) [ ] (Not available to all locations)
- 4 [ ] DANGEROUS GOODS (Extra charge)
- 5 [ ]
- 6 [ ] DRY ICE Lbs.
- 7 [ ] OTHER SPECIAL SERVICE
- 8 [ ]
- 9 [ ] SATURDAY PICK-UP (Extra charge)
- 10 [ ]
- 12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES / WEIGHT in Pounds Only / YOUR DECLARED VALUE

Total 3 Total 116 Total

DIM SHIPMENT (Chargeable Weight) [ ] lbs.

L x W x H

Received At: 1 [x] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C. 5 [ ] Station

Emp. No Date

[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del [ ] Chg. To Hold

Street Address

City State Zip

Received By: X

Date/Time Received FedEx Employee Number

7 Release Signature:

Federal Expres

Base Charges

Declared Value C

Other 1

Other 2

Total Charges

REVISION DATE 2.92 PART #137204 FXE FORMAT #126

126

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# GENERAL CHEMISTRY RESULTS

CASE NO. 12-018

Work Order # A2-12-018

Soil Sample #:

| | | |
|---|---|---|
| B07PZ1 | B07PY9 | B07PZ3 |
| B07PZ2 | B07PZ4 | |

## CASE NARRATIVE

The % RPD for the Fluoride analysis reported for soil sample B07PY9 (A2-12-018-02) was 28.6%. The results for the sample and duplicate were near the instrument detection limit. These results are acceptable based on the level of the Fluoride concentration.

The holding times for the pH, Ammonia and Anion analyses were exceeded. Careful review of the QC analysis indicate that the data is reliable.

No other problems were encountered during sample analysis. All QC results were acceptable.

Ernesto Vázquez

Ernesto Vazquez

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

02/03/93 07:01:46

REPORT TO: Westinghouse Hanford Company
2355 Stevens Dr.
Richland,WA,99352
MO-346/200 West/T6-08
ATTEN: Jeanette Duncan

PREPARED BY: Thermo Analytical, Inc.
160 Taylor Street
Monrovia, CA 91016
ATTEN: Ms. Carole Harris
PHONE: 818-357-3247

CERTIFIED BY: Ernesto Vigny
CONTACT: EVV CIH

CLIENT: WHC SAMPLES: 6
COMPANY: Westinghouse Hanford Company
FACILITY:

This report is for the sole and exclusive use of the client to whom it is addressed and represents only those samples herein described. Samples not destroyed in testing are retained a maximum of 30 days unless otherwise requested.

WORK ID: Pickling Acid Crib 100-IU-5
TAKEN: By Westinghouse Staff
TRANS: By Federal Express
TYPE: Soil
P.O. #: N2-12-025-SU-AR
INVOICE: under separate cover

QC batched with Workorder# A2-12-023

**SAMPLE IDENTIFICATION**

| | |
|---|---|
| 01 | B07PZ1 |
| 01 | B07PZ1 MS |
| 01 | B07PZ1 |
| 01 | B07PZ1 MS |
| 01 | B07PZ1 MSD |
| 01 | B07PZ1 |
| 01 | B07PZ1 MS |
| 01 | B07PZ1 MSD |
| 01 | B07PZ1 |
| 01 | B07PZ1 MS |
| 01 | B07PZ1 MSD |
| 01 | B07PZ1 |
| 01 | B07PZ1 Duplicate |
| 02 | B07PY9 |
| 02 | B07PY9 Duplicate |
| 02 | B07PY9 |
| 03 | B07PZ3 |
| 04 | B07PZ2 |
| 05 | B07PZ4 |
| 06 | Wet Chemistry Blank |
| 06 | Fuels Blank |

**TEST CODES and NAMES used on this workorder**

| | |
|---|---|
| 8015E3 | 8015M (Extractable) Form 3 |
| 8015MS | EPA 8015M EXTRACT. |
| BLKSUM | Method Blank Summary |
| BNCLPS | CLP Semivol. Sol. - WH016 |
| IC AN | Anions Extraction Solids |
| PH SOL | pH of Solids - WH217 |
| VOCLPS | CLP Vol. Org.Soils - WH014 |
| WCACO3 | Calcium Carbonate WH226 |
| WCCLPS | Anions in Solids - WH232 |
| WCL S | Chloride in Solids - WH216 |
| WCQCD | Quality Control Summary |
| WCQCS | Quality Control Summary |
| WF S | Fluoride in Solids |
| WMOIST | Moisture |
| WNH3 | Ammonia in Soil - WH236 |
| WPO4 S | Phosphate in Solids |
| WSO4 S | Sulfate (in Solids) |

TNA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92 Results by Sample

SAMPLE ID B07PZ1 FRACTION 01A TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 1.4 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.6 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 7.9 | pH | 0.1 |
| Sulfate | 300.0 | 13 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ1 FRACTION 01L TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 7500 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PY9 FRACTION 02A TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.3 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 6.7 | pH | 0.1 |
| Sulfate | 300.0 | 15 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PY9 FRACTION 02D TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 11100 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ3 FRACTION 03A TEST CODE WCCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 7.2 | pH | 0.1 |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TNA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ3 FRACTION 03C TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 9200 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92 Results by Sample

SAMPLE ID B07PZ2 FRACTION 04A TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.1 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.3 | pH | 0.1 |
| Sulfate | 300.0 | 11 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ2 FRACTION 04E TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 11100 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ4 FRACTION 05A TEST CODE VCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.8 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.9 | pH | 0.1 |
| Sulfate | 300.0 | 11 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ4 FRACTION 05E TEST CODE WCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 22700 | mg/Kg | 50 |
| | | | | |

FORM I

# GENERAL CHEMISTRY RESULTS

CASE NO. 12-018

Work Order # A2-12-023

Soil Sample #:

| | | |
|---|---|---|
| B07PZ5 | B07PZ6 | B07PZ7 |
| B07PZ8 | B07PZ9 | B07Q00 |
| B07Q01 | B07Q02 | B07Q03 |

## CASE NARRATIVE

The holding time for the pH analysis was exceeded. Careful review of the QC analysis indicate that the data is reliable.

For the QA/QC results please refence A2-12-018.

No other problems were encountered during sample analysis. All QC results were acceptable.

Ernesto Vazquez

Ernesto Vazquez

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92 02/03/93 07:29:19

REPORT TO: Westinghouse Hanford Company
2355 Stevens Dr.
Richland,WA.99352
MO-346/200 West/T6-08
ATTEN: Jeanette Duncan

PREPARED BY: Thermo Analytical, Inc.
160 Taylor Street
Monrovia, CA 91016
ATTEN: Ms. Carole Harris
PHONE: 818-357-3247

CERTIFIED BY: Ernesto Vázquez
CONTACT: EVV CIH

CLIENT: WHC SAMPLES: 10
COMPANY: Westinghouse Hanford Company
FACILITY:

This report is for the sole and exclusive use of the client to whom it is addressed and represents only those samples herein described. Samples not destroyed in testing are retained a maximum of 30 days unless otherwise requested.

WORK ID: Pickling Acid Crib 100-IU-5
TAKEN: By Westinghouse Staff
TRANS: By Federal Express
TYPE: Soil
P.O. #: N2-12-038-SU-AR
INVOICE: under separate cover

QC to be batched with Workorder# A2-12-018

**SAMPLE IDENTIFICATION**

| | |
|---|---|
| 01 | B07PZ5 |
| 02 | B07PZ6 |
| 03 | B07PZ8 |
| 04 | B07PZ9 |
| 05 | B07Q00 |
| 06 | B07PZ7 |
| 07 | B07Q01 |
| 08 | B07Q02 |
| 09 | B07Q03 |
| 10 | Wet Chemistry Blank |
| 10 | Fuels Blank |

**TEST CODES and NAMES used on this workorder**

| | |
|---|---|
| BNCLPS | CLP Semivol. Sol. - WH016 |
| CANCEL | Analysis Cancelled |
| IC AN | Anions Extraction Solids |
| PH SOL | pH of Solids - WH217 |
| VOCLPS | CLP Vol. Org.Soils - WH014 |
| W8015M | EPA 8015M EXTRACT. WH195A |
| WCACO3 | Calcium Carbonate WH226 |
| WCCLPS | Anions in Solids - WH232 |
| WCL S | Chloride in Solids - WH216 |
| WF S | Fluoride in Solids |
| WMOIST | Moisture |
| WNH3 | Ammonia in Soil - WH236 |
| WPO4 S | Phosphate in Solids |
| WSO4 S | Sulfate (in Solids) |

TNA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ5 FRACTION 01A TEST CODE WCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.5 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 |
| pH | 9045 | 9.0 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ5 FRACTION 01C TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 16100 | mg/Kg | 50 |
| | | | | |

FORM I

Received: 12/07/92

TMA Inc. REPORT

Results by Sample

Work Order # A2-12-023

SAMPLE ID B07PZ6 FRACTION 02A TEST CODE WCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 7.8 | pH | 0.1 |
| Sulfate | 300.0 | 8 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ6 FRACTION 02E TEST CODE VCCLPS NAME Anions in Solids - VH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 7100 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ8 FRACTION 03B TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.3 | pH | 0.1 |
| Sulfate | 300.0 | 5 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ8 FRACTION 03C TEST CODE VCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 6400 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ9 FRACTION 04B TEST CODE UCCLPS NAME Anions in Solids - UN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.7 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 8.7 | pH | 0.1 |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ9 FRACTION 04C TEST CODE VCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 40700 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07Q00 FRACTION 05B TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 9.1 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID 807900 FRACTION 05C TEST CODE VCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 7100 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ7 FRACTION 06C TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.6 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07PZ7 FRACTION 06E TEST CODE WCCLPS NAME Anions in Solids - WK232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 6800 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07Q01 FRACTION 07C TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.0 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 9.2 | pH | 0.1 |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07Q01 FRACTION 07E TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 18700 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07Q02 FRACTION 08C TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.1 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.8 | pH | 0.1 |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07Q02 FRACTION 08E TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 24500 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07003 FRACTION 09C TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 9.6 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07Q03 FRACTION 09E TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 21200 | mg/Kg | 50 |
| | | | | |

FORM I

PAGE 1 TMA/Nortal CHAIN OF CUSTODY ORD # N2-12-069
RCVD: 12/11/92 DUE: 01/10/93 12/14/92 13:19:59 KEEP: 04/10/93 DISP: S 000002

| DASH | SAMPLE IDENTIFICATION | | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 01A-S | B07Q12 | | ARLI | WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 01C-S | B07Q12 | MS | ARLI | WH014 | WH016 | WH195 | WH232 | WH236 | | |
| 01D-S | B07Q12 | MSD | ARLI | WH014 | WH016 | WH195 | | | | |
| 01E-S | B07Q12 | DUP | ARLI | WH217 | WH226 | WH232 | WH236 | | | |
| 02A-S | B07Q04 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 03A-S | B07Q05 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 04A-S | B07Q06 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 05A-S | B07Q07 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 06A-S | B07Q08 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 07A-S | B07Q09 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 08A-S | B07Q10 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 09A-S | B07Q11 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 10A-S | B07Q14 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 11A-S | B07Q15 | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |
| 12A-S | B07Q1[illegible] | | ARLI | WH016 | WH217 | WH226 | WH232 | WH236 | | |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| [illegible] | 12-14-92 | ARLI | 12-14-92 | [illegible] | 12/15/92 |
| | | | | | |
| | | | | | |
| | | | | | |

NZ-12-070 000002

| Westinghouse Hanford Company | CHAIN OF CUSTODY 003203 |
|---|---|

Custody Form Initiator RZ Steffler

Company Contact Jill Frain / Ron Mitchell Telephone 376-8941

Project Designation/Sampling Locations White Bluffs Pickling Acid Crib ERA Suf # 92-400 Collection Date 12-4-92

Ice Chest No. Field Logbook No.

Bill of Lading/Airbill No. Offsite Property No.

Method of Shipment Air Express / Samples are bagged and on wet ice.

Shipped to TMA / Norcal

Possible Sample Hazards/Remarks Unknown. See SAR for individual bottles and analysis

Sample Identification

B07Q04 (5 bottles)
B07Q05 (5 bottles)
B07Q06 (5 bottles)
B07Q07 (5 bottles)
B07Q08 (5 bottles)
B07Q09 (5 bottles)

RZS 12-4-92

RZS 12-4-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RZ Steffler R.Z. Steffler | Kermit Blum | 12-11-92 1515 ~~12-11-92 0800~~ KB |
| 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:

A-6000-407 (12/90)

000002

| Westinghouse Hanford Company | CHAIN OF CUSTODY 003207 |
|---|---|

Custody Form Initiator RZ Steffler

Company Contact Jill Frain / Ron Mitchell — Telephone 376-8941

Project Designation/Sampling Locations White Bluffs Pickling Acid Crib ERA Saf # 92-400 — Collection Date 12-7-92

Ice Chest No. — Field Logbook No. EFL 1060

Bill of Lading/Airbill No. — Offsite Property No.

Method of Shipment Air Express / Samples bagged + on wet ice.

Shipped to TMA / Norcal Richmond, CA.

Possible Sample Hazards/Remarks Unknown

Sample Identification

B07Q10 (5 bottles)
B07Q11 (5 bottles)
B07Q12 (9 bottles)
B07Q14 (5 bottles)
B07Q15 (5 bottles)
B07Q16 (5 bottles)

RZS 12-7-92

RZS 12-7-92

☐ Field Transfer of Custody — CHAIN OF POSSESSION — (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RZ Steffler R. Z. Steffler | Alfonso Galaga | 12-11-92 1515 * ~~12-14-92 0800~~ KB |
| 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: * ~~Received @ TMA/Norcal 12-12-92, opened 12-14-92 KB~~ KB

A-6000-407 (12/90)

00000

Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C of C # 3207

Collector RZ STEFFLER Date 12-7-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q10 | S | 12-7-92 | 0900 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE(EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 ~~(EPA 353.2)~~ AMMONIA (EPA 350.2) pH (9040) |
| B07Q11 | S | 12-7-92 | 0920 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 ~~(EPA 353.2)~~ AMMONIA (EPA 350.2) pH (9040) |
| B07Q14 | S | 12-7-92 | 11:20 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 ~~(EPA 353.2)~~ AMMONIA (EPA 350.2) pH (9040) |

*Type of Sample

| | | | | |
|---|---|---|---|---|
| A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS.

A-6000-406 (06/91)

00000

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C #3207

Collector RZ STEFFLER Date 12-7-92

Company Contact JILL FRAIN/RON MITCHELL Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q12 | S | 12-7-92 | 1005 | (1) 250ml. plastic TAL METALS (CLP) |
| | | | | (1) 250ml. plastic ANIONS,F,CL,SO4,PO4 (EPA 300.0) NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS FOR Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000 ml. glass GAMMA SPEC. (RC-30) |
| | | | | |
| | S | | | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4 PO4 (EPA 300.0) NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000ml. glass GAMMA SPEC. (RC-30) |

RZS 12-7-92

RZS 12-7-92

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS.

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS

A-6000-406 (06/91)

00006

Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C of C # 3207

Collector RZ STEFFLER Date 12-7-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q15 | S | 12-7-92 | 11:35 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE(EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | |
| B07Q16 | S | 12-7-92 | 11:45 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | |
| | | | | ~~(1) 250 ml. plastic TAL METALS (CLP)~~ RZS 12-7-92 |
| | | | | ~~(1) 250 ml. plastic ICP METALS for Zr. (6010)~~ |
| | | | | ~~(1) 250 ml. amber glass SEMI VOA (CLP)~~ |
| | | | | ~~(1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2)~~ |
| | | | | ~~(1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0)~~ |
| | | | | ~~NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040)~~ RZS 12-7-9 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

*Type of Sample

| | | | | |
|---|---|---|---|---|
| A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS.

A-6000-406 (06/91)

00000.

Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C of C # 3203

Collector RZ STEFFLER Date 12-4-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q04 | S | 12-4-92 | 0935 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE(EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |
| B07Q05 | S | 12-4-92 | 0945 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |
| B07Q06 | S | 12-4-92 | 11:15 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |

*Type of Sample

| | | | | |
|---|---|---|---|---|
| A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS.

A-6000-406 (06/91)

00000

Westinghouse Hanford Company

**SAMPLE ANALYSIS REQUEST** C of C # 3203

Collector RZ STEFFLER Date 12-4-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q07 | S | 12-4-92 | 12:15 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE(EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |
| B07Q08 | S | 12-4-92 | 12:25 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |
| B07Q09 | S | 12-4-92 | 1335 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |

*Type of Sample

| | | | | |
|---|---|---|---|---|
| A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS.

A-6000-406 (06/91)

# SAMPLE LOG-IN SHEET

LAB NAME : TNA/ARLI

PAGE : 2 0001003

RECEIVED BY (PRINT NAME): Trudy Goins

LOG-IN-DATE : 12/15/92

RECEIVED BY (SIGNATURE): Trudy Goins

CASE NUMBER:

SAMPLE DELIVERY GROUP NO.:

SAS NUMBER:

REMARKS: PSC

1. Custody Seal(s) Present/Absent* Intact/Broken

2. Custody Seal Nos:

3. Chain of Custody Records Present/Absent*

4. Traffic Reports or Packing List Present/Absent*

5. Airbill Airbill/Sticker Present/Absent*

6. Airbill No.: 5185042672

7. Sample Tags Present/Absent*

8. Sample Tags Numbers Listed/Not Listed on Chain of Custody

9. Sample Condition: Intact/Broken*/Leaking

10. Does information on custody records, traffic reports, and sample tags agree Yes/No*

11. Date Recieved at Lab: 12/15/92

12. Temp of ice chest *See non conformance

13. Time Recieved: 0930

| EPA SAMPLE # | CORRESPONDING SAMPLE TAG # | CORRESPONDING ASSIGNED LAB # | REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC |
|---|---|---|---|
| | B07Q10 | A2-12-049-07 | |
| | B07Q11 | A2-12-049-08 | |
| | B07Q12 | A2-12-049-12 | |
| | B07Q14 | A2-12-049-09 | |
| | B07Q15 | A2-12-049-10 | Cooler sample open |
| | B07Q16 | A2-12-049-11 | |

SAMPLE TRANSFER

Fraction:

Area #:

By:

On:

* Contact SMO and attach record of resolution

Reviewed By:

Date:

Logbook No.:

Logbook Page No.:

FORM DC-3

SAMPLE LOG-IN SHEET

LAB NAME : TNA/ARLI

PAGE : 3 000004

RECEIVED BY (PRINT NAME): Trudy Golub

LOG-IN-DATE : 12/15/92

RECEIVED BY (SIGNATURE): Trudy Golub

CASE NUMBER:

SAMPLE DELIVERY GROUP NO.:

SAS NUMBER:

REMARKS: SMC-188

1. Custody Seal(s) Present/Absent* Intact/Broken

2. Custody Seal Nos:

3. Chain of Custody Records Present/Absent*

4. Traffic Reports or Packing List Present/Absent*

5. Airbill Airbill/Sticker Present/Absent*

6. Airbill No.: 5188042672

7. Sample Tags Present/Absent*

8. Sample Tags Numbers Listed/Not Listed on Chain of Custody

9. Sample Condition: Intact/Broken*/Leaking

10. Does information on custody records, traffic reports, and sample tags agree Yes/No* *

11. Date Recieved at Lab: 12/15/92

12. Temp of ice chest 2 °C

13. Time Recieved: 0930

SAMPLE TRANSFER

Fraction:

Area #:

By:

On:

| EPA SAMPLE # | CORRESPONDING SAMPLE TAG # | CORRESPONDING ASSIGNED LAB # | REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC |
|---|---|---|---|
| | B07QB2 | A2-12-047-08 | |
| | B07QB3 | A2-12-047-09 | |
| | B07Q09 | A2-12-049-06 | |
| | B07Q08 | A2-12-049-05 | |
| | B07Q07 | A2-12-049-04 | |
| | B07Q06 | A2-12-049-03 | |
| | B07Q05 | A2-12-049-02 | |
| | B07Q04 | A2-12-049-01 | |

* Contact SMO and attach record of resolution

Reviewed By: Logbook No.:

Date: Logbook Page No.:

FORM DC-1

* B07QB3 - received metals aliquot instead of VOA aliquot

TMA/ARLI
Thermo Analytical Inc.

000005

# RADIATION DOSE RATE SURVEY FORM

Date 12/15/92 COMPANY TMA/ARCAL (WHC) OTHER ORD # 5188042672

Surveyor's Name MARK S. McCOY

Model No. HP-210 / ESP-1 Model No. AC-3-7 / ESP-1

Serial No. 710289 / 02619 Serial No. 407726 / 02628

Calibration Date 12/02/92 Calibration Date 8/01/92

Instrument Calibration Factor .280 Instrument Calibration Factor 0.188

| Sample | Location | HP-210 CPM | HP-210 Factor | HP-210 DPM | AC-3-7 CPM | AC-3-7 Factor | AC-3-7 DPM | Spillage or Breakage? | Activity, uCi/mL or mCi/g |
|---|---|---|---|---|---|---|---|---|---|
| Background | | 42.0 | | | 0 | | | | |
| Consistency | | 7,460 | 0.2880 | | 5,090 | 0.1871 | | | |
| Smears: 1 PSC | | 44.0 | | | 0 | | | None | |
| SML 263 | | 101.0 | | | 32.0 | | | None | |
| SML 188 | | 47.0 | | | 8.0 | | | None | |
| O.T. IV | | 47.0 | | | 1.0 | | | None | |
| NJ BOUND | | 12.0 | | | 1.0 | | | None | |
| SML 178 | | 38.0 | | | 2.0 | | | None | |
| Reported WHC | | 50 samples each < 50 pCi/gram | | | | | | — | — |
| Samples 5.81890E 02 pCi/gram (TOTAL ACT.) | | | | | | | | | |
| ID B07QN9 | | TOTAL 5.8 E+2 pCi/gram | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Comments:

All OK ✓ Approved MSM

Not OK Date 12/15/92

Form- ARLI RA-01 01/15/92

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 5188042672

5188042672

RECIPIENT'S COPY

Date 12-14-92

From (Your Name) Please Print: SAMPLE CONTROL

Your Phone Number (Very important): (510)235-2633

Company: T M A INDUSTRIAL

Department/Floor No.

Street Address: 2030 WRIGHT AVE

City: RICHMOND State: CA ZIP Required: 94804

To (Recipient's Name) Please Print: SAMPLE CONTROL ( )

Recipient's Phone Number (Very important)

Company: TMA/ARI

Department/Floor No.

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 160 TAYLOR STREET

City: MONROVIA State: CA ZIP Required: 91016

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320 C40G

IF HOLD FOR PICK-UP, Print FEDEX Address Here: Street Address

City State ZIP Required

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

SERVICES (Check only one box)

Priority Overnight: 1 [x] YOUR PACKAGING; 6 [ ] FEDEX LETTER*; 2 [ ] FEDEX PAK*; 3 [ ] FEDEX BOX; 4 [ ] FEDEX TUBE

Standard Overnight: 51 [ ] YOUR PACKAGING; 56 [ ] FEDEX LETTER*; 52 [ ] FEDEX PAK*; 53 [ ] FEDEX BOX; 54 [ ] FEDEX TUBE

Economy Two-Day: 0 [ ] ECONOMY

Government Overnight: 46 [ ] GOVT. LETTER; 41 [ ] GOVT. PACKAGE

Freight Service (for packages over 150 lbs.): 0 [ ] OVERNIGHT FREIGHT**; 80 [ ] TWO-DAY FREIGHT**

*Declared Value Limit $500 **Call for delivery schedule

DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICKUP (Fill in Box H)
2 [x] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ]
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
[ ]
12 [ ] HOLIDAY DELIVERY (Extra charge)

PACKAGES | WEIGHT in Pounds Only | YOUR DECLARED VALUE

Total Total Total

6 375

DIM SHIPMENT (Chargeable Weight) [ ] lbs.

L x W x H

Released At: 1 [x] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C. 5 [ ] Station

Emp. No. Date

[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del [ ] Chg. To Hold

Street Address

City State Zip

Received By: X

Date/Time Received FedEx Employee Number

Release Signature:

Federal Express Use

Base Charge

Declared Value Charge

Other 1

Other 2

Total Charges

REVISION DATE 2/92 PART #137204 FXEM 8/92 FORMAT #126

126

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# GENERAL CHEMISTRY RESULTS

## CASE NO. 12-049

Soil Sample #:

| | | |
|---|---|---|
| B07Q04 | B07Q05 | B07Q06 |
| B07Q07 | B07Q08 | B07Q09 |
| B07Q10 | B07Q11 | B07Q12 |
| B07Q14 | B07Q15 | B07Q16 |

## CASE NARRATIVE

The holding times for the Ammonia and pH analyses was exceeded. Careful review of the QC analysis indicate that the data is reliable.

Sample B07Q04 (A2-12-049-01) yielded a 76.5% recovery for the Phosphate analysis. The low Phosphate recovery compared to our laboratory control sample indicated the presence of a matrix interference.

No other problems were encountered during sample analysis. All QC results were acceptable.

Ernesto Vazquez

Ernesto Vazquez

000010

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q04 FRACTION 01D TEST CODE WCCLPS NAME Anions in Solids - W8232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 27000 | mg/Kg | 50 |
| | | | | |

FORM I

TNA Inc. REPORT Work Order # 92-12-049 000011

Received: 12/11/92 Results by Sample

SAMPLE ID B07Q04 FRACTION 01F TEST CODE VCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.3 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.0 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 9.1 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 0.3 | mg/Kg | 5. |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07905 FRACTION 02B TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 10900 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q05 FRACTION O2C TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.5 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 8.5 | pH | 0.1 |
| Sulfate | 300.0 | 5 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 0.3 | mg/Kg | 5. |
| | | | | |

FORM I

TNA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q06 FRACTION 03B TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 21900 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92 Results by Sample

SAMPLE ID B07906 FRACTION 03C TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 12.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.5 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 9.0 | pH | 0.1 |
| Sulfate | 300.0 | 292 | mg/Kg | 10 |
| Ammonia Nitrogen | 350.3 | 0.4 | mg/Kg | 5. |
| | | | | |

FORM I

TNA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q07 FRACTION 04B TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 19300 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92 Results by Sample

SAMPLE ID B07007 FRACTION 04C TEST CODE VCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 181.0 | mg/Kg | 2. |
| Fluoride | 300.0 | 2.5 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 8.5 | pH | 0.1 |
| Sulfate | 300.0 | 329 | mg/Kg | 10 |
| Ammonia Nitrogen | 350.3 | 3.5 | mg/Kg | 5. |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID S07908 FRACTION 05B TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 24000 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-0019

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q08 FRACTION 05C TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 7.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.9 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 |
| pH | 9045 | 10.4 | pH | 0.1 |
| Sulfate | 300.0 | 44 | mg/Kg | 10 |
| Ammonia Nitrogen | 350.3 | 1.0 | mg/Kg | 5. |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q09 FRACTION 06B TEST CODE VCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 16000 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07009 FRACTION 06C TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/04/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.3 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.4 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.5 | pH | 0.1 |
| Sulfate | 300.0 | 4 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 0.4 | mg/Kg | 5. |
| | | | | |

FORM I

TRA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07910 FRACTION 07B TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 14800 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q10 FRACTION 07C TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 5.1 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.7 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 |
| pH | 9045 | 6.8 | pH | 0.1 |
| Sulfate | 300.0 | 95 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 3.8 | mg/Kg | 5. |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q11 FRACTION 08B TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected not specified Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 11500 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07011 FRACTION 08C TEST CODE VCCLPS NAME Anions in Solids - VW232

Date & Time Collected not specified Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 3.4 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.0 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 |
| pH | 9045 | 6.4 | pH | 0.1 |
| Sulfate | 300.0 | 42 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 1.2 | mg/Kg | 5. |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07014 FRACTION 09B TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 14400 | mg/Kg | 50 |
| | | | | |

FORM I

TNA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07914 FRACTION 09C TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.3 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.6 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 |
| pH | 9045 | 8.0 | pH | 0.1 |
| Sulfate | 300.0 | 4 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 0.4 | mg/Kg | 5. |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07915 FRACTION 10C TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 3.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 |
| pH | 9045 | 8.0 | pH | 0.1 |
| Sulfate | 300.0 | 54 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 0.4 | mg/Kg | 5. |
| Hardness | 130.2 | 13800 | mg/Kg | 50 |
| | | | | |

FORM I

TNA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07Q16 FRACTION 11B TEST CODE WCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 14500 | mg/Kg | 50 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07916 FRACTION 11C TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 3.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.7 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 |
| pH | 9045 | 8.0 | pH | 0.1 |
| Sulfate | 300.0 | 4 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 0.4 | mg/Kg | 5. |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-849

Received: 12/11/92

Results by Sample

SAMPLE ID 807912 FRACTION 120 TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 11.5 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.4 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 7.1 | pH | 0.1 |
| Sulfate | 300.0 | 23 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | 4.3 | mg/Kg | 5. |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-049

Received: 12/11/92

Results by Sample

SAMPLE ID B07912 FRACTION 12I TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/07/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Hardness | 130.2 | 11600 | mg/Kg | 50 |
| | | | | |

FORM I

 Skinner&Sherman REPORT Work Order # S2-12-233

Received: 12/17/92 01/22/93 14:49:16

REPORT TMA/NORCAL
TO 2030 Wright Avenue
Richmond, CA 94804

ATTEN Dan Steurmer

CLIENT HANFORD NOR SAMPLES 13
COMPANY TMA/NORCAL Hanford
FACILITY Richmond, CA

PREPARED TMA / Skinner & Sherman Labs.
BY 300 Second Avenue
P.O. Box 521
Waltham, MA 02254
ATTEN Client Services
PHONE (617) 890-7200

CERTIFIED BY

CONTACT DP

WORK ID N2-12-069
TAKEN BY CLIENT
TRANS FED EX
TYPE SOIL
P.O. # N2-12-069
INVOICE under separate cover

| SAMPLE IDENTIFICATION | |
|---|---|
| 01 | B07Q12 |
| 02 | B07Q04 |
| 03 | B07Q05 |
| 04 | B07Q06 |
| 05 | B07Q07 |
| 06 | B07Q08 |
| 07 | B07Q09 |
| 08 | B07Q10 |
| 09 | B07Q11 |
| 10 | B07Q14 |
| 11 | B07Q15 |
| 12 | B07Q16 |
| 12 | B07Q16 DUPL |
| 12 | B07Q16 SPIKE |
| 13 | LCSS |

TEST CODES and NAMES used on this workorder

NITR S Nitrate/Nitrite in Soils

TMA Thermo Analytical Inc.

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is satisfi Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis. Cli will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the invo amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc. w exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/17/92

Results by Sample

SAMPLE ID B07012 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 12/07/92 Category SOIL

NITR_S 3.52
mg N/kg

SAMPLE ID B07004 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NITR_S <2.55
mg N/kg

SAMPLE ID B07005 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NITR_S <2.52
mg N/kg

SAMPLE ID B07006 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NITR_S <2.47
mg N/kg

SAMPLE ID B07007 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NITR_S <2.51
mg N/kg

SAMPLE ID B07008 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NITR_S <2.42
mg N/kg

SAMPLE ID B07009 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NITR_S <2.50
mg N/kg

TMA Thermo Analytical Inc.
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1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/17/92

Results by Sample

SAMPLE ID B07Q10 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 12/07/92 Category SOIL

NITR_S 16.3
mg N/kg

SAMPLE ID B07Q11 SAMPLE # 09 FRACTIONS: A
Date & Time Collected 12/07/92 Category SOIL

NITR_S 3.70
mg N/kg

SAMPLE ID B07Q14 SAMPLE # 10 FRACTIONS: A
Date & Time Collected 12/07/92 Category SOIL

NITR_S 3.24
mg N/kg

SAMPLE ID B07Q15 SAMPLE # 11 FRACTIONS: A
Date & Time Collected 12/07/92 Category SOIL

NITR_S 5.81
mg N/kg

SAMPLE ID B07Q16 SAMPLE # 12 FRACTIONS: A
Date & Time Collected 12/07/92 Category SOIL

NITR_S <2.51
mg N/kg

SAMPLE ID B07Q16 DUPL SAMPLE # 12 FRACTIONS: B
Date & Time Collected 12/07/92 Category SOIL

NITR_S <2.58
mg N/kg

SAMPLE ID B07Q16 SPIKE SAMPLE # 12 FRACTIONS: C
Date & Time Collected 12/07/92 Category SOIL

NITR_S 17.7
mg N/kg

TMA Thermo Analytical Inc.

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Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/17/92

Results by Sample

SAMPLE ID LCSS SAMPLE # 13 FRACTIONS: A

Date & Time Collected not specified Category SOIL

NITR_S 1.87

mg N/L

TMA Thermo Analytical Inc.

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Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

TMA/NORCAL Hanford

QUALITY CONTROL

MATRIX SPIKE

| Sample ID | Sample Result | Spike Added | Spike Result | % Recovery |
|---|---|---|---|---|
| S212233-12 | <2.51 mg/kg | 19.6 mg/kg | 17.7 mg/kg | 90.3 |

DUPLICATE

| Sample ID | Sample Result | Duplicate Result | Relative % Difference |
|---|---|---|---|
| S212233-12 | <2.51 mg/kg | <2.58 mg/kg | not calculable |

QUALITY CONTROL SAMPLES

| Sample ID | True Value | Found Value | % Recovery |
|---|---|---|---|
| LCS | 2.00 mg/L | 1.87 mg/L | 93.5 |
| Blank | -- | <0.25 mg/L | -- |

TMA
Thermo Analytical Inc.

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Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/17/92

Test Methodology

TEST CODE NITR S NAME Nitrate/Nitrite in Soils

The sample was extracted with deionized water and analyzed in accordance with Method for Chemical Analysis of Water and Wastes EPA-600/4-79-020, March 1979, Method 353.2 (modified)

TMA Thermo Analytical Inc.

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Skinner & Sherman Laboratories Inc. 300 Second Avenue P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

 Skinner&Sherman REPORT Work Order # S2-12-128

Received: 12/04/92 01/14/93 15:21:08

REPORT TMA/NORCAL
TO 2030 Wright Avenue
Richmond, CA 94804

ATTEN Dan Steurmer

CLIENT HANFORD NOR SAMPLES 17
COMPANY TMA/NORCAL
FACILITY Richmond, CA

PREPARED TMA / Skinner & Sherman Labs.
BY 300 Second Avenue
P.O. Box 521
Waltham, MA 02254

ATTEN Client Services
PHONE (617) 890-7200

CERTIFIED BY

CONTACT DP

WORK ID N212014,N212025,N212038
TAKEN BY CLIENT
TRANS FED EX
TYPE SOIL
P.O. # N212014,N212025,N212038
INVOICE under separate cover

| SAMPLE IDENTIFICATION | |
|---|---|
| 01 | B07PY8 |
| 02 | B07PZ0 |
| 03 | B07PZ1 |
| 04 | B07PZ2 |
| 05 | B07PZ4 |
| 06 | B07PY9 |
| 07 | B07PZ3 |
| 08 | B07PZ6 |
| 09 | B07PZ7 |
| 10 | B07Q01 |
| 11 | B07Q02 |
| 12 | B07Q03 |
| 13 | B07PZ5 |
| 14 | B07PZ8 |
| 15 | B07PZ9 |
| 16 | B07Q00 |
| 16 | B07Q00 DUPL |
| 16 | B07Q00 SPIKE |
| 17 | LCSS |

TEST CODES and NAMES used on this workorder

NO3NO2 Nitrate Plus Nitrite

TMA Thermo Analytical Inc.

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Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/04/92 Results by Sample

SAMPLE ID B07PY8 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 12/01/92 Category SOIL

NO3NO2 7.41
mg N/kg

SAMPLE ID B07PZ0 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 12/01/92 Category SOIL

NO3NO2 <2.43
mg N/kg

SAMPLE ID B07PZ1 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 3.89
mg N/kg

SAMPLE ID B07PZ2 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 <2.42
mg N/kg

SAMPLE ID B07PZ4 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 <2.44
mg N/kg

SAMPLE ID B07PY9 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 3.83
mg N/kg

SAMPLE ID B07PZ3 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 2.52
mg N/kg

TMA Thermo Analytical Inc.
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1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ6 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.53
mg N/kg

SAMPLE ID B07PZ7 SAMPLE # 09 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.48
mg N/kg

SAMPLE ID B07Q01 SAMPLE # 10 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.54
mg N/kg

SAMPLE ID B07Q02 SAMPLE # 11 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46
mg N/kg

SAMPLE ID B07Q03 SAMPLE # 12 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.57
mg N/kg

SAMPLE ID B07PZ5 SAMPLE # 13 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.43
mg N/kg

SAMPLE ID B07PZ8 SAMPLE # 14 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.59
mg N/kg

TMA Thermo Analytical Inc.
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Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ9 SAMPLE # 15 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46
mg N/kg

SAMPLE ID B07Q00 SAMPLE # 16 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46
mg N/kg

SAMPLE ID B07Q00 DUPL SAMPLE # 16 FRACTIONS: B
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46
mg N/kg

SAMPLE ID B07Q00 SPIKE SAMPLE # 16 FRACTIONS: C
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 20.3
mg N/kg

SAMPLE ID LCSS SAMPLE # 17 FRACTIONS: A
Date & Time Collected not specified Category SOIL

NO3NO2 2.03
mg N/L

TMA Thermo Analytical Inc.
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Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
800-4 LAB TEST FAX (617) 890-3883

TMA/NORCAL

## QUALITY CONTROL

MATRIX SPIKE

| Sample ID | Sample Result | Spike Added | Spike Result | % Recovery |
|---|---|---|---|---|
| S212128-16 | <2.46 mg/kg | 19.6 mg/kg | 20.3 mg/kg | 103.6 |

DUPLICATE

| Sample ID | Sample Result | Duplicate Result | Relative % Difference |
|---|---|---|---|
| S212128-16 | <2.46 mg/kg | <2.46 mg/kg | not calculable |

QUALITY CONTROL SAMPLES

| Sample ID | True Value | Found Value | % Recovery |
|---|---|---|---|
| LCS | 2.00 mg/L | 2.03 mg/L | 101.5 |
| Blank | -- | <0.25 mg/L | -- |

TMA Thermo Analytical Inc.
This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is satisf. Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis. Cl. will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the inv amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc. exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/04/92

Test Methodology

TEST CODE NO3NO2 NAME Nitrate Plus Nitrite

Methods for Chemical Analysis of Water and Wastes
EPA - 600/4-79-020 March 1979 Method 353.2 (modified)

TMA
Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.
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will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the invo
amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc.
exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held
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300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

TMA/Skinner & Sherman Labs **SAMPLE LOG-IN**

WORKORDER S212128 CLIENT Hanford Nox No. SAMPLES:

PROTCL CLP TURNARND 33 Day 16 (Soil) (Water) (Specify Other

COOLER TEMP: 7 oC, or NA

CUSTODIAN B Raoulo SDG/BATCH N/A

CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N212038, N212014, N212

SHIPER & # Fed Ex PO/CONTRACT# ↓

TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT D. Sanchez

CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: none

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO

SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)

CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES/NO (COMMENT)

SHIPMENT DATES 12/4/92 12/8/92 12/5/92

LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

N/A

| | CLIENT ID | MATRIX | RECEIVED | PH* | TEST(S) & QC | HOLD TIME |
|---|---|---|---|---|---|---|
| 1 | B07PY8 | Soil | 12/4/92 | N/A | NO3 NO2 | |
| 2 | B07PZ0 | ↓ | ↓ | ↓ | ↓ | |
| 3 | B07PZ1 | ↓ | 12/5/92 | ↓ | ↓ | |
| 4 | B07PZ2 | ↓ | ↓ | ↓ | ↓ | |
| 5 | B07PZ4 | ↓ | ↓ | ↓ | ↓ | |
| 6 | B07PY9 | ↓ | ↓ | ↓ | ↓ | |
| 7 | B07PZ3 | ↓ | ↓ | ↓ | ↓ | |
| 8 | B07PZ6 | ↓ | 12/8/92 | ↓ | ↓ | |
| 9 | B07PZ7 | ↓ | ↓ | ↓ | ↓ | |
| 10 | B07Q01 | ↓ | ↓ | ↓ | ↓ | |
| 11 | B07Q02 | ↓ | ↓ | ↓ | ↓ | |
| 12 | B07Q03 | ↓ | ↓ | ↓ | ↓ | |
| 13 | B07PZ5 | ↓ | ↓ | ↓ | ↓ | |
| 14 | B07PZ8 | ↓ | ↓ | ↓ | ↓ | |
| 15 | B07PZ9 | ↓ | ↓ | ↓ | ↓ | |
| 16 | B07Q00 | ↓ | ↓ | ↓ | D.S. ↓ | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |

Samples are from site known to have Rad-Contamination: YES ✓ NO

Samples have detectable amounts of Radioactive Material: YES NO ✓

SUBCONTRACT: YES/NO TO: DATE:

REVIEWED

Complete 12/9/92 BP

* EPA/CLP required Rev 1.6 PAGE: 8

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # N2-12-038

RCVD: 12/07/92 DUE: 01/06/93 12/07/92 15:14:24 KEEP: 04/06/93 DISP: S

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | |
|---|---|---|---|---|---|---|---|
| 01B-S | B07PZ6 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 02B-S | B07PZ7 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03B-S | B07Q01 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 04B-S | B07Q002 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05B-S | B07Q03 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05F-S | B07Q03 MS | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05G-S | B07Q03 DUP | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05H-S | L C S | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 06B-S | B07PZ5 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 07B-S | B07PZ8 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 08B-S | B07PZ9 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 09B-S | B07Q00 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| Yamamoto | 12-7-92 | Skinner | 12-7-92 | [illegible] | 12/8/92 |
| | | | | | |
| | | | | | |
| | | | | | |

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # N2-12-025

RCVD: 12/04/92 DUE: 01/03/93 12/04/92 15:00:25 KEEP: 04/03/93 DISP: S

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | |
|---|---|---|---|---|---|---|---|
| 01B-S | B07PZ1 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 02B-S | B07PZ2 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03B-S | B07PZ4 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03F-S | B07PZ4 MS | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03G-S | B07PZ4 DUP | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03H-S | L C S | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 04B-S | B07PY9 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05B-S | B07PZ3 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| Yyamamoto | 12-4-92 | SKINNER | 12-4-92 | [illegible] | 12/5/92 |
| | | | | | |
| | | | | | |
| | | | | | |

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # N2-12-014
RCVD: 12/03/92 DUE: 01/02/93 12/03/92 15:36:17 KEEP: 04/02/93 DISP: S

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | |
|---|---|---|---|---|---|---|---|
| 01B-S | B07PY8 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 01F-S | B07PY8 MS | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 01G-S | B07PY8 DUP | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 01H-S | L C S | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 02B-S | B07PZ0 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| tyamamoto | 12-3-92 | Skinner | 12-3-92 | [illegible] | 12/4/92 |
| | | | | | |
| | | | | | |
| | | | | | |

CCPW5Z

TMA
Thermo Analytical Inc.

Skinner & Sherman Labs., Inc.
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521
(617) 890-7200
FAX (617) 890-3883

RECORD COPY

FEB 1993
RECEIVED
OSM

January 22, 1993

TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804
Attention: Dan Stuermer

## Quality Control Narrative

### Scope

Twelve (12) soil samples were submitted to TMA/Skinner & Sherman Laboratories, Inc. on December 15, 1992 from TMA/Norcal. The samples were analyzed for the USEPA CLP TAL metals plus zirconium. The analysis were performed under TMA/Skinner and Sherman work order S212220.

### Methodology

The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work ILM02. Zirconium was analyzed by Inductively Coupled Argon Plasma Spectroscopy (ICP).

### Discussion

All quality control requirements were met for the samples with the following exceptions:

The antimony digestion spike recovery exceeded the control limit requirements.

The ICP serial dilution for potassium exceeded the control limit requirements.

The zirconium laboratory duplicates exceeded the control limit requirements.

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

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manager

WESTINGHOUSE/HANFORD

# COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069 SAS No.: SDG No.: B07Q04

SOW No.: ILM02.1

| SAMPLE NUMBER: | Lab Sample ID. |
|---|---|
| B07Q04 | 12220-02S |
| B07Q05 | 12220-03S |
| B07Q06 | 12220-04S |
| B07Q07 | 12220-05S |
| B07Q08 | 12220-06S |
| B07Q09 | 12220-07S |
| B07Q10 | 12220-08S |
| B07Q11 | 12220-09S |
| B07Q12 | 12220-01S |
| B07Q14 | 12220-10S |
| B07Q15 | 12220-11S |
| B07Q16 | 12220-12S |
| B07Q16D | 12220-12S2 |
| B07Q16S | 12220-12DS |
| | |
| | |
| | |
| | |
| | |
| | |

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

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 this 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: Name: David N. Peterson

Date: 1/22/93 Title: Asst. Laboratory Manager

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q04

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-02S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 88.8

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5930 | | | P |
| 7440-36-0 | Antimony | 3.9 | U | N | P |
| 7440-38-2 | Arsenic | 2.0 | B | | F |
| 7440-39-3 | Barium | 67.0 | | | P |
| 7440-41-7 | Beryllium | 0.23 | B | | P |
| 7440-43-9 | Cadmium | 0.34 | U | | P |
| 7440-70-2 | Calcium | 9130 | | | P |
| 7440-47-3 | Chromium | 11.0 | | | P |
| 7440-48-4 | Cobalt | 7.1 | B | | P |
| 7440-50-8 | Copper | 10.5 | | | P |
| 7439-89-6 | Iron | 16000 | | | P |
| 7439-92-1 | Lead | 3.4 | | | F |
| 7439-95-4 | Magnesium | 4920 | | | P |
| 7439-96-5 | Manganese | 212 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 10.7 | | | P |
| 7440-09-7 | Potassium | 1230 | | E | P |
| 7782-49-2 | Selenium | 0.63 | U | S | F |
| 7440-22-4 | Silver | 0.99 | B | | P |
| 7440-23-5 | Sodium | 154 | B | | P |
| 7440-28-0 | Thallium | 0.53 | U | | F |
| 7440-62-2 | Vanadium | 34.1 | | | P |
| 7440-66-6 | Zinc | 38.2 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.7 | U | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

2

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B07Q05

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-03S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 82.8

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4170 | | | P |
| 7440-36-0 | Antimony | 4.4 | U | N | P |
| 7440-38-2 | Arsenic | 1.3 | B | | F |
| 7440-39-3 | Barium | 39.7 | B | | P |
| 7440-41-7 | Beryllium | 0.18 | B | | P |
| 7440-43-9 | Cadmium | 0.38 | U | | P |
| 7440-70-2 | Calcium | 4310 | | | P |
| 7440-47-3 | Chromium | 7.2 | | | P |
| 7440-48-4 | Cobalt | 7.2 | B | | P |
| 7440-50-8 | Copper | 13.2 | | | F |
| 7439-89-6 | Iron | 15900 | | | P |
| 7439-92-1 | Lead | 2.5 | | | F |
| 7439-95-4 | Magnesium | 3470 | | | P |
| 7439-96-5 | Manganese | 218 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 9.6 | | | P |
| 7440-09-7 | Potassium | 546 | B | E | P |
| 7782-49-2 | Selenium | 0.72 | U | MW | F |
| 7440-22-4 | Silver | 0.97 | B | | P |
| 7440-23-5 | Sodium | 200 | B | | P |
| 7440-28-0 | Thallium | 0.60 | U | | F |
| 7440-62-2 | Vanadium | 39.7 | | | P |
| 7440-66-6 | Zinc | 33.6 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 20.8 | U | * | P |

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts: YES

Comments:
STONES

3

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q06

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-04S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 95.8

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5730 | | | P |
| 7440-36-0 | Antimony | 3.6 | U | N | P |
| 7440-38-2 | Arsenic | 1.7 | B | | F |
| 7440-39-3 | Barium | 55.6 | | | P |
| 7440-41-7 | Beryllium | 0.26 | B | | P |
| 7440-43-9 | Cadmium | 0.32 | U | | P |
| 7440-70-2 | Calcium | 6750 | | | P |
| 7440-47-3 | Chromium | 10.0 | | | P |
| 7440-48-4 | Cobalt | 6.9 | B | | P |
| 7440-50-8 | Copper | 9.7 | | | P |
| 7439-89-6 | Iron | 17600 | | | P |
| 7439-92-1 | Lead | 2.9 | | | F |
| 7439-95-4 | Magnesium | 4390 | | | P |
| 7439-96-5 | Manganese | 240 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 9.8 | | | F |
| 7440-09-7 | Potassium | 1260 | | E | P |
| 7782-49-2 | Selenium | 0.58 | U | W | F |
| 7440-22-4 | Silver | 1.3 | B | | P |
| 7440-23-5 | Sodium | 362 | B | | P |
| 7440-28-0 | Thallium | 0.48 | U | | F |
| 7440-62-2 | Vanadium | 35.9 | | | P |
| 7440-66-6 | Zinc | 35.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.3 | U | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

4

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B07Q07

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-05S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 80.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 6010 | | | P |
| 7440-36-0 | Antimony | 4.4 | U | N | P |
| 7440-38-2 | Arsenic | 1.7 | B | W | F |
| 7440-39-3 | Barium | 58.1 | | | P |
| 7440-41-7 | Beryllium | 0.29 | B | | P |
| 7440-43-9 | Cadmium | 0.39 | U | | P |
| 7440-70-2 | Calcium | 5220 | | | P |
| 7440-47-3 | Chromium | 9.9 | | | P |
| 7440-48-4 | Cobalt | 7.6 | B | | P |
| 7440-50-8 | Copper | 10.4 | | | P |
| 7439-89-6 | Iron | 19100 | | | P |
| 7439-92-1 | Lead | 3.6 | | | F |
| 7439-95-4 | Magnesium | 4410 | | | P |
| 7439-96-5 | Manganese | 257 | | | P |
| 7439-97-6 | Mercury | 0.06 | U | | CV |
| 7440-02-0 | Nickel | 10.6 | | | P |
| 7440-09-7 | Potassium | 1140 | B | E | P |
| 7782-49-2 | Selenium | 0.74 | U | W | F |
| 7440-22-4 | Silver | 1.8 | B | | P |
| 7440-23-5 | Sodium | 543 | B | | P |
| 7440-28-0 | Thallium | 0.62 | U | | F |
| 7440-62-2 | Vanadium | 40.9 | | | P |
| 7440-66-6 | Zinc | 1020 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 25.9 | | * | F |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

5

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q08

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-069

Level (low/med): LOW Date Received: 12/15/92

% Solids: 97.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4070 | | | P |
| 7440-36-0 | Antimony | 3.7 | U | N | P |
| 7440-38-2 | Arsenic | 1.6 | B | W | F |
| 7440-39-3 | Barium | 46.8 | | | P |
| 7440-41-7 | Beryllium | 0.19 | B | | P |
| 7440-43-9 | Cadmium | 0.90 | B | | P |
| 7440-70-2 | Calcium | 4230 | | | P |
| 7440-47-3 | Chromium | 6.5 | | | P |
| 7440-48-4 | Cobalt | 5.9 | B | | P |
| 7440-50-8 | Copper | 6.6 | | | P |
| 7439-89-6 | Iron | 12900 | | | P |
| 7439-92-1 | Lead | 4.3 | | | F |
| 7439-95-4 | Magnesium | 3220 | | | P |
| 7439-96-5 | Manganese | 196 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 7.4 | B | | P |
| 7440-09-7 | Potassium | 866 | B | E | P |
| 7782-49-2 | Selenium | 0.61 | U | | F |
| 7440-22-4 | Silver | 0.81 | B | | P |
| 7440-23-5 | Sodium | 750 | B | | P |
| 7440-28-0 | Thallium | 0.51 | U | | F |
| 7440-62-2 | Vanadium | 30.1 | | | P |
| 7440-66-6 | Zinc | 1070 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.9 | U | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:



FORM I - IN ILM02.1

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B07Q09

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-07S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 92.9

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5720 | | | P |
| 7440-36-0 | Antimony | 3.7 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 75.1 | | | P |
| 7440-41-7 | Beryllium | 0.31 | B | | P |
| 7440-43-9 | Cadmium | 0.32 | U | | P |
| 7440-70-2 | Calcium | 3900 | | | P |
| 7440-47-3 | Chromium | 7.9 | | | P |
| 7440-48-4 | Cobalt | 10.9 | | | P |
| 7440-50-8 | Cooper | 10.7 | | | P |
| 7439-89-6 | Iron | 20800 | | | P |
| 7439-92-1 | Lead | 3.4 | | | F |
| 7439-95-4 | Magnesium | 4320 | | | P |
| 7439-96-5 | Manganese | 376 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 11.3 | | | P |
| 7440-09-7 | Potassium | 1020 | | E | P |
| 7782-49-2 | Selenium | 0.65 | B | Ms | F |
| 7440-22-4 | Silver | 1.3 | B | | P |
| 7440-23-5 | Sodium | 178 | B | | P |
| 7440-28-0 | Thallium | 0.52 | U | | F |
| 7440-62-2 | Vanadium | 52.6 | | | P |
| 7440-66-6 | Zinc | 46.6 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.7 | U | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

7

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q10

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-08S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 88.8

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5730 | | | P |
| 7440-36-0 | Antimony | 4.0 | U | N | P |
| 7440-38-2 | Arsenic | 0.87 | B | | F |
| 7440-39-3 | Barium | 50.8 | | | P |
| 7440-41-7 | Beryllium | 0.19 | B | | P |
| 7440-43-9 | Cadmium | 0.35 | U | | P |
| 7440-70-2 | Calcium | 3400 | | | P |
| 7440-47-3 | Chromium | 10.2 | | | P |
| 7440-48-4 | Cobalt | 6.7 | B | | P |
| 7440-50-8 | Copper | 18.7 | | | P |
| 7439-89-6 | Iron | 16300 | | | P |
| 7439-92-1 | Lead | 6.7 | | | F |
| 7439-95-4 | Magnesium | 3740 | | | P |
| 7439-96-5 | Manganese | 190 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 9.2 | | | P |
| 7440-09-7 | Potassium | 1430 | | E | P |
| 7782-49-2 | Selenium | 0.68 | U | | F |
| 7440-22-4 | Silver | 1.0 | B | | P |
| 7440-23-5 | Sodium | 136 | B | | P |
| 7440-28-0 | Thallium | 0.57 | U | | F |
| 7440-62-2 | Vanadium | 39.8 | | | P |
| 7440-66-6 | Zinc | 68.7 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 19.2 | U | * | F |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

8

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q11

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-09S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 84.9

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 8060 | | | P |
| 7440-36-0 | Antimony | 4.1 | B | N | P |
| 7440-38-2 | Arsenic | 1.0 | B | | F |
| 7440-39-3 | Barium | 64.3 | | | P |
| 7440-41-7 | Beryllium | 0.36 | B | | P |
| 7440-43-9 | Cadmium | 0.35 | U | | P |
| 7440-70-2 | Calcium | 4940 | | | P |
| 7440-47-3 | Chromium | 13.3 | | | P |
| 7440-48-4 | Cobalt | 10.0 | B | | P |
| 7440-50-8 | Copper | 14.2 | | | P |
| 7439-89-6 | Iron | 23400 | | | P |
| 7439-92-1 | Lead | 5.1 | | | F |
| 7439-95-4 | Magnesium | 5210 | | | P |
| 7439-96-5 | Manganese | 263 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 12.5 | | | P |
| 7440-09-7 | Potassium | 1980 | | E | P |
| 7782-49-2 | Selenium | 0.70 | U | W | F |
| 7440-22-4 | Silver | 1.5 | B | | P |
| 7440-23-5 | Sodium | 493 | B | | P |
| 7440-28-0 | Thallium | 0.59 | U | | F |
| 7440-62-2 | Vanadium | 55.9 | | | P |
| 7440-66-6 | Zinc | 554 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 19.4 | U | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B07Q12

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-01S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 93.2

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 7370 | | | P |
| 7440-36-0 | Antimony | 3.6 | U | N | P |
| 7440-38-2 | Arsenic | 3.6 | | S | F |
| 7440-39-3 | Barium | 57.9 | | | P |
| 7440-41-7 | Beryllium | 0.30 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 3460 | | | P |
| 7440-47-3 | Chromium | 43.1 | | | P |
| 7440-48-4 | Cobalt | 9.3 | B | | P |
| 7440-50-8 | Copper | 11.4 | | | P |
| 7439-89-6 | Iron | 19200 | | | P |
| 7439-92-1 | Lead | 3.9 | | | F |
| 7439-95-4 | Magnesium | 4040 | | | P |
| 7439-96-5 | Manganese | 177 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 27.3 | | | P |
| 7440-09-7 | Potassium | 1710 | | E | P |
| 7782-49-2 | Selenium | 0.67 | U | | F |
| 7440-22-4 | Silver | 0.93 | B | | P |
| 7440-23-5 | Sodium | 165 | B | | P |
| 7440-28-0 | Thallium | 0.56 | U | | F |
| 7440-62-2 | Vanadium | 51.5 | | | P |
| 7440-66-6 | Zinc | 50.5 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.2 | U | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q14

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-10S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 93.5

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 6090 | | | P |
| 7440-36-0 | Antimony | 3.5 | U | N | P |
| 7440-38-2 | Arsenic | 0.87 | B | | F |
| 7440-39-3 | Barium | 72.8 | | | P |
| 7440-41-7 | Beryllium | 0.31 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 3420 | | | P |
| 7440-47-3 | Chromium | 8.5 | | | P |
| 7440-48-4 | Cobalt | 9.7 | | | P |
| 7440-50-8 | Copper | 9.3 | | | P |
| 7439-89-6 | Iron | 20500 | | | P |
| 7439-92-1 | Lead | 3.5 | | | F |
| 7439-95-4 | Magnesium | 3850 | | | P |
| 7439-96-5 | Manganese | 347 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 8.7 | | | P |
| 7440-09-7 | Potassium | 1490 | | E | P |
| 7782-49-2 | Selenium | 0.60 | U | | F |
| 7440-22-4 | Silver | 1.4 | B | | P |
| 7440-23-5 | Sodium | 131 | B | | P |
| 7440-28-0 | Thallium | 0.51 | U | | F |
| 7440-62-2 | Vanadium | 48.5 | | | P |
| 7440-66-6 | Zinc | 46.6 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 20.9 | | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q15

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-0695AS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-11S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 83.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 6090 | | | P |
| 7440-36-0 | Antimony | 4.3 | U | N | P |
| 7440-38-2 | Arsenic | 0.90 | U | | F |
| 7440-39-3 | Barium | 68.2 | | | P |
| 7440-41-7 | Beryllium | 0.26 | B | | P |
| 7440-43-9 | Cadmium | 0.37 | U | | P |
| 7440-70-2 | Calcium | 3390 | | | P |
| 7440-47-3 | Chromium | 8.8 | | | P |
| 7440-48-4 | Cobalt | 8.4 | B | | P |
| 7440-50-8 | Copper | 9.1 | | | P |
| 7439-89-6 | Iron | 17900 | | | P |
| 7439-92-1 | Lead | 3.1 | | | F |
| 7439-95-4 | Magnesium | 3680 | | | P |
| 7439-96-5 | Manganese | 317 | | | P |
| 7439-97-6 | Mercury | 0.06 | U | | CV |
| 7440-02-0 | Nickel | 8.9 | B | | P |
| 7440-09-7 | Potassium | 1710 | | E | P |
| 7782-49-2 | Selenium | 0.71 | U | | F |
| 7440-22-4 | Silver | 1.3 | B | | P |
| 7440-23-5 | Sodium | 140 | B | | P |
| 7440-28-0 | Thallium | 0.60 | U | | F |
| 7440-62-2 | Vanadium | 42.7 | | | P |
| 7440-66-6 | Zinc | 43.3 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 20.4 | U | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:



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WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q16

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-069SAS No.: SDG No.: B07Q04

Matrix (soil/water): SOIL Lab Sample ID: 12220-12S

Level (low/med): LOW Date Received: 12/15/92

% Solids: 89.5

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 7220 | | | P |
| 7440-36-0 | Antimony | 4.8 | B | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 79.6 | | | P |
| 7440-41-7 | Beryllium | 0.37 | B | | P |
| 7440-43-9 | Cadmium | 0.35 | U | | P |
| 7440-70-2 | Calcium | 3760 | | | P |
| 7440-47-3 | Chromium | 9.8 | | | P |
| 7440-48-4 | Cobalt | 11.0 | B | | P |
| 7440-50-8 | Copper | 10.1 | | | P |
| 7439-89-6 | Iron | 23300 | | | P |
| 7439-92-1 | Lead | 3.5 | | | F |
| 7439-95-4 | Magnesium | 4180 | | | P |
| 7439-96-5 | Manganese | 372 | | | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 9.9 | | | P |
| 7440-09-7 | Potassium | 1620 | | E | P |
| 7782-49-2 | Selenium | 0.67 | U | W | F |
| 7440-22-4 | Silver | 2.1 | B | | P |
| 7440-23-5 | Sodium | 176 | B | | P |
| 7440-28-0 | Thallium | 0.56 | U | | F |
| 7440-62-2 | Vanadium | 58.8 | | | P |
| 7440-66-6 | Zinc | 49.4 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 30.7 | | * | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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1/22/93
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WESTINGHOUSE/HANFORD

# COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.N2SAS No.: SDG No.: S212127

SOW No.: ILM02.1

| SAMPLE NUMBER: | Lab Sample ID. |
|---|---|
| B07PY8 | 12127-01S |
| B07PY9 | 12127-06S |
| B07PZ0 | 12127-02S |
| B07PZ1 | 12127-03S |
| B07PZ2 | 12127-04S |
| B07PZ3 | 12127-07S |
| B07PZ4 | 12127-05S |
| B07PZ5 | 12127-13S |
| B07PZ6 | 12127-08S |
| B07PZ7 | 12127-09S |
| B07PZ8 | 12127-14S |
| B07PZ9 | 12127-15S |
| B07Q00 | 12127-16S |
| B07Q00D | 12127-16S2 |
| B07Q00S | 12127-16DS |
| B07Q01 | 12127-10S |
| B07Q02 | 12127-11S |
| B07Q03 | 12127-12S |

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
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 this 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: Name: David N. Peterson 001

Date: 1/15/93 Title: Asst. Laboratory Manager

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07PY8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-01S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 92.0

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5360 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.5 | B | | F |
| 7440-39-3 | Barium | 44.1 | | | P |
| 7440-41-7 | Beryllium | 0.17 | B | | P |
| 7440-43-9 | Cadmium | 0.29 | U | | P |
| 7440-70-2 | Calcium | 2600 | | | P |
| 7440-47-3 | Chromium | 9.1 | | | P |
| 7440-48-4 | Cobalt | 6.4 | B | | P |
| 7440-50-8 | Copper | 23.5 | | | P |
| 7439-89-6 | Iron | 14600 | | | P |
| 7439-92-1 | Lead | 3.9 | | | F |
| 7439-95-4 | Magnesium | 3310 | | | P |
| 7439-96-5 | Manganese | 138 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 4.2 | B | | P |
| 7440-09-7 | Potassium | 820 | B | | P |
| 7782-49-2 | Selenium | 0.59 | U | WN | F |
| 7440-22-4 | Silver | 0.70 | U | | P |
| 7440-23-5 | Sodium | 139 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 41.4 | | | P |
| 7440-66-6 | Zinc | 71.8 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.1 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

002

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

B07PY9

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N0AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-06S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 95.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5650 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.6 | B | | F |
| 7440-39-3 | Barium | 41.2 | | | P |
| 7440-41-7 | Beryllium | 0.21 | B | | P |
| 7440-43-9 | Cadmium | 0.30 | U | | P |
| 7440-70-2 | Calcium | 2810 | | | P |
| 7440-47-3 | Chromium | 9.4 | | | P |
| 7440-48-4 | Cobalt | 6.0 | B | | P |
| 7440-50-8 | Copper | 16.7 | | | P |
| 7439-89-6 | Iron | 14200 | | | P |
| 7439-92-1 | Lead | 3.4 | | | F |
| 7439-95-4 | Magnesium | 3610 | | | P |
| 7439-96-5 | Manganese | 142 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 3.3 | | | P |
| 7440-09-7 | Potassium | 862 | B | | P |
| 7782-49-2 | Selenium | 0.54 | U | N | F |
| 7440-22-4 | Silver | 0.89 | B | | P |
| 7440-23-5 | Sodium | 166 | B | | P |
| 7440-28-0 | Thallium | 0.24 | U | | F |
| 7440-62-2 | Vanadium | 37.0 | | | P |
| 7440-66-6 | Zinc | 63.7 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.5 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

003

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07PZ0

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-02S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 99.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 33.9 | B | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 0.36 | U | | F |
| 7440-39-3 | Barium | 0.14 | U | | P |
| 7440-41-7 | Beryllium | 0.06 | U | | P |
| 7440-43-9 | Cadmium | 0.29 | U | | P |
| 7440-70-2 | Calcium | 4.0 | B | | P |
| 7440-47-3 | Chromium | 0.51 | U | | P |
| 7440-48-4 | Cobalt | 0.25 | U | | P |
| 7440-50-8 | Copper | 8.4 | | | P |
| 7439-89-6 | Iron | 451 | | | P |
| 7439-92-1 | Lead | 0.77 | | | F |
| 7439-95-4 | Magnesium | 7.3 | B | | P |
| 7439-96-5 | Manganese | 0.23 | B | N | P |
| 7439-97-6 | Mercury | 0.04 | U | | CV |
| 7440-02-0 | Nickel | 0.51 | U | | P |
| 7440-09-7 | Potassium | 15.5 | U | | P |
| 7782-49-2 | Selenium | 0.75 | B | N | F |
| 7440-22-4 | Silver | 0.70 | U | | P |
| 7440-23-5 | Sodium | 22.1 | B | | P |
| 7440-28-0 | Thallium | 0.25 | U | | F |
| 7440-62-2 | Vanadium | 0.49 | U | | P |
| 7440-66-6 | Zinc | 1.8 | B | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.2 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

004

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B07PZ1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-03S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 94.1

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5700 | | | P |
| 7440-36-0 | Antimony | 3.0 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 36.8 | B | | P |
| 7440-41-7 | Beryllium | 0.19 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 2870 | | | P |
| 7440-47-3 | Chromium | 11.2 | | | P |
| 7440-48-4 | Cobalt | 6.6 | B | | P |
| 7440-50-8 | Copper | 20.7 | | | P |
| 7439-89-6 | Iron | 13500 | | | P |
| 7439-92-1 | Lead | 4.1 | | | F |
| 7439-95-4 | Magnesium | 4080 | | | P |
| 7439-96-5 | Manganese | 175 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 9.5 | | | P |
| 7440-09-7 | Potassium | 763 | B | | P |
| 7782-49-2 | Selenium | 0.62 | B | N | F |
| 7440-22-4 | Silver | 0.74 | U | | P |
| 7440-23-5 | Sodium | 171 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 34.1 | | | P |
| 7440-66-6 | Zinc | 50.7 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.0 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

005

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B07PZ2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-04S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 94.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5010 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.1 | B | | F |
| 7440-39-3 | Barium | 44.7 | | | P |
| 7440-41-7 | Beryllium | 0.22 | B | | P |
| 7440-43-9 | Cadmium | 0.30 | U | | P |
| 7440-70-2 | Calcium | 2800 | | | P |
| 7440-47-3 | Chromium | 9.3 | | | P |
| 7440-48-4 | Cobalt | 6.1 | B | | P |
| 7440-50-8 | Copper | 17.8 | | | P |
| 7439-89-6 | Iron | 12700 | | | P |
| 7439-92-1 | Lead | 3.1 | | | F |
| 7439-95-4 | Magnesium | 3720 | | | P |
| 7439-96-5 | Manganese | 156 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 8.8 | | | P |
| 7440-09-7 | Potassium | 824 | B | | P |
| 7782-49-2 | Selenium | 0.60 | U | N | F |
| 7440-22-4 | Silver | 0.96 | B | | P |
| 7440-23-5 | Sodium | 136 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 30.1 | | | P |
| 7440-66-6 | Zinc | 30.3 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.4 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

006

SAMPLE NUMBER:

B07PZ3

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N&AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-07S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 95.0

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5020 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 1.0 | B | | F |
| 7440-39-3 | Barium | 39.4 | B | | P |
| 7440-41-7 | Beryllium | 0.18 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 3010 | | | P |
| 7440-47-3 | Chromium | 8.0 | | | P |
| 7440-48-4 | Cobalt | 6.8 | B | | P |
| 7440-50-8 | Copper | 13.6 | | | P |
| 7439-89-6 | Iron | 15300 | | | P |
| 7439-92-1 | Lead | 3.1 | | | F |
| 7439-95-4 | Magnesium | 3460 | | | P |
| 7439-96-5 | Manganese | 149 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 7.1 | B | | P |
| 7440-09-7 | Potassium | 784 | B | | P |
| 7782-49-2 | Selenium | 1.1 | | +N | F |
| 7440-22-4 | Silver | 0.98 | B | | P |
| 7440-23-5 | Sodium | 151 | B | | P |
| 7440-28-0 | Thallium | 0.26 | U | | F |
| 7440-62-2 | Vanadium | 41.6 | | | P |
| 7440-66-6 | Zinc | 60.5 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.3 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

007

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07PZ4

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-05S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 93.8

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5550 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 2.3 | | | F |
| 7440-39-3 | Barium | 50.8 | | | P |
| 7440-41-7 | Beryllium | 0.19 | B | | P |
| 7440-43-9 | Cadmium | 0.32 | U | | P |
| 7440-70-2 | Calcium | 8010 | | | P |
| 7440-47-3 | Chromium | 10.0 | | | P |
| 7440-48-4 | Cobalt | 6.2 | B | | P |
| 7440-50-8 | Copper | 17.6 | | | P |
| 7439-89-6 | Iron | 13200 | | | P |
| 7439-92-1 | Lead | 4.0 | | | F |
| 7439-95-4 | Magnesium | 4350 | | | P |
| 7439-96-5 | Manganese | 213 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 10.3 | | | P |
| 7440-09-7 | Potassium | 794 | B | | P |
| 7782-49-2 | Selenium | 0.61 | U | WN | F |
| 7440-22-4 | Silver | 0.76 | U | | P |
| 7440-23-5 | Sodium | 166 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 32.4 | | | P |
| 7440-66-6 | Zinc | 31.3 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.6 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

008

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07PZ5

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-13S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 93.1

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 6810 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 1.9 | B | | F |
| 7440-39-3 | Barium | 56.1 | | | P |
| 7440-41-7 | Beryllium | 0.28 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 4650 | | | P |
| 7440-47-3 | Chromium | 14.0 | | | P |
| 7440-48-4 | Cobalt | 9.1 | B | | P |
| 7440-50-8 | Copper | 17.6 | | | P |
| 7439-89-6 | Iron | 15900 | | | P |
| 7439-92-1 | Lead | 4.2 | | | F |
| 7439-95-4 | Magnesium | 5130 | | | P |
| 7439-96-5 | Manganese | 226 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 14.3 | | | P |
| 7440-09-7 | Potassium | 1030 | B | | P |
| 7782-49-2 | Selenium | 0.59 | U | N | F |
| 7440-22-4 | Silver | 1.2 | B | | P |
| 7440-23-5 | Sodium | 189 | B | | P |
| 7440-28-0 | Thallium | 0.26 | U | | F |
| 7440-62-2 | Vanadium | 36.7 | | | P |
| 7440-66-6 | Zinc | 43.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.2 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

009

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07PZ6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-08S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.4

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4310 | | | P |
| 7440-36-0 | Antimony | 3.0 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 41.0 | | | P |
| 7440-41-7 | Beryllium | 0.16 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 2850 | | | P |
| 7440-47-3 | Chromium | 7.7 | | | P |
| 7440-48-4 | Cobalt | 7.3 | B | | P |
| 7440-50-8 | Copper | 15.2 | | | P |
| 7439-89-6 | Iron | 12900 | | | P |
| 7439-92-1 | Lead | 3.5 | | S | F |
| 7439-95-4 | Magnesium | 2960 | | | P |
| 7439-96-5 | Manganese | 144 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 7.9 | B | | P |
| 7440-09-7 | Potassium | 542 | B | | P |
| 7782-49-2 | Selenium | 0.57 | U | WN | F |
| 7440-22-4 | Silver | 0.86 | B | | P |
| 7440-23-5 | Sodium | 158 | B | | P |
| 7440-28-0 | Thallium | 0.25 | U | | F |
| 7440-62-2 | Vanadium | 39.2 | | | P |
| 7440-66-6 | Zinc | 30.5 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.9 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

010

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07PZ7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-09S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.2

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4630 | | | P |
| 7440-36-0 | Antimony | 3.0 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 29.5 | B | | P |
| 7440-41-7 | Beryllium | 0.13 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 2800 | | | P |
| 7440-47-3 | Chromium | 8.7 | | | P |
| 7440-48-4 | Cobalt | 5.9 | B | | P |
| 7440-50-8 | Copper | 13.7 | | | P |
| 7439-89-6 | Iron | 12300 | | | P |
| 7439-92-1 | Lead | 2.6 | | | F |
| 7439-95-4 | Magnesium | 3570 | | | P |
| 7439-96-5 | Manganese | 177 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 8.0 | B | | P |
| 7440-09-7 | Potassium | 555 | B | | P |
| 7782-49-2 | Selenium | 0.54 | U | N | F |
| 7440-22-4 | Silver | 0.74 | U | | P |
| 7440-23-5 | Sodium | 149 | B | | P |
| 7440-28-0 | Thallium | 0.24 | U | | F |
| 7440-62-2 | Vanadium | 33.6 | | | P |
| 7440-66-6 | Zinc | 28.8 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.1 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

011

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-14S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 97.1

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4640 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 29.7 | B | | P |
| 7440-41-7 | Beryllium | 0.14 | B | | P |
| 7440-43-9 | Cadmium | 0.29 | U | | P |
| 7440-70-2 | Calcium | 2590 | | | P |
| 7440-47-3 | Chromium | 9.1 | | | P |
| 7440-48-4 | Cobalt | 5.7 | B | | P |
| 7440-50-8 | Copper | 11.0 | | | P |
| 7439-89-6 | Iron | 11600 | | | P |
| 7439-92-1 | Lead | 2.5 | | | F |
| 7439-95-4 | Magnesium | 3520 | | | P |
| 7439-96-5 | Manganese | 149 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 3.7 | | | P |
| 7440-09-7 | Potassium | 630 | B | | P |
| 7782-49-2 | Selenium | 0.64 | B | N | F |
| 7440-22-4 | Silver | 0.95 | B | | P |
| 7440-23-5 | Sodium | 124 | B | | P |
| 7440-28-0 | Thallium | 0.24 | U | | F |
| 7440-62-2 | Vanadium | 27.1 | | | P |
| 7440-66-6 | Zinc | 28.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.3 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

012

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07PZ9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-15S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 86.0

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 7000 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 2.0 | B | | F |
| 7440-39-3 | Barium | 73.8 | | | P |
| 7440-41-7 | Beryllium | 0.24 | B | | P |
| 7440-43-9 | Cadmium | 0.32 | U | | P |
| 7440-70-2 | Calcium | 22400 | | | P |
| 7440-47-3 | Chromium | 13.6 | | | P |
| 7440-48-4 | Cobalt | 8.7 | B | | P |
| 7440-50-8 | Copper | 16.9 | | | P |
| 7439-89-6 | Iron | 15600 | | | P |
| 7439-92-1 | Lead | 6.5 | | | F |
| 7439-95-4 | Magnesium | 6500 | | | P |
| 7439-96-5 | Manganese | 265 | | N | P |
| 7439-97-6 | Mercury | 0.06 | U | | CV |
| 7440-02-0 | Nickel | 13.3 | | | P |
| 7440-09-7 | Potassium | 1140 | | | P |
| 7782-49-2 | Selenium | 0.95 | B | SN | F |
| 7440-22-4 | Silver | 0.76 | U | | P |
| 7440-23-5 | Sodium | 194 | B | | P |
| 7440-28-0 | Thallium | 0.30 | U | | F |
| 7440-62-2 | Vanadium | 33.9 | | | P |
| 7440-66-6 | Zinc | 40.9 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.6 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

013

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q00

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N&AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-16S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.5

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4140 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.3 | B | W | F |
| 7440-39-3 | Barium | 43.1 | | | P |
| 7440-41-7 | Beryllium | 0.20 | B | | P |
| 7440-43-9 | Cadmium | 0.30 | U | | P |
| 7440-70-2 | Calcium | 3530 | | | P |
| 7440-47-3 | Chromium | 7.5 | | | P |
| 7440-48-4 | Cobalt | 7.5 | B | | P |
| 7440-50-8 | Copper | 13.7 | | | P |
| 7439-89-6 | Iron | 14900 | | | P |
| 7439-92-1 | Lead | 2.5 | | | F |
| 7439-95-4 | Magnesium | 3420 | | | P |
| 7439-96-5 | Manganese | 133 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 3.8 | | | P |
| 7440-09-7 | Potassium | 504 | B | | P |
| 7782-49-2 | Selenium | 0.67 | B | WN | F |
| 7440-22-4 | Silver | 0.81 | B | | P |
| 7440-23-5 | Sodium | 173 | B | | P |
| 7440-28-0 | Thallium | 0.26 | U | | F |
| 7440-62-2 | Vanadium | 40.5 | | | P |
| 7440-66-6 | Zinc | 30.6 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.4 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

014

WESTINGHOUSE/HANFORD
1

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07Q01

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014, N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-10S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 90.5

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5800 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.3 | B | | F |
| 7440-39-3 | Barium | 58.3 | | | P |
| 7440-41-7 | Beryllium | 0.31 | B | | P |
| 7440-43-9 | Cadmium | 0.30 | U | | P |
| 7440-70-2 | Calcium | 6410 | | | P |
| 7440-47-3 | Chromium | 10.2 | | | P |
| 7440-48-4 | Cobalt | 7.3 | B | | P |
| 7440-50-8 | Copper | 14.6 | | | P |
| 7439-89-6 | Iron | 15000 | | | P |
| 7439-92-1 | Lead | 3.3 | | | F |
| 7439-95-4 | Magnesium | 4620 | | | P |
| 7439-96-5 | Manganese | 190 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 10.8 | | | P |
| 7440-09-7 | Potassium | 1010 | | | P |
| 7782-49-2 | Selenium | 0.63 | U | N | F |
| 7440-22-4 | Silver | 0.75 | B | | P |
| 7440-23-5 | Sodium | 142 | B | | P |
| 7440-28-0 | Thallium | 0.28 | U | | F |
| 7440-62-2 | Vanadium | 34.9 | | | P |
| 7440-66-6 | Zinc | 35.6 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.5 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

015

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07Q02

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-11S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 90.1

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5730 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 1.5 | B | | F |
| 7440-39-3 | Barium | 54.0 | | | P |
| 7440-41-7 | Beryllium | 0.24 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 6330 | | | P |
| 7440-47-3 | Chromium | 9.6 | | | P |
| 7440-48-4 | Cobalt | 8.3 | B | | P |
| 7440-50-8 | Copper | 14.7 | | | P |
| 7439-89-6 | Iron | 15300 | | | P |
| 7439-92-1 | Lead | 5.3 | | | F |
| 7439-95-4 | Magnesium | 4910 | | | P |
| 7439-96-5 | Manganese | 200 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 11.8 | | | P |
| 7440-09-7 | Potassium | 1010 | B | | P |
| 7782-49-2 | Selenium | 0.60 | U | N | F |
| 7440-22-4 | Silver | 0.79 | B | | P |
| 7440-23-5 | Sodium | 145 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 35.4 | | | P |
| 7440-66-6 | Zinc | 38.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.4 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

016

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07Q03

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-12S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.2

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4320 | | | P |
| 7440-36-0 | Antimony | 2.8 | U | N | P |
| 7440-38-2 | Arsenic | 1.0 | B | | F |
| 7440-39-3 | Barium | 38.1 | B | | P |
| 7440-41-7 | Beryllium | 0.18 | B | | P |
| 7440-43-9 | Cadmium | 0.29 | U | | P |
| 7440-70-2 | Calcium | 5170 | | | P |
| 7440-47-3 | Chromium | 9.3 | | | P |
| 7440-48-4 | Cobalt | 6.5 | B | | P |
| 7440-50-8 | Copper | 11.8 | | | P |
| 7439-89-6 | Iron | 12600 | | | P |
| 7439-92-1 | Lead | 2.9 | | | F |
| 7439-95-4 | Magnesium | 3560 | | | P |
| 7439-96-5 | Manganese | 178 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 3.8 | | | P |
| 7440-09-7 | Potassium | 551 | B | | P |
| 7782-49-2 | Selenium | 0.68 | B | WN | F |
| 7440-22-4 | Silver | 0.69 | U | | P |
| 7440-23-5 | Sodium | 129 | B | | P |
| 7440-28-0 | Thallium | 0.26 | U | | F |
| 7440-62-2 | Vanadium | 34.2 | | | P |
| 7440-66-6 | Zinc | 28.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 16.9 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

017

TMA/Skinner & Sherman Labs SAMPLE LOG-IN
WORKORDER S212127 CLIENT Hanford Nor No. SAMPLES:
PROTCL CLP TURNARND 33 Days 16 (Soil) (Water) (Specify Other
COOLER TEMP: 7 oC, or NA
CUSTODIAN B. Provix SDG/BATCH N/A
CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N212014, N212025, N212C
SHIPER & # Fed Ex PO/CONTRACT# ↓
TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT D. Sanchez
CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: none

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO
SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)
CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES /NO (COMMENT)

SHIPMENT DATES 12/4/92 12/5/92 12/8/92
LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

N/A

| | CLIENT ID | MATRIX | RECEIVED | PH* | TEST(S) & QC | HOLD TIME U |
|---|---|---|---|---|---|---|
| 1 | B07PY8 | Soil | 12-4-92 | N/A | Tm + ZR | |
| 2 | B07PZ0 | ↓ | ↓ | ↓ | ↓ | |
| 3 | B07PZ1 | ↓ | 12-5-92 | ↓ | ↓ | |
| 4 | B07PZ2 | ↓ | ↓ | ↓ | ↓ | |
| 5 | B07PZ4 | ↓ | ↓ | ↓ | ↓ | |
| 6 | B07PY9 | ↓ | ↓ | ↓ | ↓ | |
| 7 | B07PZ3 | ↓ | ↓ | ↓ | ↓ | |
| 8 | B07PZ6 | ↓ | 12-8/92 | ↓ | ↓ | |
| 9 | B07PZ7 | ↓ | ↓ | ↓ | ↓ | |
| 10 | B07Q01 | ↓ | ↓ | ↓ | ↓ | |
| 11 | B07Q02 | ↓ | ↓ | ↓ | ↓ | |
| 12 | B07Q03 | ↓ | ↓ | ↓ | ↓ | |
| 13 | B07PZ5 | ↓ | ↓ | ↓ | ↓ | |
| 14 | B07PZ8 | ↓ | ↓ | ↓ | ↓ | |
| 15 | B07PZ9 | ↓ | ↓ | ↓ | ↓ | |
| 16 | B07Q00 | ↓ | ↓ | ↓ | D.S ↓ | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |

Samples are from site known to have Rad-Contamination: YES ✓ NO
Samples have detectable amounts of Radioactive Material: YES NO ✓

SUBCONTRACT: YES/NO, TO: DATE:

REVIEWED

complete 12/9 BP

252

* EPA/CLP required Rev 1.6 PAGE: 7

PAGE 1 TMA/Hawaii CHAIN OF CUSTODY ORD # N2-12-014
RCVD: 12/03/92 DUE: 01/02/93 12/03/92 15:36:17 KEEP: 04/02/93 DISP: S

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS for FRACTIONS with work in DEPT: SV and CATEGORY | | | | |
|---|---|---|---|---|---|---|---|
| 01B-S | B07PY9 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 01F-S | B07PY8 MS | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 01G-S | B07PY8 DUP | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 01H-S | L C S | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 02B-S | B07PZ0 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| Yamamoto | 12-3-92 | Skinner | 12-3-92 | [illegible] | 12/4/92 |
| | | | | | |
| | | | | | |
| | | | | | |

CPW52

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # N2-12-025
RCVD: 12/04/92 DUE: 01/03/93 12/04/92 15:00:25 KEEP: 04/03/93 DISP: S

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | |
|---|---|---|---|---|---|---|---|
| 01B-S | B07PZ1 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 02B-S | B07PZ2 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03B-S | B07PZ4 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03F-S | B07PZ4 MS | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03G-S | B07PZ4 DUP | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03H-S | L C S | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 04B-S | B07PY9 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05B-S | B07PZ3 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| yyamamoto | 12-4-92 | SKINNER | 12-4-92 | [illegible] | 12/5/92 |
| | | | | | |
| | | | | | |
| | | | | | |

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # N2-12-038
RCVD: 12/07/92 DUE: 01/06/93 12/07/92 15:14:24 KEEP: 04/06/93 DISP: S

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS for FRACTIONS with work in DEPT: SV and CATEGORY | | | | |
|---|---|---|---|---|---|---|---|
| 01B-S | B07PZ6 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 02B-S | B07PZ7 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 03B-S | B07Q01 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 04B-S | B07Q02 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05B-S | B07Q03 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05F-S | B07Q03 MS | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05G-S | B07Q03 DUP | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 05H-S | L C S | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 06B-S | B07PZ5 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 07B-S | B07PZ8 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 08B-S | B07PZ9 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |
| 09B-S | B07Q00 | S&S | WH001 | WH002 | WH004 | WH166A | WH233 |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| yamamoto | 12-7-92 | Skinner | 12-7-92 | [illegible] | 12/8/92 |
| | | | | | |
| | | | | | |
| | | | | | |

PAGE 1 TRA:Normal CHAIN OF CUSTODY: ORD # N2-12-014

RCVD: 12/03/92 DUE: 01/02/93 12/03/92 15:36:16 KEEP: 04/02/93 DISP: S 000002

| DASH | SAMPLE IDENTIFICATION | STORED | TESTS for FRACTIONS with work in DEPT: SU and CATEGORY | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 01A-S | B07PY8 | ARLI | : WH014 | WH016 | WH195 | WH217 | WH226 | WH232 | WH236 |
| 01C-S | B07PY8 MS | ARLI | : WH014 | WH016 | WH195 | WH232 | WH236 | | |
| 01D-S | B07PY8 MSD | ARLI | : WH014 | WH016 | WH195 | | | | |
| 01E-S | B07PY8 DUP | ARLI | : WH217 | WH226 | WH232 | WH236 | | | |
| 02A-S | B07PZ0 | ARLI | : WH016 | WH217 | WH226 | WH232 | WH236 | | |

| RELEASED BY | DATE | TRANSFERRED TO | DATE | RECEIVED BY | DATE |
|---|---|---|---|---|---|
| [illegible] | 12-3-92 | ARLI | 12-3-92 | [illegible] | 12/3/92 |
| | | | | | |
| | | | | | |
| | | | | | |

0000C

| Westinghouse Hanford Company | CHAIN OF CUSTODY | 002806 |
|---|---|---|

Custody Form Initiator RZ Steffler RM Arnold

Company Contact JM Frain Telephone (509) 376-8941

Project Designation/Sampling Locations White Bluffs – Pickling Acid Crib 100-IU-5 Collection Date 12-1-92

Ice Chest No. Field Logbook No.

Bill of Lading/Airbill No. Offsite Property No.

Method of Shipment Emery Air Express Overnight Express

Shipped to TMA

Possible Sample Hazards/Remarks Nothing Detectible with field instruments.

Sample Identification

B07PY8 (9 Bottles)
B07PZ0 (5 Bottles)

RMA 12-1-92

RMA 12-1-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RM Arnold RM Arnold | SMSteele SMSteele | 12-2-92 1030 |
| SMSteele SMSteele | Kermit Blum | 12-3-92 1130 |
| | | |
| | | |

Final Sample Disposition

| Disposal Method: | Disposed by: | Date/Time: |
|---|---|---|

Comments:

A-6000-407 (12/90)

00000

COC# 002806

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler RM Arnold Date 12-1-92

Company Contact J.M. Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PY8 | S | 12-1-92 | 1435 | (1) 250ml. Poly/TAL Metals/Method CLP |
| | S | | | (1) 250ml. Poly/Anions (300.0) + (353.2) Ammonia (350.2) |
| | S | | | PH (9040) |
| | S | | | (1) 125ml. GS/VOA/Method CLP |
| | S | | | (1) 250ml. aG/SemiVOA/Method CLP |
| | S | | | (1) 250ml. G/TPH (Diesel Range) Method 8015M |
| | S | | | (1) 250ml. G/TPH (Heavier Than Diesel Range) ~~Method~~ RA 12-1- |
| | S | | | Method 8015M |
| | S | | | (1) 250ml. Poly/Calcium Carbonate/Method 130.2 |
| | S | | | (1) 1000ml. G/Gamma Spec./Method RL-4303, |
| | S | | | RL-4304 |
| | S | | | (1) 250ml. Poly/ICP metals for Zirconium EPA 6010 |
| | | | | |
| | | | | |
| B07PZ0 | S | 12-1-92 | 1145 | (1) 250ml. Poly TAL Metals/CLP/ |
| | S | | | (1) 250ml. Poly/Anions (300.0) + (353.2) Ammonia (350.2) |
| | S | | | PH (9040) |
| | S | | | (1) 250ml. Poly/Calcium Carbonate/Method (130.2) |
| | S | | | (1) 250ml. Poly/ICP metals for Zirconium - |
| | S | | | EPA 6010 |
| | S | | | (1) 250ml. aG/Semi VOA/Method CLP |
| | | | | |
| | | | | |
| | | | | |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information PH Tested at 5.6 SAF#92-400

Special Handling and/or Storage Samples to be kept cooled to 4° C. prior to Analysis

Possible Sample Hazards Suspected Hydrofluoric Acid and Nitric Acid

A-6000-406 (06/91)

# SAMPLE LOG-IN SHEET

LAB NAME : TMA/ARLI

PAGE : 1 OF 000003

RECEIVED BY (PRINT NAME): Trudy Galub

LOG-IN-DATE : 12/4/92

RECEIVED BY (SIGNATURE): Trudy Galub

CASE NUMBER:
SAMPLE DELIVERY GROUP NO.:
SAS NUMBER:

REMARKS: SMC-2321

1. Custody Seal(s) — Present/Absent* Intact/Broken
2. Custody Seal Nos: _____
3. Chain of Custody Records — Present/Absent*
4. Traffic Reports or Packing List — Present/Absent*
5. Airbill — Airbill/Sticker Present/Absent*
6. Airbill No.: 5188042646
7. Sample Tags — Present/Absent*
8. Sample Tags Numbers — Listed/Not Listed on Chain of Custody
9. Sample Condition: — Intact/Broken*/Leaking
10. Does information on custody records, traffic reports, and sample tags agree — Yes/No*
11. Date Recieved at Lab: ~~12~~ 12/4/92 (12/4/92 TG.)
12. Temp of ice chest 4 °C
13. Time Recieved: 1000

| EPA SAMPLE # | CORRESPONDING SAMPLE TAG # | CORRESPONDING ASSIGNED LAB # | REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC |
|---|---|---|---|
| | B07P48 | | |
| | B07P20 | | |

SAMPLE TRANSFER

Fraction: _____
Area #: _____
By: _____
On: _____

* Contact SMO and attach record of resolution

Reviewed By: _____ Logbook No.: _____

Date: _____ Logbook Page No.: _____

FORM DC-1

DOCS/LOGIN.TBL

TMA/ARLI
Thermo Analytical Inc.

# RADIATION DOSE RATE SURVEY FORM

Date 12/04/92 COMPANY Indcal (WHC) OTHER ORD # 5188042646

Surveyor's Name MARK S. McCray

Model No. HP-210 / ESP-1 Model No. AC-3-7 / ESP-1

Serial Nos. 710289 / 02619 Serial Nos. 407726 / 02628

Calibration Date N/A BEING CALIBRATED Calibration Date 8/01/92

Instrument Calibration Factor N/A Instrument Calibration Factor 0.188

| Sample | Location | HP-210 CPM | HP-210 Factor | HP-210 DPM | AC-3-7 CPM | AC-3-7 Factor | AC-3-7 DPM | Spillage or Breakage? | Activity, uCi/mL or uCi/g |
|---|---|---|---|---|---|---|---|---|---|
| Background | | | | | 1.0 | | | | |
| Consistency | | | | | 5,090 | 0.1871 | | | |
| Smears: SML234 | | | | | 9.0 | | | | |
| | | | | | | | | | |
| Reported (WHC) | | 2 samples | | each | < | 50 | pCi/gram | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Comments:

All OK ✓ Approved MSM

Not OK Date 12/04/92

000005

QUESTIONS? CALL 800-238-5355 TOLL FREE.

TRACKING NUMBER

5188042646

# RECIPIENT'S COPY

1 [redacted] Date 12-3-92

From (Your Name) Please Print: SAMPLE CONTROL
Your Phone Number (Very Important): [illegible]
Company: T M A /NERCAL
Department/Floor No:
Street Address: 2030 WRIGHT AVE
City: RICHMOND State: CA ZIP Required: 94804

2 To (Recipient's Name) Please Print: SAMPLE CONTROL
Recipient's Phone Number (Very Important): ( )
Company: TMA / ANL
Department/Floor No:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 160 TAYLOR STREET
City: MONROVIA State: CA ZIP Required: 91016

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320 6406

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

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No 3 [ ] Bill 3rd Party FedEx Acct. No 4 [ ] Bill Credit Card 5 [ ] Cash/Check [redacted]

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon for Saturday delivery†)
51 [ ] YOUR PACKAGING
56 [ ] FEDEX LETTER*
52 [ ] FEDEX PAK*
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 [ ] ECONOMY

Government Overnight (Restricted for authorized users only)
46 [ ] GOV'T LETTER
41 [ ] GOV'T PACKAGE

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Continued recipient required)
80 [ ] TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas
*Declared Value Limit $500
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)
1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [X] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT In Pounds Only | YOUR DECLARED VALUE
Total 1 Total 35 Total

DIM SHIPMENT (Chargeable Weight) [ ] lbs.
L x W x H

Received At
1 [X] Regular Stop 3 [ ] Drop Box
2 [ ] On-Call Stop 4 [ ] B S C 5 [ ] Station

7 Release Signature:

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137204 FXEM 8/92
FORMAT #126
126

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| | | | |
|---|---|---|---|
| SDG | 7133 | Client | Westinghouse Hanford |
| Contact | Dinkar P. Kharkar | Contract | MBH-SVV-069262 |

# CASE NARRATIVE

## 1.0 GENERAL

Soil sample results from White Bluffs Pickling Acid Crib 100-IU-5 (TMA/Norcal Group 7133) are reported herein. TMA/Norcal Group 7133 is comprised of ten samples listed on the Chain-of-Custody documents and is identified as sample 1 through 10.

### 1.1 CHAINS-OF-CUSTODY

This report includes data from samples delivered under Chain-of-Custody documents Field Logbook No. EFL-1060.

### 1.2 SAMPLE VOLUME

1000 mL bottles containing the samples were received for the analyses.

### 1.3 MISSING SAMPLES

All samples were accounted for in an undamaged condition.

### 1.4 HOLDING TIMES

Samples were collected between 12/1/92 and 12/7/92 and sample processing was initiated within 180 days of collection.

## 2.0 QUALITY CONTROL

The internal quality control consisted of one sample each of a laboratory control, a blank, and a replicate. All original analyses were performed with QC samples 7133-11 through 13.

The QC samples were prepared and labelled by the quality control officer. Copies of The QC notebook pages are included in the data package.

### 2.1 LABORATORY CONTROL SAMPLES

The LCS recoveries for all the nuclides were good. The MDA of $^{59}Fe$ was high due to slightly higher background.

| | | | |
|---|---|---|---|
| SDG | 7133 | Client | Westinghouse Hanford |
| Contact | Dinkar P. Kharkar | Contract | MBH-SVV-069262 |

CASE NARRATIVE

2.2 BLANKS

The MDA's for the analyses meet the RDL requirements.

2.3 REPLICATES

Results were satisfactory for the replicate analyses. The MDA of $^{59}Fe$ for the original sample higher than the RDL due to the short half-life of $^{59}Fe$. The gamma nuclide MDA's for 7133-13 were higher than the RDL due to small sample aliquot available for analysis.

3.0 ANALYTICAL NOTES

3.1 Gamma Scan Analysis: Gamma scan analysis did not find positive concentration of gammma nuclides in the samples. The underlined MDA's of samples were for $^{59}Fe$, higher than RDL due to short half-life of $^{59}Fe$. All sample aliquots except for 7133-9 were lower than the nominal aliquot limit of 750 g.

N212018-01

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PY8

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-01
Dept sample id 7133-001
Received 12/03/92

Client sample id B07PY8
Matrix SOIL
Collected 12/01/92
Chain of custody id 002806

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 14 | 0.90 | | | | GAM |
| Iron 59 | | U | | 0.2 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.07 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.47 | 0.084 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.71 | 0.051 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.66 | 0.16 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-02

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ1

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-02
Dept sample id 7133-002
Received 12/04/92

Client sample id B07PZ1
Matrix SOIL
Collected 12/02/92
Chain of custody id 002807

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 15 | 2.0 | | | | GAM |
| Iron 59 | | U | | 0.6 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 3 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.1 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.4 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 1 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.1 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.1 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.2 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.1 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.45 | 0.24 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.69 | 0.16 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.89 | 0.49 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-03

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ2

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-03
Dept sample id 7133-003
Received 12/04/92

Client sample id B07PZ2
Matrix SOIL
Collected 12/02/92
Chain of custody id 002807

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 14 | 0.77 | | | | GAM |
| Iron 59 | | U | | 0.2 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 0.9 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.03 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.09 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.3 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.03 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.06 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.04 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.49 | 0.068 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.73 | 0.042 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.71 | 0.14 | | | | GAM |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-04

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ4

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-04
Dept sample id 7133-004
Received 12/04/92

Client sample id B07PZ4
Matrix SOIL
Collected 12/02/92
Chain of custody id 002807

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 14 | 0.74 | | | | GAM |
| Iron 59 | | U | | 0.2 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.04 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.3 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.04 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.03 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.07 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.05 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.51 | 0.066 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.99 | 0.072 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.76 | 0.15 | | | | GAM |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-05

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ6

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-05
Dept sample id 7133-005
Received 12/07/92

Client sample id B07PZ6
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 14 | 1.0 | | | | GAM |
| Iron 59 | | U | | 0.2 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.3 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.1 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.48 | 0.086 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.83 | 0.061 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.82 | 0.18 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-06

# TMA NORCAL
REPORTING GROUP 7133

## DATA SHEET

B07PZ7

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-06
Dept sample id 7133-006
Received 12/07/92

Client sample id B07PZ7
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 16 | 1.1 | | | | GAM |
| Iron 59 | | U | | 0.3 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.08 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.09 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.05 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.42 | 0.087 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.63 | 0.055 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.68 | 0.21 | | | | GAM |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-07

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07Q01

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-07
Dept sample id 7133-007
Received 12/07/92

Client sample id B07Q01
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 14 | 0.92 | | | | GAM |
| Iron 59 | | U | | 0.2 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 2 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.04 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.1 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.57 | 0.083 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.93 | 0.070 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.80 | 0.22 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-08

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07Q02

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-08
Dept sample id 7133-008
Received 12/07/92

Client sample id B07Q02
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 12 | 1.1 | | | | GAM |
| Iron 59 | | U | | 0.3 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 2 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.06 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.06 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.05 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.1 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.56 | 0.10 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.81 | 0.066 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.86 | 0.21 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-09

# TMA NORCAL
REPORTING GROUP 7133

## DATA SHEET

B07Q03

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-09
Dept sample id 7133-009
Received 12/07/92

Client sample id B07Q03
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 14 | 1.0 | | | | GAM |
| Iron 59 | | U | | 0.3 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.09 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.50 | 0.082 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.70 | 0.056 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.77 | 0.20 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-10

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07Q12

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-10
Dept sample id 7133-010
Received 12/11/92

Client sample id B07Q12
Matrix SOIL
Collected 12/07/92
Chain of custody id 003207

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 15 | 1.0 | | | | GAM |
| Iron 59 | | U | | 0.3 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.2 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.5 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.06 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.05 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.1 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.07 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.56 | 0.096 | | | | GAM |
| Thorium 228 | 14274-82-9 | 1.0 | 0.084 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.87 | 0.17 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

Test GAM Matrix SOIL
SDG 7133
Contact Dinkar Kharkar

# TMA NORCAL

REPORTING GROUP 7133

## RESULT SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

| CLIENT SAMPLE ID | LAB SAMPLE ID | SUF-FIX | PLANCHET | Cobalt 60 | | Cesium 137 | |
|---|---|---|---|---|---|---|---|
| Preparation batch 2427-094 Prep error 15.0 % | | | | | | | |
| B07PY8 | N212018-01 | | 7133-001 | U | | U | |
| B07PZ1 | N212018-02 | | 7133-002 | U | | U | |
| B07PZ2 | N212018-03 | | 7133-003 | U | | U | |
| B07PZ4 | N212018-04 | | 7133-004 | U | | U | |
| B07PZ6 | N212018-05 | | 7133-005 | U | | U | |
| B07PZ7 | N212018-06 | | 7133-006 | U | | U | |
| B07Q01 | N212018-07 | | 7133-007 | U | | U | |
| B07Q02 | N212018-08 | | 7133-008 | U | | U | |
| B07Q03 | N212018-09 | | 7133-009 | U | | U | |
| B07Q12 | N212018-10 | | 7133-010 | U | | U | |
| Reagent Blank | N212018-12 | | 7133-012 | U | | U | |
| Lab Control Sample | N212018-11 | | 7133-011 | ok | | ok | |
| Replicate (N212018-01) | N212018-13 | | 7133-013 | - | U | - | U |
| Nominal values and limits from method | | | RDLs (pCi/G) | 0.05 | | 0.05 | |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 02/23/93

EMERY WORLDWIDE

A CF Company

(15)

# SIGNATURE AND TALLY RECORD

60029-46 (8/89) Litho USA

DATE: 12-04-92 SHIPMENT NO.: 251900743 6

SHIPPER: WESTINGHOUSE SHIPPING DEPT. (509) 376-

REFERENCE NO.: W93-0-0059 #45

| SHIPPER NAME AND ADDRESS | CONSIGNEE NAME AND ADDRESS |
|---|---|
| WESTINGHOUSE SHIPPING DEPT. (509) 376-6665<br>G2-06 U.S. DEPARTMENT OF ENERGY C/O<br>WESTINGHOUSE HANFORD COMPANY<br>2355 STEVENS DRIVE 1163 BUILDING<br>PO BOX 1970<br>RICHLAND WA 99352 | DELORES SANCHEZ<br>TMA/NORCAL<br>2030 WRIGHT AVENUE<br>RICHMOND CA 94804 |

| Pieces | Weight | Description/Marks | Emery Authorization No. |
|---|---|---|---|
| 1 | 46 LBS | COOLER ID: SML 255 WATER SAMPLES | |

EACH PERSON HANDLING OR TAKING CUSTODY OF THIS SHIPMENT MUST SIGN AND COMPLETE THE INFORMATION BELOW

| | Name of Person/Company | Transship Point/Destination | Signature of Person Accepting Custody | Time/Date |
|---|---|---|---|---|
| 1. | [illegible] | [illegible] | [illegible] | [illegible] |
| 2. | [illegible] | [illegible] | [illegible] | [illegible] |
| 3. | [illegible] | [illegible] | [illegible] | [illegible] |
| 4. | [illegible] | [illegible] | [illegible] | 1600 12/[illegible] |
| 5. | C. OAKES | EWW/HAY | [illegible] | 0415 12[illegible] |
| 6. | R. Higgins | EWW/OAK | [illegible] | 1000 12 |
| 7. | M. Halverson | EWW OAK | M. Halverson | 12:25 12 |
| 8. | B Stephens | TMA | [illegible] | 14:00 12/ |
| | | | | |

SPECIAL HANDLING INSTRUCTIONS

CONSIGNEE COPY

051

FORM OF PAYMENT

Check ☐ COD ☐ FCCOD ☐

Bill to Shipper ☒ Bill to Consignee ☐ Third Party Billing ☐

Shipper's Account Number: 850281585

EMERY WORLDWIDE

A CF Company

SERVICES **

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ AM ☐ PM ☐ XX Second Day ☐ Saturday Delivery ☐

INTERNATIONAL: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐ Business Documen Custom Clearanc Deliver

Date: 12-9-92 | Origin: PSC | Shipment Number: 2519007256

From:
WESTINGHOUSE SHIPPING DEPT(509)376-5005
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐
Customer's Reference Numbers: W12410 PE62K W93-0-102728
Zip: 99352

To:
DELORES SANCHEZ
TMA/NORCAL
2530 WRIGHT AVENUE
RICHMOND CA
Canada ☐
Consignee's Account Number: E
Zip: 94804

Tariff Dest. | Gate

Check to Shipper $

Hold for Pick Up ☐

EMERY WORLDW will accept Consig check with all ris being assumed b Shipper, includin but not limited to non-payment, fra and misrepresent

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

| Description | Pcs. | L | W | H | Total Pieces | Total Weight (In Lbs.) |
|---|---|---|---|---|---|---|
| 2POLYCOOLERS SOIL SAMPLES RM#2/pokey | 2 | 27 | 16 | 17 | 2 | 148# |

2519007568

Remarks: OVERNIGHT DELIVERY

Shipper's Signature: 12-9-92

Zip Ship ☐ For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, specified in the area tariff apply.

Mark if Emery Packaging is used: Urgent Letter 12 ☐ Urgent Pack 12X15 ☐

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number (mandatory for Third Party Billing): E

Third Party Account Number

International Customs Value

International Insurance

Total Transportation Charges

Other Charges/Advance at Origin: OC/AO- $

Terms and Conditions on back

1-OAK-A

052

AIR OVERNIGHT

| Contractor | OFF-SITE PROPERTY CONTROL | CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) |
|---|---|---|
| WESTINGHOUSE HANFORD | | W93-0-0122 #28 |

PART I – TO BE COMPLETED BY ORIGINATOR

| Department | Section | Unit |
|---|---|---|
| PROCESSING & ANALYTICAL LAB | ANALYTICAL CHEMISTRY | SAMPLING & MOBILE LAB |

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing EMERY AIR EXPRESS [X] Contractor [ ] Vendor

| Shipped to | Off-site Custodian |
|---|---|
| TMA/NORCAL<br>2030 Wright Av<br>Richmond CA 94804 | Delores Sanchez<br>Full Title |

| Quantity | Description (Include Serial and any Government Tag Numbers) | Original Cost |
|---|---|---|
| 2 | POLYCOOLER. SAMPLES PACKED IN PLASTIC BAGS AND STORED ON WET ICE.<br>SAMPLE #B07Q04 thru B07Q12<br>B07Q14 thru B07Q16 | |
| WEIGHT ~~5 lbs~~ 70 lbs | COOLER # ~~SAM-222~~ Pokey | |
| WEIGHT 78 lbs | COOLER # RM #2 | |

[ ] Classified [X] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

SAMPLES REQUIRE ANALYSIS THAT ARE NOT PRESENTLY AVAILABLE AT THIS SITE.

12-8-92

SAF #92-400
COC #003203 & 003207

BILL OF LADING # 2519007502

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE RECORDED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

| RM Clearance for Public Release | RM Survey No | Date |
|---|---|---|
| | 125210 | 12 8 92 |

| Location of Property (Area & Bldg.) | Contact | Phone |
|---|---|---|
| 200 WEST AREA/202-S | R. Z. Steffler | 373-9146 |

| Date Ready for Shipment | Cost Code to be Charged | Approximate Date This Property will be Returned |
|---|---|---|
| 12/08/92 | PE62K/ORG CODE: 12410 | N/A |

| Originated By | Date | Authorized By | Date |
|---|---|---|---|
| R. Z. Steffler | 12/08/92 | R. A. Meznarich RAMeznarich | 12/08/92 |

| Signature and Name of Property Control | Custodian Date | Property Management Approval | Date |
|---|---|---|---|
| | | | 12/8/92 |

PART II – TO BE COMPLETED BY SHIPPING

| Signature of Recipient | Return Order No. | Date Issued | Purchase Order No. | Date Issued |
|---|---|---|---|---|
| Dan Keen | | | | |
| Date 12 8 92 | | | | |

053

DISTRIBUTION

| By Originator | Shipping Operation – Sign all Copies and Forward to: |
|---|---|
| White, Green, Yellow, Pink – Property Management | White – Property Management Green – Property Control Custodian (Issuing Office) Pink – Originator |

054

**FORM OF PAYMENT**

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper ☒ Bill to Consignee ☐ Third Party Billing ☐

**EMERY WORLDWIDE** — A CF Company

**SERVICES ****

UNITED STATES / CANADA: ☐ Same Day (Extra Charges) ☐ ☒ AM ☐ PM ☐ Second Day ☐ Saturday Delivery

INTERNATIONAL: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

E Shipper's Account Number: 850281585

Date: 12-03-92 | Origin: PSC | Shipment Number: 251900732 6

From:
WESTINGHOUSE SHIPPING DEPT. (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA

Canada ☐ ☐

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA

Hold for Pick Up ☐ Canada ☐ ☐

Tariff Dest. | Gateway

Check to Shipper $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers: W12410 PE62P W93-0-0122 #24 99352

E Consignee's Account Number: 94804

| Description | Pcs. | L | W | H | Total Pieces | Total Weight (In Lbs.) |
|---|---|---|---|---|---|---|
| 1 COOLER SML 119 SAMPLES | 1 | 27 | 16 | 17 | 1 | 75 |

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

2519007326

Remarks: OVERNIGHT DELIVERY

Shipper's Signature X [signature] 12/3/92

Zip Ship ☐ For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used: Urgent Letter 9X12 ☒ Urgent Pack 12X15 ☒

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. E Third Party Account Number

International Customs Value | International Insurance

Base Charge

Total Transportation Charges | Other Charges/Advance at Origin ☐ OC/AO- $

1-OAK-A

Terms and Conditions on Back

AIR OVERNIGHT

| Contractor | OFF-SITE PROPERTY CONTROL | CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) |
|---|---|---|
| WESTINGHOUSE HANFORD | | W93-0-0122 # 24 |

PART I – TO BE COMPLETED BY ORIGINATOR

| Department | Section | Unit |
|---|---|---|
| PROCESSING & ANALYTICAL LAB | ANALYTICAL CHEMISTRY | SAMPLING & MOBILE LAB |

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing EMERY AIR EXPRESS [X] Contractor [ ] Vendor

| Shipped to | Off-site Custodian |
|---|---|
| TMA/NORCAL<br>2030 Wright Av<br>Richmond CA 9480[illegible] | DELORES SANCHEZ<br>Full Title |

| Quantity | Description (Include Serial and any Government Tag Numbers) | Original Cost |
|---|---|---|
| 1 | POLYCOOLER. SAMPLES PACKED IN PLASTIC BAGS AND STORED ON WET ICE.<br><br>SAMPLE #B07PZ1<br>B07PY9<br>B07PZ3<br>B07PZ2<br>B07PZ4<br><br>WEIGHT 75LB COOLER # SML 119 | |

[ ] Classified [X] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

SAMPLES REQUIRE ANALYSIS THAT ARE NOT PRESENTLY AVAILABLE AT THIS SITE.

COC# 2807

SAF #92-400

BILL OF LADING # 2519007326

*CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.*

| RM Clearance for Public Release | RM Survey No | Date |
|---|---|---|
| [illegible] | [illegible] | [illegible] |

| Location of Property (Area & Bldg.) | Contact | Phone |
|---|---|---|
| 200 WEST AREA/202-S | R. Z. Steffler | 373-9146 |

| Date Ready for Shipment | Cost Code to be Charged | Approximate Date This Property will be Returned |
|---|---|---|
| 12/03/92 | PE62P/ORG CODE: 12410 | N/A |

| Originated By | Date | Authorized By | Date |
|---|---|---|---|
| R. Z. Steffler | 12/03/92 | R. A. Meznarich [illegible] | 12/03/92 |

| Signature and Name of Property Control | Custodian Date | Property Management Approval | Date |
|---|---|---|---|
| | | [illegible] | [illegible] |

PART II – TO BE COMPLETED BY SHIPPING

| Signature of Recipient | Return Order No. | Date Issued | Purchase Order No. | Date Issued |
|---|---|---|---|---|
| Teresa A Keene | | | | |
| Date 12 3 92 | | | | |

055

DISTRIBUTION

| By Originator | Shipping Operation – Sign all Copies and Forward to: | |
|---|---|---|
| White, Green, Yellow, Pink – Property Management<br>Goldenrod – Retain | White – Property Management<br>Yellow – Retain | Green – Property Control Custodian (Issuing Office)<br>Pink – Originator |

54-3000-479 (09/89)

AIR OVERNIGHT

| Contractor | OFF-SITE PROPERTY CONTROL | CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) |
|---|---|---|
| WESTINGHOUSE HANFORD | | WHC-C-0132 #1 |

PART I – TO BE COMPLETED BY ORIGINATOR

| Department | Section | Unit |
|---|---|---|
| PROCESSING & ANALYTICAL LAB | ANALYTICAL CHEMISTRY | SAMPLING & MOBILE LAB |

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing EMERY AIR EXPRESS ☒ Contractor ☐ Vendor

| Shipped to | Off-site Custodian |
|---|---|
| TMA/NORCAL<br>2030 Wright Av<br>Richmond, CA 94804 | ~~DELORES SANCHEZ~~ Robert Fox<br>Full Title |

| Quantity | Description (Include Serial and any Government Tag Numbers) | Original Cost |
|---|---|---|
| 1 | POLYCOOLER. SAMPLES PACKED IN PLASTIC BAGS AND STORED ON WET ICE.<br>SAMPLE #B07PY8<br>B07PZ0 | |
| WEIGHT 51 lbs | COOLER #SML-182 | |

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

SAMPLES REQUIRE ANALYSIS THAT ARE NOT PRESENTLY AVAILABLE ON THIS SITE.

SAF #92-400
COC #002806

BILL OF LADING # 251 900 7237

*CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.*

| RM Clearance for Public Release | RM Survey No | Date |
|---|---|---|
| | | |

| Location of Property (Area & Bldg.) | Contact | Phone |
|---|---|---|
| 200 WEST AREA/202-S | R. Z. Steffler | 373-9146 |

| Date Ready for Shipment | Cost Code to be Charged | Approximate Date This Property will be Returned |
|---|---|---|
| 12/02/92 | PE62K/ORG CODE: 12410 | N/A |

| Originated By | Date | Authorized By | Date |
|---|---|---|---|
| R. Z. Steffler | 12/02/92 | R. A. Meznarich | 12/02/92 |
| Signature and Name of Property Control | Custodian Date | Property Management Approval | Date |

PART II – TO BE COMPLETED BY SHIPPING

| Signature of Recipient | Return Order No. | Date Issued | Purchase Order No. | Date Issued |
|---|---|---|---|---|
| Date | | | | |

056

DISTRIBUTION

| By Originator | Shipping Operation – Sign all Copies and Forward to: |
|---|---|
| White, Green, Yellow, Pink – Property Management<br>Goldenrod – Retain | White – Property Management<br>Yellow – Retain<br>Green – Property Control Custodian (Issuing Office)<br>Pink – Originator |

54-3000-479 (09/89)

057

12-3-92

**FORM OF PAYMENT**

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper XX Bill to Consignee ☐ Third Party Billing ☐

**EMERY WORLDWIDE** — A GF Company

SERVICES **

UNITED STATES / CANADA: ☐ Same Day (Extra Charges) ☐ XX AM ☐ PM ☐ Second Day ☐ Saturday Delivery

INTERNATIONAL: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

E Shipper's Account Number: 850281585

Date: 12-02-92 Origin: PBC Shipment Number: 251900733 7

From:
WESTINGHOUSE SHIPPING DEPT. (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐ ☐

To:
[redacted] ROBERT FOX
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA
Hold for Pick Up ☐
Canada ☐ ☐

Tariff Dest. | Gateway

Check to Shipper $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers: W12410 PE62K W93-0-0122 #21 | 99352

E Consignee's Account Number: 94804

| Description | Pcs. | L | W | H | Total Pieces | Total Weight (In Lbs.) |
|---|---|---|---|---|---|---|
| 1 COOLER SML 188 SAMPLES | 1 | 27 | 16 | 17 | 1 | 51 |

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

2519007337

Remarks:
OVERNIGHT DELIVERY
OVERNIGHT DELIVERY

Shipper's Signature X Darren A Keene

Zip Ship ☐
For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used: Urgent Letter 9X12 ☒ Urgent Pack 12X15 ☒

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. E Third Party Account Number

International Customs Value | International Insurance

Base Charge

Total Transportation Charges

Other Charges/Advance at Origin ☐ OC/AO- $

1-OAK-A

Terms and Conditions on Back

HCRL-WHC/9316-T-93-023

E-93-16/2978-56

WESTINGHOUSE HANFORD COMPANY
PICKLING ACID CRIB ERA DATA VALIDATION
DISTRIBUTION FORM

Document Title Prelim. QA Rpts. Case #A2-12-011(Anions)

Document Number: HCRL-WHC/9316-L-93-022 Date: 4/20/93

| | | DISTRIBUTION | | |
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| J. Frain (WHC) | X | A. Shen (HCSEA) | | |
| | | | | |

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.1 | File Index | | 2.1 | Incoming Correspondence | | 4.1 | Task Plan |
| 1.2 | Distribution Lists | | 2.2 | Outgoing Correspondence | X | 4.2 | Data Pkg. Completeness Verif. Checklis |
| 1.3 | Project Procedures | | 2.3 | Internal Correspondence | | 4.3 | Data Valid. Calcs./Annotated DP |
| 1.4 | Project Modifications | | | | | 4.4 | Prelim. QA Reports |
| 1.5 | Staff | | 3.1 | Task Order | | 4.5 | Data Valid. & Qual. Summary Rpts. |
| 1.5.1 | Staff Resumes | | 3.2 | Sample Lists | | 4.5.1 | Internal Drafts/Comments/Resol. |
| 1.5.2 | Staff Training | | 3.3 | Data Validation Procedures | | 4.5.2 | WHC Review Draft Comments/Resol. |
| 1.5.3 | Auth. Former Site Employee | | 3.4 | Original Chemical Data | | 4.5.3 | Final Report |
| 1.6 | QA | | 3.5 | Original Radiochem. Data | | 4.6 | Weekly Status Reports |
| 1.6.1 | QA Implement Procedures | | | | | 4.7 | Weekly Management Reports |
| 1.6.2 | QA Audits | | | | | | |
| 1.6.3 | QA Training | | | | | | |
| 1.7 | Budget | | | | | | |
| 1.7.1 | Budget Status | | | | | | |
| 1.7.2 | Invoices | | | | | | |
| 1.8 | Requisitions | | | | | | |
| 1.9 | Meeting Minutes | | | | | | |
| 1.10 | Record of Telecon | | | | | | |
| 1.11 | Progress Reports | | | | | | |
| 1.12 | Subcontractor | | | | | | |
| | | | | | | | |

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1201 Jadwin Avenue, Suite 204
Richland, Washington 99352
FAX 509 946.4206
509 946 4344

J-2978-56

April 20, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970 \ MSIN H6-04
Richland, Washington 99352

Subject: WHC Order No. MLW-SSV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record
White Bluffs Pickling Acid Cribs ERA
TMA Case Number N2-12-011 - Anions

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Cribs ERA. The attached results are provided to you in partial fulfillment of Subtask 03 of our task plan dated March 12, 1993. The subject data package consisted of two low level soil samples submitted for analysis for anions (chloride, fluoride, phosphate, and sulfate). The sample data were fully validated. In addition, a 100 percent validation of the supporting quality control data was performed.

The samples were analyzed by TMA using the U.S. Environmental Protection Agency (EPA) Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Method 300.0, modified for soil (leachate) analysis. All analytical results, together with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4. Table 1 is an annotated list of the attachments to this letter report.

## DATA QUALITY OBJECTIVES SUMMARY

Data quality objectives for accuracy and precision (including holding times, instrument and method blanks, matrix spikes, duplicates, laboratory control samples, and initial and continuing calibrations), and quantitation limit requirements were met for this case with the exception of the following: an ion chromatograph initial calibration was not performed on the day of analysis.

## MAJOR DEFICIENCIES (REJECTED DATA)

No data were rejected.

## MINOR DEFICIENCIES (OTHER QUALIFIED DATA)

The following general trends resulted in the qualification of data from multiple samples.

An ion chromatograph initial calibration (ICAL) was not performed on the day of analysis. The ICAL was performed 27 days prior to analysis. A mid-range continuing calibration check standard was analyzed on the day of analysis, but the linearity was not confirmed. Therefore, all anion data were qualified as estimates (J or UJ).

No other data qualifiers were assigned.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the White Bluffs Pickling Acid Cribs ERA data validation effort. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager

HC#134:RL1762.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File - HCRL-WHC/9316-L-93-022

**Table 1 - Annotated List of Attachments**

***Attachment 1 - Glossary of Data Qualifiers***

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

***Attachment 2 - As Received Laboratory Sample Concentration Reports***

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g., Form I).

***Attachment 3 - Summary of Data Qualifications (Form B-7)***

This attachment provides a complete summary of all qualifications applied as a result of the validation.

***Attachment 4 - As Qualified Data Summary***

This attachment provides a tabular data summary of all data qualified from the validation.

***Attachment 5 - Data Review Supporting Documentation***

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

## *Glossary of Data Qualifiers*

***U*** - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

***UJ*** - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

***J*** - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

***R*** - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

***NJ*** - Indicates the presumptive evidence of a compound at an estimated value.

***N*** - Indicates presumptive evidence of a compound.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

TMA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92

Results by Sample

PLE ID B07PY8 FRACTION 01A TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/01/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 5.5 | pH | 0.1 |
| Sulfate | 300.0 | 25 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

000011

TMA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92

Results by Sample

PLE ID E07PZ0 FRACTION 02A TEST CODE VCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/01/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 3.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.2 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 7.6 | pH | 0.1 |
| Sulfate | 300.0 | 3 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

# ATTACHMENT 3

*Summary of Data Qualifications*

(6)

# DATA QUALIFICATION SUMMARY - FORM B-7

| SDG: 12011 | REVIEWER: HS | DATE: 4/8/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: | | Level 4 Validation | |
| COMPOUND | QUALIFIER | SAMPLES AFFECTED | REASON |
| Chloride | J | B07PY8, B07PZ0 | Test run ~~one month~~ 27 days prior to analyses |
| Fluoride | J | | |
| Phosphate | UJ | | |
| Sulfate | J | | |

# ATTACHMENT 4

*As Qualified Data Summary*

TRA Inc. REPORT Work Order # A2-12-011

Received: 12/03/92

Results by Sample

PLE ID B07PY8 FRACTION 01A TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/01/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 | UJ |
| ~~pH~~ | ~~9045~~ | ~~5.5~~ | ~~pH~~ | ~~0.1~~ | NOT validated |
| Sulfate | 300.0 | 25 | mg/Kg | 2.0 | J |
| ~~Ammonia Nitrogen~~ | ~~350.3~~ | ~~<0.2~~ | ~~mg/Kg~~ | ~~0.2~~ | NOT VALIDATED |

FORM I

AS
4/8/93

000011

TMA Inc. REPORT

Work Order # A2-12-011

Received: 12/03/92

Results by Sample

PLE ID 807PZ0 FRACTION 02A TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/01/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 3.0 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.2 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 | UJ |
| ~~pH~~ | ~~9045~~ | ~~7.6~~ | ~~pH~~ | ~~0.1~~ | NOT VALIDATED |
| Sulfate | 300.0 | 3 | mg/Kg | 2.0 | J |
| ~~Ammonia Nitrogen~~ | ~~350.3~~ | ~~<0.2~~ | ~~mg/Kg~~ | ~~0.2~~ | NOT VALIDATED |

FORM I

AS 4/3/93

# ATTACHMENT 5

*Data Review Supporting Documentation*

# WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

| PROJECT: White Bluffs Pickling and Cibas | REVIEWER: CMK | DATE: 4/2/93 |
|---|---|---|
| LABORATORY: TMA/ARL I | CASE: A2-12-011 | SDG: |
| SAMPLES/MATRIX: | | |
| B07PY8 > soil | chloride 300.0 , hardness | |
| B07PZ0 | fluoride | |
| | phosphate | |
| | pH 9045 | |
| | sulfate 300.0 | |
| | ammonia 350.3 | |

Validate on circled ana Level 4.

## 1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

| Data Package Item | Present?: Yes | No | N/A |
|---|---|---|---|
| Case Narrative | ✓ | | |
| Cover Page | ✓ | | |
| Traffic Reports/Chain-of-Custody | ✓ | | |
| Sample Analysis Data Report Forms | ✓ | | |
| Standards Data | ✓ | | |
| QC Summary | | | |
| Blanks Summary Report Forms | ✓ | | |
| Spike Sample Recovery Report Forms | ✓ | | |
| Duplicate Sample Analysis Report Forms | ✓ | | |
| Laboratory Control Sample Report Forms | | ✓ | |
| Raw Data | | | |
| Ion Chromatograph Chromatograms | ✓ | | |
| TOC and TOX Instrument Printouts | | | ✓ |
| Laboratory Bench Sheets | | | ✓ |
| Additional Data | | | |
| Laboratory Sample Preparation Logs | | ✓ | |
| Instrument Run Logs | | | ✓ |
| Internal Laboratory Chain-of-Custory | | | ✓ |
| Percent Solids Analysis Records | ✓ | | |
| Reduction Formulae | | | ✓ |
| Chemist Notebook Pages | | | ✓ |

## 2. HOLDING TIMES

Cal. 12/4/92
Anal 12/30/92

Were all samples analyzed within holding times? Yes **No** N/A

One day outside of holding time for Cl, F, ~~PO4 was 27 days past holdi~~

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

A.S.

## 3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Ical run on 12/4/92 — Yes **No** N/A

Are the correlation coefficients ≥0.995? **Yes** No N/A

Was a balance check conducted prior to the TDS analysis? Yes No **N/A**

Was the titrant normality checked? Yes No **N/A**

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

## 4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency? Yes **No** N/A

Are ICV and CCV percent recoveries within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

## 5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes **No** N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

## 6. FIELD BLANKS

Are target analytes present in the field blanks? Yes No **N/A** None submitted

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

## 7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits? **Yes** No N/A

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

## 8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A None submi.

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R < 50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

## 9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

## 10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

## 11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A None submitted

ACTION: Note the results of the field duplicate samples in the validation narrative.

## 12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A None submitted

ACTION: Note the results of the field split samples in the validation narrative.

## 13. ANALYTE QUANTITATION AND DETECTION LIMITS

| | | | |
|---|---|---|---|
| Have results been reported and calculated correctly? | Yes | No | N/A |
| Are instrument detection limits below the CRDL? | Yes | No | N/A |

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

## 14. OVERALL ASSESSMENT AND SUMMARY

| | | | |
|---|---|---|---|
| Has the laboratory conducted the analysis in accordance with the analytical SOW? | Yes | No | N/A |
| Were project specific data quality objectives met for this analysis? | Yes | No | N/A |

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY - FORM B-1

| SDG: 2011 | REVIEWER: AS | | | DATE: 4/8/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|---|---|
| COMMENTS: | | | | | | Level 4 Validation | |
| FIELD SAMPLE ID | ANALYSIS TYPE | DATE SAMPLED | DATE PREPARED | DATE ANALYZED | PREP. HOLDING TIME, DAYS | ANALYSIS HOLDING TIME, DAYS | QUALIFIER |
| soil ↓ B07PY8 | anions | 12/1/92 | — | 12/30/92 | — | 29 | One day out. No |
| B07PZ0* | anions | 12/1/92 | — | 12/30/92 | — | 29 | qualifiers req'd. |
| | | | | | | | |
| B0ZPZ0 is an equipment blank. | | | | | | | |

✓ AVR 4/9/93

(6)

CALIBRATION DATA SUMMARY - FORM B-2

| SDG: 12011 | REVIEWER: AS | DATE: 4/7/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|
| COMMENTS: | | | | Level 4 Validation | |
| CALIB. TYPE: | INITIAL CONTINUING | INSTRUMENT: | | | |
| CALIB. DATE | COMPOUND | RF | RSD/%D/%R | SAMPLES AFFECTED | QUALIFIER |
| ~~12/4/93~~ | Chloride = | $R^2$ = .997 | ✓ | | |
| 12/4/93 | Fluoride = | $R^2$ = .999 | ✓ | | |
| 12/4/93 | Phosphate = | $R^2$ = .996 | ✓ | | |
| 12/4/93 | Sulfate = | $R^2$ = .998 | ✓ | | |
| | | | | | |
| | * Note calibration was | performed | 25 days | prior to analysis. | "J"/"UJ" |
| | | | | | all samples |
| 12/30/93 | Check Std 2-Mix F = | 95% | ✓ | | |
| | Cl = | 97% | ✓ | | |
| | $NO_3$ = | 94% | ✓ | | |
| | $SO_4$ = | 104% | ✓ | | |
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |





6

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

| SDG: 12011 | REVIEWER: AS | | | DATE: 4/8/93 | | | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|---|---|---|---|
| COMMENTS: | | | | | | | | Level 4 Validation | |
| SAMPLE ID | COMPOUND | RESULT | Q | RT | UNITS | 5X RESULT | 10X RESULT | SAMPLES AFFECTED | QUALIFIER |
| method blank | No blank contamination was detected. | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Equipment Blank | | | | | | | | | |
| B07PZ0 | Chloride | 3 | | | mg/kg | 15 | No data were qualified using this equipment blank data. | | |
| | ~~Fluoride~~ | | | | | | | | |
| | Fluoride | 0.2 | | | mg/kg | 1.0 | | | |
| | Sulfate | 3 | | | mg/kg | 15 | | | |
| | | | | | | | | | |
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| | | | | | | | | | |

ACCURACY DATA SUMMARY - FORM B-4

| SDG: 12011 | REVIEWER: AS | DATE: 4/8/93 | PAGE 1 OF 1 | |
|---|---|---|---|---|
| COMMENTS: | | | Level 4 Validation | |
| SAMPLE ID | COMPOUND | % RECOVERY | SAMPLE(S) AFFECTED | QUALIFIER REQUIRED |
| B07R18 MS | All recoveries | | | |
| | were acceptable, ranged from 98.5 - 103 % | | | |





6

PRECISION DATA SUMMARY - FORM B-5

| SDG: 12011 | REVIEWER AS | DATE: 4/8/93 | PAGE 1 OF 1 | | |
|---|---|---|---|---|---|
| COMMENTS: | | | | Level 4 Validation | |
| COMPOUND | SAMPLE ID: | SAMPLE ID: | RPD | SAMPLES AFFECTED | QUALIFIER |
| All RPDs acceptable | = 0-40 % | | — | — | — |
| Fluoride had | AS. a RPD of | 40 % | | | |
| however, detected results | were very low | 0.2 & 0.3. | | | |
| This RPD is acceptable, using ±2xPQL rule. | | | | | |





6

(6)

CALCULATION SUMMARY - FORM B-6

| SDG: 2011 | REVIEWER: AS | DATE: 4/6/93 | PAGE 1 OF 1 |
|---|---|---|---|

COMMENTS: (Level 4 Validation)

B07P48 = F = 137114/479419.581 = .286 mg/kg ✓
CL = 766452/418140.753 = 1.833 mg/kg ✓
$NNO_3$ = 7008659/1132804.105 = 6.18 mg/kg ✓
$SO_4$ = 7502406/303753 = 24.70 mg/kg ✓
$PO_4$ = ND.

B07P20 F = 96496/425092.511 = .227 mg/kg ✓
Cl = 1312466/437488.667 = 3.00 mg/kg ✓
$NNO_3$ = 237398/659438.889 = .360 mg/kg ✓
$SO_4$ = 919698/251904.733 = 3.254 mg/kg ✓
$PO_4$ = Non-detect.

| Data Packages Returned to Westinghouse Hanford | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| April 27, 1993 | | | | | | | | |
| | | | | | | | | |
| | | | Work Completed | | Data included with this transmittal: | | | |
| Sample Delivery Group Number | Case Numbers | Project | Verified | Validated | ODP | VCL | PQAR | FQAR |
| | | | | | | | | |
| B07P66-TMA-347 | N2-11-141-7124, N2-11-142-7126 | 300-FF-5 | X | X | X | | | |
| 9209L910-WES-870 | 9209L910 | 300-FF-5 | X | X | X | | | |
| CHMSUP-WES-033 | 9103L933 | 300-FF-5 | * | * | X | | | |
| B07PY8-TMA-384 | 12-014, 12-018 | 100-IU-5 | X | X | X | | | |
| 9212L005-WES-971 | 9212L005 | 100-IU-5 | X | X | X | | | |
| B07Q04-TMA-383 | 12-049 | 100-IU-5 | X | X | X | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Notes: | | | | | | | | |
| * = Supplemental Data Package Only | | | | | | | | |
| ODP = Original Data Package | | | | | | | | |
| VCL = Verification Checklist | | | | | | | | |
| PQAR = Preliminary Quality Assurance Report | | | | | | | | |
| FQAR = Final Quality Assurance Record | | | | | | | | |

HCRL-WHC/9316-T-93-021

E-93-16/2978-56

WESTINGHOUSE HANFORD COMPANY
PICKLING ACID CRIB ERA DATA VALIDATION
DISTRIBUTION FORM

Document Title Prelim. QA Rpts. Case #N2-12-014 (Nitrite/Nit

Document Number: HCRL-WHC/9316-L-93-020 Date: 4/20/93

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| | | | | | |

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.1 | File Index | | 2.1 | Incoming Correspondence | | 4.1 | Task Plan |
| 1.2 | Distribution Lists | | 2.2 | Outgoing Correspondence | X | 4.2 | Data Pkg. Completeness Verif. Checklist |
| 1.3 | Project Procedures | | 2.3 | Internal Correspondence | | 4.3 | Data Valid. Calcs./Annotated DP |
| 1.4 | Project Modifications | | | | | 4.4 | Prelim. QA Reports |
| 1.5 | Staff | | 3.1 | Task Order | | 4.5 | Data Valid. & Qual. Summary Rpts. |
| 1.5.1 | Staff Resumes | | 3.2 | Sample Lists | | 4.5.1 | Internal Drafts/Comments/Resol. |
| 1.5.2 | Staff Training | | 3.3 | Data Validation Procedures | | 4.5.2 | WHC Review Draft Comments/Resol. |
| 1.5.3 | Auth. Former Site Employee | | 3.4 | Original Chemical Data | | 4.5.3 | Final Report |
| 1.6 | QA | | 3.5 | Original Radiochem. Data | | 4.6 | Weekly Status Reports |
| 1.6.1 | QA Implement Procedures | | | | | 4.7 | Weekly Management Reports |
| 1.6.2 | QA Audits | | | | | | |
| 1.6.3 | QA Training | | | | | | |
| 1.7 | Budget | | | | | | |
| 1.7.1 | Budget Status | | | | | | |
| 1.7.2 | Invoices | | | | | | |
| 1.8 | Requisitions | | | | | | |
| 1.9 | Meeting Minutes | | | | | | |
| 1.10 | Record of Telecon | | | | | | |
| 1.11 | Progress Reports | | | | | | |
| 1.12 | Subcontractor | | | | | | |
| | | | | | | | |

HARTCROWSER

Hart Crowser, Inc.
1201 Jadwin Avenue, Suite 2[illegible]
Richland, Washington 993[illegible]
FAX 509 946 [illegible]
509 946 [illegible]

Earth and Environmental Technologies

J-2978-56

April 20, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970 / MSIN H6-04
Richland, Washington 99352

Subject: WHC Order No. MLW-SSV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record
White Bluffs Pickling Acid Cribs ERA
TMA Case Number N2-12-014 - Nitrate/Nitrite

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Cribs ERA. The attached results are provided to you in partial fulfillment of Subtask 03 of our task plan dated March 12, 1993. The subject data package consisted of sixteen low level soil samples submitted for analysis for nitrate/nitrite. Of these, fifteen required full validation. In addition, a 100 percent validation of the supporting quality control data was performed.

The samples were analyzed by TMA using the U.S. Environmental Protection Agency (EPA) Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Method 353.2, modified for soil (leachate) analysis. All analytical results, together with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4. Table 1 is an annotated list of the attachments to this letter report.

## DATA QUALITY OBJECTIVES SUMMARY

Data quality objectives for accuracy and precision (including holding times, instrument and method blanks, matrix spikes, duplicates, laboratory control samples, and initial and continuing calibrations), and quantitation limit requirements were met for this case.

**MAJOR DEFICIENCIES (REJECTED DATA)**

No data were rejected.

**MINOR DEFICIENCIES (OTHER QUALIFIED DATA)**

There were no general trends which resulted in the qualification of data from multiple samples.

Samples B07Q01 and B07Q02 were field duplicates. As nitrate/nitrite was not detected in either sample, field duplicate precision could not be evaluated.

No data qualifiers were assigned.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the White Bluffs Pickling Acid Cribs ERA data validation effort. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager

HC#134:RL1760.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File - HCRL-WHC/9316-L-93-020

**Table 1 - Annotated List of Attachments**

*Attachment 1 - Glossary of Data Qualifiers*

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

*Attachment 2 - As Received Laboratory Sample Concentration Reports*

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g., Form I).

*Attachment 3 - Summary of Data Qualifications (Form B-7)*

This attachment provides a complete summary of all qualifications applied as a result of the validation.

*Attachment 4 - As Qualified Data Summary*

This attachment provides a tabular data summary of all data qualified from the validation.

*Attachment 5 - Data Review Supporting Documentation*

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

## *Glossary of Data Qualifiers*

***U*** - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

***UJ*** - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

***J*** - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

***R*** - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

***NJ*** - Indicates the presumptive evidence of a compound at an estimated value.

***N*** - Indicates presumptive evidence of a compound.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

Received: 12/04/92

Results by Sample

SAMPLE ID B07PY8 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 12/01/92 Category SOIL

NO3NO2 7.41
mg N/kg

SAMPLE ID B07PZ0 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 12/01/92 Category SOIL

NO3NO2 <2.43
mg N/kg

SAMPLE ID B07PZ1 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 3.89
mg N/kg

SAMPLE ID B07PZ2 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 <2.42
mg N/kg

SAMPLE ID B07PZ4 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 <2.44
mg N/kg

SAMPLE ID B07PY9 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 3.83
mg N/kg

SAMPLE ID B07PZ3 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 12/03/92 Category SOIL

NO3NO2 2.52
mg N/kg

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is sa
Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis.
will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the
amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, I
exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are r
thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.
300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-720
1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/04/92 Results by Sample

SAMPLE ID B07PZ6 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

N03N02 <2.53
mg N/kg

SAMPLE ID B07PZ7 SAMPLE # 09 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

N03N02 <2.48
mg N/kg

SAMPLE ID B07Q01 SAMPLE # 10 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

N03N02 <2.54
mg N/kg

SAMPLE ID B07Q02 SAMPLE # 11 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

N03N02 <2.46
mg N/kg

SAMPLE ID B07Q03 SAMPLE # 12 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

N03N02 <2.57
mg N/kg

SAMPLE ID B07PZ5 SAMPLE # 13 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

N03N02 <2.43
mg N/kg

SAMPLE ID B07PZ8 SAMPLE # 14 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

N03N02 <2.59
mg N/kg

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TMA Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-720
1-800-4LAB TEST FAX (617) 890-3883

Received: 12/04/92 Results by Sample

SAMPLE ID B07PZ9 SAMPLE # 15 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46
mg N/kg

SAMPLE ID B07Q00 SAMPLE # 16 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46
mg N/kg

SAMPLE ID B07Q00 DUPL SAMPLE # 16 FRACTIONS: B
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46
mg N/kg

SAMPLE ID B07Q00 SPIKE SAMPLE # 16 FRACTIONS: C
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 20.3
mg N/kg

SAMPLE ID LCSS SAMPLE # 17 FRACTIONS: A
Date & Time Collected not specified Category SOIL

NO3NO2 2.05
mg N/L

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thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

TMA Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-72
1-800-4LAB TEST FAX (617) 890-3883

# ATTACHMENT 3

*Summary of Data Qualifications*

8

DATA QUALIFICATION SUMMARY - FORM B-7

| SDG: N2-12-014 | REVIEWER: CMK | DATE: 4/9/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: $NO_2$/$NO_3$ | | Level 4 val'n | |
| COMPOUND | QUALIFIER | SAMPLES AFFECTED | REASON |
| no qualifiers were assigned. | | | |
| | CMK | | |

# ATTACHMENT 4

*As Qualified Data Summary*

Skinner&Sherman REPORT

Work Order # S2-12-128

Received: 12/04/92

Results by Sample

Qua

SAMPLE ID B07PY8 SAMPLE # 01 FRACTIONS: A

Date & Time Collected 12/01/92 Category SOIL

NO3NO2 7.41 mg N/kg

SAMPLE ID B07PZ0 SAMPLE # 02 FRACTIONS: A

Date & Time Collected 12/01/92 Category SOIL

NO3NO2 <2.43 mg N/kg

U

SAMPLE ID B07PZ1 SAMPLE # 03 FRACTIONS: A

Date & Time Collected 12/03/92 Category SOIL

NO3NO2 3.89 mg N/kg

SAMPLE ID B07PZ2 SAMPLE # 04 FRACTIONS: A

Date & Time Collected 12/03/92 Category SOIL

NO3NO2 <2.42 mg N/kg

U

SAMPLE ID B07PZ4 SAMPLE # 05 FRACTIONS: A

Date & Time Collected 12/03/92 Category SOIL

NO3NO2 <2.44 mg N/kg

U

SAMPLE ID B07PY9 SAMPLE # 06 FRACTIONS: A

Date & Time Collected 12/03/92 Category SOIL

NO3NO2 3.83 mg N/kg

SAMPLE ID B07PZ3 SAMPLE # 07 FRACTIONS: A

Date & Time Collected 12/03/92 Category SOIL

NO3NO2 2.52 mg N/kg

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Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis.
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amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, In
exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are h
thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.
300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-720
1-800-4 LAB TEST FAX (617) 890-3883

Received: 12/04/92 Results by Sample

Qual

SAMPLE ID B07PZ6 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL
NO3NO2 <2.53 mg N/kg (U)

SAMPLE ID B07PZ7 SAMPLE # 09 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL
NO3NO2 <2.48 mg N/kg (U)

SAMPLE ID B07001 SAMPLE # 10 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL
NO3NO2 <2.54 mg N/kg (U)

SAMPLE ID B07002 SAMPLE # 11 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL
NO3NO2 <2.46 mg N/kg (U)

SAMPLE ID B07003 SAMPLE # 12 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL
NO3NO2 <2.57 mg N/kg (U)

SAMPLE ID B07PZ5 SAMPLE # 13 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL
NO3NO2 <2.43 mg N/kg (U)

SAMPLE ID B07PZ8 SAMPLE # 14 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL
NO3NO2 <2.59 mg N/kg (U)

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is
Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis
will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the
amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories,
exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are
thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

TMA Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-72
1-800-4LAB TEST FAX (617) 890-3883

Received: 12/04/92

Results by Sample

SAMPLE ID B07P29 SAMPLE # 15 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46 mg N/kg (U)

SAMPLE ID B07Q00 SAMPLE # 16 FRACTIONS: A
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46 mg N/kg (U)

SAMPLE ID B07Q00 DUPL SAMPLE # 16 FRACTIONS: B
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 <2.46 mg N/kg

SAMPLE ID B07Q00 SPIKE SAMPLE # 16 FRACTIONS: C
Date & Time Collected 12/04/92 Category SOIL

NO3NO2 20.3 mg N/kg

SAMPLE ID LCSS SAMPLE # 17 FRACTIONS: A
Date & Time Collected not specified Category SOIL

NO3NO2 2.03 mg N/L

TMA Thermo Analytical Inc.

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated authorized invoice is
Expert witness services shall be available in connection with this report only if prior notification of this potential requirement was made and accepted, before the analys
will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to t
amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories
exercises due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples a
thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-72
1-800-4 LAB TEST FAX (617) 890-3883

# ATTACHMENT 5

*Data Review Supporting Documentation*

# WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

| | | |
|---|---|---|
| PROJECT: White Bluffs Packing Acid Crib ERA | REVIEWER: CMR | DATE: 4/2/93 |
| LABORATORY: TMA/Skinner | CASE: N2-12-014 | SDG: |
| SAMPLES/MATRIX: For nitrate/nitrite analyses: | | |
| B07PY8 | B07PZ4 | B07PZ7* | B07PZ5 |
| B07PZ0 | B07PY9 | B07Q01 | B07PZ8 |
| B07PZ1 | B07PZ3 | B07Q02 | B07PZ9 |
| B07PZ2 | B07PZ6 | B07Q03 | B07Q00 |

*100% calc of all samples except B07PZ7 (Level 4 Validation)

## 1. DATA PACKAGE COMPLETENESS

method 353.2 (modifie Colorimetric automated Cadmium Reducti

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

| Data Package Item | Present?: | Yes | No | N/A |
|---|---|---|---|---|
| Case Narrative | | | | ✓ |
| Cover Page | | ✓ | | |
| Traffic Reports/Chain-of-Custody | (present in GenChem 12-018/-023) | | | ✓ |
| Sample Analysis Data Report Forms | | ✓ | | |
| Standards Data | | | ✓ | |
| QC Summary | | | | |
| Blanks Summary Report Forms | | ✓ | | |
| Spike Sample Recovery Report Forms | | ✓ | | |
| Duplicate Sample Analysis Report Forms | | ✓ | | |
| Laboratory Control Sample Report Forms | | ✓ | | |
| Raw Data | | | | |
| Ion Chromatograph Chromatograms | | | | ✓ |
| TOC and TOX Instrument Printouts | | | | ✓ |
| Laboratory Bench Sheets | | ✓ | | |
| Additional Data | | | | |
| Laboratory Sample Preparation Logs | | ✓ | | |
| Instrument Run Logs | | ✓ | | |
| Internal Laboratory Chain-of-Custory | | ✓ | | |
| Percent Solids Analysis Records | | | | ✓ (in metals pkg) |
| Reduction Formulae | | | | ✓ |
| Chemist Notebook Pages | | | | ✓ |

## 2. HOLDING TIMES

| Were all samples analyzed within holding times? | Yes | No | N/A |
|---|---|---|---|

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

## 3. INITIAL CALIBRATIONS

| | | | |
|---|---|---|---|
| Were all instruments calibrated daily, each set-up time and were the proper number of standards used? | Yes | No | N/A |
| Are the correlation coefficients ≥0.995? | Yes | No | N/A |
| Was a balance check conducted prior to the TDS analysis? | Yes | No | N/A |
| Was the titrant normality checked? | Yes | No | N/A |

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

## 4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

| | | | |
|---|---|---|---|
| Have ICV and CCV been analyzed at the proper frequency? | Yes | No | N/A |
| Are ICV and CCV percent recoveries within control? | Yes | No | N/A |
| Are there calculation errors? | Yes | No | N/A |

ACTION: Qualify all affected data in accordance with the validation requirements.

## 5. LABORATORY BLANKS

| | | | |
|---|---|---|---|
| Are target analytes present in the laboratory blanks? | Yes | No | N/A |

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

## 6. FIELD BLANKS

| | | | |
|---|---|---|---|
| Are target analytes present in the field blanks? | Yes | No | N/A |

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

## 7. MATRIX SPIKE SAMPLE ANALYSIS

| | | | |
|---|---|---|---|
| Are spike recoveries within the acceptance limits? | Yes | No | N/A |

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? ~~Yes~~ No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

## 13. ANALYTE QUANTITATION AND DETECTION LIMITS

| | | | |
|---|---|---|---|
| Have results been reported and calculated correctly? | Yes | No | N/A |
| Are instrument detection limits below the CRDL? | Yes | No | N/A |

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

## 14. OVERALL ASSESSMENT AND SUMMARY

| | | | |
|---|---|---|---|
| Has the laboratory conducted the analysis in accordance with the analytical SOW? | Yes | No | N/A |
| Were project specific data quality objectives met for this analysis? | Yes | No | N/A |

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY - FORM B-1

N2-12-014

| SDG: | REVIEWER: Clare Russell | DATE: 4/2/~~92~~ 93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: | $NO_2$ / $NO_3$ | | Level 4 ~~Analysis~~ Val'n. |

| FIELD SAMPLE ID | ANALYSIS TYPE | DATE SAMPLED | DATE PREPARED | DATE ANALYZED | PREP. HOLDING TIME, DAYS | ANALYSIS HOLDING TIME, DAYS | QUALIFIER |
|---|---|---|---|---|---|---|---|
| soil B07PY8 | NO2/NO3 | 12/2/92 | 12/28/92 | 12/29/92 | 26 | 1 | none |
| B07PZ0 | | | | | | | |
| B07PZ1 | | | | | | | |
| B07PZ2 | | | | | | | |
| B07PZ4 | | | | | | | |
| B07PY9 | | | | | | | |
| B07PZ3 | | | | | | | |
| B07PZ6 | | 12/3/92 | | | 25 | | |
| B07PZ7 | | | | | | | |
| B07Q01 | | | | | | | |
| B07Q02 | | | | | | | |
| B07Q03 | | | | | | | |
| B07PZ5 | | | | | | | |
| B07PZ8 | | | | | | | |
| B07PZ9 | | | | | | | |
| B07Q00 | | | | | | | |

CALIBRATION DATA SUMMARY - FORM B-2

N2-12-014

| SDG: | REVIEWER: CMRussell | DATE: 4/9/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|
| COMMENTS: | $NO_2/NO_3$ | | | Level 4 ~~Analyzing~~ Val'n. | |
| CALIB. TYPE: | INITIAL CONTINUING | INSTRUMENT: | | | |
| CALIB. DATE | COMPOUND | RF | RSD/%D/%R | SAMPLES AFFECTED | QUALIFIER |
| calib corr. coeff | acceptable | | | | none |
| | | | | | |
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| | | | | | |
| | | | | | |
| icv/ccv | all acceptable | | | | none |
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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

N2-12-014

| SDG: | REVIEWER: CMRussell | DATE: 4/9/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: $NO_2/NO_3$ | | | Level 4 Validation |

| SAMPLE ID | COMPOUND | RESULT | Q | RT | UNITS | 5X RESULT | 10X RESULT | SAMPLES AFFECTED | QUALIFIER |
|---|---|---|---|---|---|---|---|---|---|
| method | | | | | | | | | |
| blank | non-detected | | | | | | | — | none |
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ACCURACY DATA SUMMARY - FORM B-4

N2-12-014

| SDG: | REVIEWER: Clace Russell | DATE: 4/9/93 | PAGE 1 OF 1 | |
|---|---|---|---|---|
| COMMENTS: NO2/NO3 | | | Level 4 Val'n | |
| SAMPLE ID | COMPOUND | % RECOVERY | SAMPLE(S) AFFECTED | QUALIFIER REQUIRED |
| matrix spike | | | | |
| (B07Q00) | | 103.6% | all | none |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| LCS | | 101.5 | all | none |
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PRECISION DATA SUMMARY - FORM B-5

| SDG: | REVIEWER Clem Russell | DATE: 4/9/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|
| COMMENTS: | $NO_3/NO_2$ | | | Level 4 Val'n. | |
| COMPOUND | SAMPLE ID: | SAMPLE ID: | RPD | SAMPLES AFFECTED | QUALIFIER |
| anal. dups | ~~B7~~ B07Q00 | B07Q00D | | all | none |
| | Both are non-detects; precision not calculable | | | | |
| field dups | B07Q01 (2.54(u)) | B07Q02 (2.46(u)) | | all | none |
| | both are non-detects; precision not calculable. | | | | |
| Field Splits → not in this package. | | | | — | none |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Data Packages Returned to Westinghouse Hanford | | | | | | | | |
| April 27, 1993 | | | | | | | | |
| | | | | | | | | |
| | | | Work Completed | | Data included with this transmittal: | | | |
| Sample Delivery Group Number | Case Numbers | Project | Verified | Validated | ODP | VCL | PQAR | FQAR |
| | | | | | | | | |
| B07P66-TMA-347 | N2-11-141-7124, N2-11-142-7126 | 300-FF-5 | X | X | X | | | |
| 9209L910-WES-870 | 9209L910 | 300-FF-5 | X | X | X | | | |
| CHMSUP-WES-033 | 9103L933 | 300-FF-5 | * | * | X | | | |
| B07PY8-TMA-384 | 12-014, 12-018 | 100-IU-5 | X | X | X | | | |
| 9212L005-WES-971 | 9212L005 | 100-IU-5 | X | X | X | | | |
| B07Q04-TMA-383 | 12-049 | 100-IU-5 | X | X | X | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| Notes: | | | | | | | | |
| * = Supplemental Data Package Only | | | | | | | | |
| ODP = Original Data Package | | | | | | | | |
| VCL = Verification Checklist | | | | | | | | |
| PQAR = Preliminary Quality Assurance Report | | | | | | | | |
| FQAR = Final Quality Assurance Record | | | | | | | | |

2t-WHC/9316-T-93-018

E-93-16/2978-56

WESTINGHOUSE HANFORD COMPANY
PICKLING ACID CRIB ERA DATA VALIDATION
DISTRIBUTION FORM

Document Title Prelim. QA Rpts. Case # N2-12-014 (Metals)

Document Number: HCRL-WHC/9316-L-93-017 Date: 4/20/93

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| . Frain (WHC) | X | A. Shen (HCSEA) | | | |
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-oject Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ..1 | File Index | | 2.1 | Incoming Correspondence | | 4.1 | Task Plan | |
| ..2 | Distribution Lists | | 2.2 | Outgoing Correspondence | X | 4.2 | Data Pkg. Completeness Verif. Checklist | |
| ..3 | Project Procedures | | 2.3 | Internal Correspondence | | 4.3 | Data Valid. Calcs./Annotated DP | |
| .4 | Project Modifications | | | | | 4.4 | Prelim. QA Reports | X |
| .5 | Staff | | 3.1 | Task Order | | 4.5 | Data Valid. & Qual. Summary Rpts. | |
| ..5.1 | Staff Resumes | | 3.2 | Sample Lists | | 4.5.1 | Internal Drafts/Comments/Resol. | |
| ..5.2 | Staff Training | | 3.3 | Data Validation Procedures | | 4.5.2 | WHC Review Draft Comments/Resol. | |
| .5.3 | Auth. Former Site Employee | | 3.4 | Original Chemical Data | | 4.5.3 | Final Report | |
| ..6 | QA | | 3.5 | Original Radiochem. Data | | 4.6 | Weekly Status Reports | |
| .6.1 | QA Implement Procedures | | | | | 4.7 | Weekly Management Reports | |
| .6.2 | QA Audits | | | | | | | |
| .6.3 | QA Training | | | | | | | |
| ..7 | Budget | | | | | | | |
| .7.1 | Budget Status | | | | | | | |
| .7.2 | Invoices | | | | | | | |
| .8 | Requisitions | | | | | | | |
| ..9 | Meeting Minutes | | | | | | | |
| ..10 | Record of Telecon | | | | | | | |
| ..11 | Progress Reports | | | | | | | |
| ..12 | Subcontractor | | | | | | | |
| | | | | | | | | |

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser Inc
1201 Jadwin Avenue Suite 2[illegible]
Richland Washington 9935[illegible]
FAX 509 946 42[illegible]
509 946 43[illegible]

J-2978-56

April 20, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970 / MSIN H6-04
Richland, Washington 99352

Subject: WHC Order No. MLW-SSV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record
White Bluffs Pickling Acid Cribs ERA
TMA Case Number N2-12-014 - Metals

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Cribs ERA. The attached results are provided to you in partial fulfillment of Subtask 03 of our task plan dated March 12, 1993. The subject data package consisted of sixteen low level soil samples submitted for analysis for metals. Of these, fifteen required full validation. In addition, a 100 percent validation of the supporting quality control data was performed.

The samples were analyzed by TMA using the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) statement of work. All analytical results, together with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4. Table 1 is an annotated list of the attachments to this letter report.

## DATA QUALITY OBJECTIVES SUMMARY

Data quality objectives for accuracy and precision (including holding times, instrument and method blanks, matrix spikes, duplicates, laboratory control samples, initial and continuing calibrations, and instrument-specific quality control measures), and

quantitation limit requirements were met for this case with the exception of the following: antimony, manganese, and selenium matrix spike percent recoveries were below the control limits; one arsenic and two selenium analytical spike percent recoveries were outside the control limits; one selenium method of standard addition (MSA) correlation coefficient was less than 0.995; there was minor calcium, copper, sodium, and zinc blank contamination; and a few arsenic, calcium, chromium, cobalt, nickel, and sodium blanks had negative values greater than the instrument detection limit (IDL).

## MAJOR DEFICIENCIES (REJECTED DATA)

No data were rejected.

## MINOR DEFICIENCIES (OTHER QUALIFIED DATA)

The following general trends resulted in the qualification of data from multiple samples. All qualified data are discussed in Attachments 3 and 5.

Antimony, manganese, and selenium matrix spike percent recoveries were below the 75 percent lower control limit. All associated antimony, manganese, and selenium data were qualified as estimates (J or UJ).

One arsenic and two selenium analytical spike percent recoveries were outside the 85 to 115 percent control limits. Arsenic and selenium were detected in these samples. The associated concentrations were qualified as estimates (J).

One selenium MSA correlation coefficient was less than 0.995. The associated selenium concentration was qualified as an estimate (J).

There was minor calcium, copper, sodium, and zinc blank contamination which resulted in the qualification of data. All associated calcium, copper, sodium, and zinc concentrations which were less than 5 times the blank concentration were qualified as undetected (U).

Arsenic, calcium, chromium, cobalt, nickel, and sodium blanks had negative values which were greater than the IDL in magnitude. All associated non-detects for these metals were qualified as estimates (UJ). All associated concentrations for these metals which were within 5 times the magnitude of the blank were qualified as estimates (J). Any concentrations greater than 5 times the magnitude of the blank were not qualified.

No other data qualifiers were assigned.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the White Bluffs Pickling Acid Cribs ERA data validation effort. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager
HC#134:RL1757.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File - HCRL-WHC/9316-L-93-017

**Table 1 - Annotated List of Attachments**

*Attachment 1 - Glossary of Data Qualifiers*

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

*Attachment 2 - As Received Laboratory Sample Concentration Reports*

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g., Form I).

*Attachment 3 - Summary of Data Qualifications (Form B-7)*

This attachment provides a complete summary of all qualifications applied as a result of the validation.

*Attachment 4 - As Qualified Data Summary*

This attachment provides a tabular data summary of all data qualified from the validation.

*Attachment 5 - Data Review Supporting Documentation*

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

## *Glossary of Data Qualifiers*

***U*** - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

***UJ*** - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

***J*** - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

***R*** - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

***NJ*** - Indicates the presumptive evidence of a compound at an estimated value.

***N*** - Indicates presumptive evidence of a compound.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

SAMPLE NUMBER:

B07PY8

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-01S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 92.0

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5360 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.5 | B | | F |
| 7440-39-3 | Barium | 44.1 | | | P |
| 7440-41-7 | Beryllium | 0.17 | B | | P |
| 7440-43-9 | Cadmium | 0.29 | U | | P |
| 7440-70-2 | Calcium | 2600 | | | P |
| 7440-47-3 | Chromium | 9.1 | | | P |
| 7440-48-4 | Cobalt | 6.4 | B | | P |
| 7440-50-8 | Copper | 23.5 | | | P |
| 7439-89-6 | Iron | 14600 | | | P |
| 7439-92-1 | Lead | 3.9 | | | F |
| 7439-95-4 | Magnesium | 3310 | | | P |
| 7439-96-5 | Manganese | 138 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 6.2 | B | | P |
| 7440-09-7 | Potassium | 820 | B | | P |
| 7782-49-2 | Selenium | 0.59 | U | WN | F |
| 7440-22-4 | Silver | 0.70 | U | | P |
| 7440-23-5 | Sodium | 139 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 41.4 | | | P |
| 7440-66-6 | Zinc | 71.8 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.1 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

002

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PY9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-06S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 95.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5650 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.6 | B | | F |
| 7440-39-3 | Barium | 41.2 | | | P |
| 7440-41-7 | Beryllium | 0.21 | B | | P |
| 7440-43-9 | Cadmium | 0.30 | U | | P |
| 7440-70-2 | Calcium | 2810 | | | P |
| 7440-47-3 | Chromium | 9.4 | | | P |
| 7440-48-4 | Cobalt | 6.0 | B | | P |
| 7440-50-8 | Copper | 16.7 | | | P |
| 7439-89-6 | Iron | 14200 | | | P |
| 7439-92-1 | Lead | 3.4 | | | F |
| 7439-95-4 | Magnesium | 3610 | | | P |
| 7439-96-5 | Manganese | 142 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 8.3 | | | P |
| 7440-09-7 | Potassium | 862 | B | | P |
| 7782-49-2 | Selenium | 0.54 | U | N | F |
| 7440-22-4 | Silver | 0.39 | B | | P |
| 7440-23-5 | Sodium | 166 | B | | P |
| 7440-28-0 | Thallium | 0.24 | U | | F |
| 7440-62-2 | Vanadium | 37.0 | | | P |
| 7440-66-6 | Zinc | 63.7 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.5 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

003

SAMPLE NUMBER:

B07PZ0

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-02S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 99.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 33.9 | B | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 0.36 | U | | F |
| 7440-39-3 | Barium | 0.14 | U | | P |
| 7440-41-7 | Beryllium | 0.06 | U | | P |
| 7440-43-9 | Cadmium | 0.29 | U | | P |
| 7440-70-2 | Calcium | 4.0 | B | | P |
| 7440-47-3 | Chromium | 0.51 | U | | P |
| 7440-48-4 | Cobalt | 0.25 | U | | P |
| 7440-50-8 | Copper | 8.4 | | | P |
| 7439-89-6 | Iron | 451 | | | P |
| 7439-92-1 | Lead | 0.77 | | | F |
| 7439-95-4 | Magnesium | 7.3 | B | | P |
| 7439-96-5 | Manganese | 0.23 | B | N | P |
| 7439-97-6 | Mercury | 0.04 | U | | CV |
| 7440-02-0 | Nickel | 0.51 | U | | P |
| 7440-09-7 | Potassium | 15.5 | U | | P |
| 7782-49-2 | Selenium | 0.75 | B | N | F |
| 7440-22-4 | Silver | 0.70 | U | | P |
| 7440-23-5 | Sodium | 22.1 | B | | P |
| 7440-28-0 | Thallium | 0.25 | U | | F |
| 7440-62-2 | Vanadium | 0.49 | U | | P |
| 7440-66-6 | Zinc | 1.8 | B | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.2 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

004

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-03S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 94.1

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5700 | | | P |
| 7440-36-0 | Antimony | 3.0 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 36.8 | B | | P |
| 7440-41-7 | Beryllium | 0.19 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 2870 | | | P |
| 7440-47-3 | Chromium | 11.2 | | | P |
| 7440-48-4 | Cobalt | 6.6 | B | | P |
| 7440-50-8 | Copper | 20.7 | | | P |
| 7439-89-6 | Iron | 13500 | | | P |
| 7439-92-1 | Lead | 4.1 | | | F |
| 7439-95-4 | Magnesium | 4080 | | | P |
| 7439-96-5 | Manganese | 175 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 9.5 | | | P |
| 7440-09-7 | Potassium | 763 | B | | P |
| 7782-49-2 | Selenium | 0.62 | B | N | F |
| 7440-22-4 | Silver | 0.74 | U | | P |
| 7440-23-5 | Sodium | 171 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 34.1 | | | P |
| 7440-66-6 | Zinc | 50.7 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.0 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

005

SAMPLE NUMBER:

B07PZ2

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-04S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 94.6

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5010 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.1 | B | | F |
| 7440-39-3 | Barium | 44.7 | | | P |
| 7440-41-7 | Beryllium | 0.22 | B | | P |
| 7440-43-9 | Cadmium | 0.30 | U | | P |
| 7440-70-2 | Calcium | 2800 | | | P |
| 7440-47-3 | Chromium | 9.3 | | | P |
| 7440-48-4 | Cobalt | 6.1 | B | | P |
| 7440-50-8 | Copper | 17.8 | | | P |
| 7439-89-6 | Iron | 12700 | | | P |
| 7439-92-1 | Lead | 3.1 | | | F |
| 7439-95-4 | Magnesium | 3720 | | | P |
| 7439-96-5 | Manganese | 156 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 3.8 | | | P |
| 7440-09-7 | Potassium | 824 | B | | P |
| 7782-49-2 | Selenium | 0.60 | U | N | F |
| 7440-22-4 | Silver | 0.96 | B | | P |
| 7440-23-5 | Sodium | 136 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 30.1 | | | P |
| 7440-66-6 | Zinc | 30.3 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.4 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

006

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-07S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 95.0

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5020 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 1.0 | B | | F |
| 7440-39-3 | Barium | 39.4 | B | | P |
| 7440-41-7 | Beryllium | 0.18 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 3010 | | | P |
| 7440-47-3 | Chromium | 8.0 | | | P |
| 7440-48-4 | Cobalt | 6.8 | B | | P |
| 7440-50-8 | Copper | 13.6 | | | P |
| 7439-89-6 | Iron | 15300 | | | P |
| 7439-92-1 | Lead | 3.1 | | | F |
| 7439-95-4 | Magnesium | 3460 | | | P |
| 7439-96-5 | Manganese | 149 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 7.1 | B | | P |
| 7440-09-7 | Potassium | 784 | B | | P |
| 7782-49-2 | Selenium | 1.1 | | +N | F |
| 7440-22-4 | Silver | 0.98 | B | | P |
| 7440-23-5 | Sodium | 151 | B | | P |
| 7440-28-0 | Thallium | 0.26 | U | | F |
| 7440-62-2 | Vanadium | 41.6 | | | P |
| 7440-66-6 | Zinc | 60.5 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.3 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

007

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ4

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-05S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 93.8

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5550 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 2.3 | | | F |
| 7440-39-3 | Barium | 50.8 | | | P |
| 7440-41-7 | Beryllium | 0.19 | B | | P |
| 7440-43-9 | Cadmium | 0.32 | U | | P |
| 7440-70-2 | Calcium | 8010 | | | P |
| 7440-47-3 | Chromium | 10.0 | | | P |
| 7440-48-4 | Cobalt | 6.2 | B | | P |
| 7440-50-8 | Copper | 17.6 | | | P |
| 7439-89-6 | Iron | 13200 | | | P |
| 7439-92-1 | Lead | 4.0 | | | F |
| 7439-95-4 | Magnesium | 4350 | | | P |
| 7439-96-5 | Manganese | 213 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 10.3 | | | P |
| 7440-09-7 | Potassium | 794 | B | | P |
| 7782-49-2 | Selenium | 0.61 | U | WN | F |
| 7440-22-4 | Silver | 0.76 | U | | P |
| 7440-23-5 | Sodium | 166 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 32.4 | | | P |
| 7440-66-6 | Zinc | 31.3 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.6 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

008

SAMPLE NUMBER:

B07PZ5

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-13S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 93.1

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 6810 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 1.9 | B | | F |
| 7440-39-3 | Barium | 56.1 | | | P |
| 7440-41-7 | Beryllium | 0.28 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 4650 | | | P |
| 7440-47-3 | Chromium | 14.0 | | | P |
| 7440-48-4 | Cobalt | 9.1 | B | | P |
| 7440-50-8 | Copper | 17.6 | | | P |
| 7439-89-6 | Iron | 15900 | | | P |
| 7439-92-1 | Lead | 4.2 | | | F |
| 7439-95-4 | Magnesium | 5130 | | | P |
| 7439-96-5 | Manganese | 226 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 14.3 | | | P |
| 7440-09-7 | Potassium | 1030 | B | | P |
| 7782-49-2 | Selenium | 0.59 | U | N | F |
| 7440-22-4 | Silver | 1.2 | B | | P |
| 7440-23-5 | Sodium | 189 | B | | P |
| 7440-28-0 | Thallium | 0.26 | U | | F |
| 7440-62-2 | Vanadium | 36.7 | | | P |
| 7440-66-6 | Zinc | 43.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.2 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

009

SAMPLE NUMBER:

B07PZ6

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-08S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.4

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4310 | | | P |
| 7440-36-0 | Antimony | 3.0 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 41.0 | | | P |
| 7440-41-7 | Beryllium | 0.16 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 2850 | | | P |
| 7440-47-3 | Chromium | 7.7 | | | P |
| 7440-48-4 | Cobalt | 7.3 | B | | P |
| 7440-50-8 | Copper | 15.2 | | | P |
| 7439-89-6 | Iron | 12900 | | | P |
| 7439-92-1 | Lead | 3.5 | | S | F |
| 7439-95-4 | Magnesium | 2960 | | | P |
| 7439-96-5 | Manganese | 144 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 7.9 | B | | P |
| 7440-09-7 | Potassium | 542 | B | | P |
| 7782-49-2 | Selenium | 0.57 | U | WN | F |
| 7440-22-4 | Silver | 0.86 | B | | P |
| 7440-23-5 | Sodium | 158 | B | | P |
| 7440-28-0 | Thallium | 0.25 | U | | F |
| 7440-62-2 | Vanadium | 39.2 | | | P |
| 7440-66-6 | Zinc | 30.5 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.9 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

010

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014, NBAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-095

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.2

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4630 | | | P |
| 7440-36-0 | Antimony | 3.0 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 29.5 | B | | P |
| 7440-41-7 | Beryllium | 0.13 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 2800 | | | P |
| 7440-47-3 | Chromium | 8.7 | | | P |
| 7440-48-4 | Cobalt | 5.9 | B | | P |
| 7440-50-8 | Copper | 13.7 | | | P |
| 7439-89-6 | Iron | 12300 | | | P |
| 7439-92-1 | Lead | 2.6 | | | F |
| 7439-95-4 | Magnesium | 3570 | | | P |
| 7439-96-5 | Manganese | 177 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 8.0 | B | | P |
| 7440-09-7 | Potassium | 555 | B | | P |
| 7782-49-2 | Selenium | 0.54 | U | N | F |
| 7440-22-4 | Silver | 0.74 | U | | P |
| 7440-23-5 | Sodium | 149 | B | | P |
| 7440-28-0 | Thallium | 0.24 | U | | F |
| 7440-62-2 | Vanadium | 33.6 | | | P |
| 7440-66-6 | Zinc | 28.8 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.1 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

011

SAMPLE NUMBER:

B07PZ8

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.NBAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-14S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 97.1

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4640 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.2 | B | | F |
| 7440-39-3 | Barium | 29.7 | B | | P |
| 7440-41-7 | Beryllium | 0.14 | B | | P |
| 7440-43-9 | Cadmium | 0.29 | U | | P |
| 7440-70-2 | Calcium | 2590 | | | P |
| 7440-47-3 | Chromium | 9.1 | | | P |
| 7440-48-4 | Cobalt | 5.7 | B | | P |
| 7440-50-8 | Copper | 11.0 | | | F |
| 7439-89-6 | Iron | 11600 | | | P |
| 7439-92-1 | Lead | 2.5 | | | F |
| 7439-95-4 | Magnesium | 3520 | | | P |
| 7439-96-5 | Manganese | 149 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 3.7 | | | P |
| 7440-09-7 | Potassium | 630 | B | | P |
| 7782-49-2 | Selenium | 0.64 | B | N | F |
| 7440-22-4 | Silver | 0.95 | B | | P |
| 7440-23-5 | Sodium | 124 | B | | P |
| 7440-28-0 | Thallium | 0.24 | U | | F |
| 7440-62-2 | Vanadium | 27.1 | | | P |
| 7440-66-6 | Zinc | 28.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.3 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

012

SAMPLE NUMBER:

# INORGANIC ANALYSIS DATA SHEET

B07PZ9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-15S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 86.0

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 7000 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 2.0 | B | | F |
| 7440-39-3 | Barium | 73.8 | | | P |
| 7440-41-7 | Beryllium | 0.24 | B | | P |
| 7440-43-9 | Cadmium | 0.32 | U | | P |
| 7440-70-2 | Calcium | 22400 | | | P |
| 7440-47-3 | Chromium | 13.6 | | | P |
| 7440-48-4 | Cobalt | 8.7 | B | | P |
| 7440-50-8 | Copper | 16.9 | | | P |
| 7439-89-6 | Iron | 15600 | | | P |
| 7439-92-1 | Lead | 6.5 | | | F |
| 7439-95-4 | Magnesium | 6500 | | | P |
| 7439-96-5 | Manganese | 265 | | N | P |
| 7439-97-6 | Mercury | 0.06 | U | | CV |
| 7440-02-0 | Nickel | 13.3 | | | P |
| 7440-09-7 | Potassium | 1140 | | | P |
| 7782-49-2 | Selenium | 0.95 | B | SN | F |
| 7440-22-4 | Silver | 0.76 | U | | P |
| 7440-23-5 | Sodium | 194 | B | | P |
| 7440-28-0 | Thallium | 0.30 | U | | F |
| 7440-62-2 | Vanadium | 33.9 | | | P |
| 7440-66-6 | Zinc | 40.9 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.6 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07Q00

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-169

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.5

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4140 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.3 | B | W | F |
| 7440-39-3 | Barium | 43.1 | | | P |
| 7440-41-7 | Beryllium | 0.20 | B | | P |
| 7440-43-9 | Cadmium | 0.30 | U | | P |
| 7440-70-2 | Calcium | 3530 | | | P |
| 7440-47-3 | Chromium | 7.5 | | | P |
| 7440-48-4 | Cobalt | 7.5 | B | | P |
| 7440-50-8 | Copper | 13.7 | | | P |
| 7439-89-6 | Iron | 14900 | | | P |
| 7439-92-1 | Lead | 2.5 | | | F |
| 7439-95-4 | Magnesium | 3420 | | | P |
| 7439-96-5 | Manganese | 183 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 8.8 | | | P |
| 7440-09-7 | Potassium | 504 | B | | P |
| 7782-49-2 | Selenium | 0.67 | B | WN | F |
| 7440-22-4 | Silver | 0.81 | B | | P |
| 7440-23-5 | Sodium | 173 | B | | P |
| 7440-28-0 | Thallium | 0.26 | U | | F |
| 7440-62-2 | Vanadium | 40.5 | | | P |
| 7440-66-6 | Zinc | 30.6 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.4 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

014

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07Q01

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N3AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-10S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 90.5

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5800 | | | P |
| 7440-36-0 | Antimony | 2.9 | U | N | P |
| 7440-38-2 | Arsenic | 1.3 | B | | F |
| 7440-39-3 | Barium | 58.3 | | | P |
| 7440-41-7 | Beryllium | 0.31 | B | | P |
| 7440-43-9 | Cadmium | 0.30 | U | | P |
| 7440-70-2 | Calcium | 6410 | | | P |
| 7440-47-3 | Chromium | 10.2 | | | P |
| 7440-48-4 | Cobalt | 7.3 | B | | P |
| 7440-50-8 | Copper | 14.6 | | | P |
| 7439-89-6 | Iron | 15000 | | | P |
| 7439-92-1 | Lead | 3.3 | | | F |
| 7439-95-4 | Magnesium | 4620 | | | P |
| 7439-96-5 | Manganese | 190 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 10.8 | | | P |
| 7440-09-7 | Potassium | 1010 | | | P |
| 7782-49-2 | Selenium | 0.63 | U | N | F |
| 7440-22-4 | Silver | 0.75 | B | | P |
| 7440-23-5 | Sodium | 142 | B | | P |
| 7440-28-0 | Thallium | 0.28 | U | | F |
| 7440-62-2 | Vanadium | 34.9 | | | P |
| 7440-66-6 | Zinc | 35.6 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 17.5 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

015

SAMPLE NUMBER:

B07Q02

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N3AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-11S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 90.1

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5730 | | | P |
| 7440-36-0 | Antimony | 3.1 | U | N | P |
| 7440-38-2 | Arsenic | 1.5 | B | | F |
| 7440-39-3 | Barium | 54.0 | | | P |
| 7440-41-7 | Beryllium | 0.24 | B | | P |
| 7440-43-9 | Cadmium | 0.31 | U | | P |
| 7440-70-2 | Calcium | 6330 | | | P |
| 7440-47-3 | Chromium | 9.6 | | | P |
| 7440-48-4 | Cobalt | 8.3 | B | | P |
| 7440-50-8 | Copper | 14.7 | | | P |
| 7439-89-6 | Iron | 15300 | | | P |
| 7439-92-1 | Lead | 5.3 | | | F |
| 7439-95-4 | Magnesium | 4910 | | | P |
| 7439-96-5 | Manganese | 200 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 11.8 | | | P |
| 7440-09-7 | Potassium | 1010 | B | | P |
| 7782-49-2 | Selenium | 0.60 | U | N | F |
| 7440-22-4 | Silver | 0.79 | B | | P |
| 7440-23-5 | Sodium | 145 | B | | P |
| 7440-28-0 | Thallium | 0.27 | U | | F |
| 7440-62-2 | Vanadium | 35.4 | | | P |
| 7440-66-6 | Zinc | 38.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 18.4 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

016

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07Q03

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-12S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.2

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

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4320 | | | P |
| 7440-36-0 | Antimony | 2.8 | U | N | P |
| 7440-38-2 | Arsenic | 1.0 | B | | F |
| 7440-39-3 | Barium | 38.1 | B | | P |
| 7440-41-7 | Beryllium | 0.18 | B | | P |
| 7440-43-9 | Cadmium | 0.29 | U | | P |
| 7440-70-2 | Calcium | 5170 | | | P |
| 7440-47-3 | Chromium | 9.3 | | | P |
| 7440-48-4 | Cobalt | 6.5 | B | | P |
| 7440-50-8 | Copper | 11.8 | | | P |
| 7439-89-6 | Iron | 12600 | | | P |
| 7439-92-1 | Lead | 2.9 | | | F |
| 7439-95-4 | Magnesium | 3560 | | | P |
| 7439-96-5 | Manganese | 178 | | N | P |
| 7439-97-6 | Mercury | 0.05 | U | | CV |
| 7440-02-0 | Nickel | 8.3 | | | P |
| 7440-09-7 | Potassium | 551 | B | | P |
| 7782-49-2 | Selenium | 0.68 | B | WN | F |
| 7440-22-4 | Silver | 0.69 | U | | P |
| 7440-23-5 | Sodium | 129 | B | | P |
| 7440-28-0 | Thallium | 0.26 | U | | F |
| 7440-62-2 | Vanadium | 34.2 | | | P |
| 7440-66-6 | Zinc | 28.0 | | | P |
| | Cyanide | | | | NR |
| 7440-67-7 | Zirconium | 16.9 | U | | P |

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

017

# ATTACHMENT 3

*Summary of Data Qualifications*

DATA QUALIFICATION SUMMARY - FORM B-7

N2-12-014

| SDG: | REVIEWER: CMC | DATE: 4/10/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: Metals | | Level 4 Validation | |
| COMPOUND | QUALIFIER | SAMPLES AFFECTED | REASON |
| arsenic | J | B07PY8 B07PY9 B07PZ1, B07PZ2 | negative |
| | | B07PZ3 B07PZ4 B07PZ5 B07PZ6 | blank |
| | | B07PZ7 B07PZ8 B07PZ9 B07Q00 | |
| | | B07Q01 B07Q02 B07Q03 | |
| arsenic | UJ | B07PZ0 | neg. blank |
| calcium | UJ | B07PZ0 | blank contam. and neg blank |
| | | | |
| chromium | UJ | B07PZ0 | neg. blank |
| cobalt | UJ | B07PZ0 | neg. blank |
| copper | U | B07PZ8 B07PZ7 B07PZ9 B07PZ6 | blank contam. |
| | | B07Q00 B07PZ5 B07Q01 B07PZ4 | |
| | | B07Q02 B07PY9 B07Q03 B07PZ0 | |
| | | B07PZ2 B07PZ3 | |
| nickel | UJ | B07PZ0 | neg. blank |
| sodium | UJ | B07PZ0 | blank contam and neg. blank |
| | U | B07PZ7 B07PZ2 B07PZ8 B07PZ3 | |
| | | B07Q01 B07Q03 B07Q02 | blank contam. |
| | | B07PY8 | |
| zinc | U | B07PZ0 | blank contam. |
| antimony | UJ | all | matrix spike ↓ |
| manganese | J | ↓ | <75% |
| selenium | J(+), UJ(-) | ↓ | ↓ |
| arsenic | J | B07Q00 | anal spike >115% |
| selenium | J | B07Q03, B07Q00 | anal spike <85% |
| selenium | J | B07PZ3 | MSA <0.995 |

# ATTACHMENT 4

*As Qualified Data Summary*

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PY8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-01S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 92.0

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5360 | | | P | — |
| 7440-36-0 | Antimony | 2.9 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.5 | B | | F | J |
| 7440-39-3 | Barium | 44.1 | | | P | — |
| 7440-41-7 | Beryllium | 0.17 | B | | P | — |
| 7440-43-9 | Cadmium | 0.29 | U | | P | U |
| 7440-70-2 | Calcium | 2600 | | | P | — |
| 7440-47-3 | Chromium | 9.1 | | | P | — |
| 7440-48-4 | Cobalt | 6.4 | B | | P | — |
| 7440-50-8 | Copper | 23.5 | | | P | — |
| 7439-89-6 | Iron | 14600 | | | P | — |
| 7439-92-1 | Lead | 3.9 | | | F | — |
| 7439-95-4 | Magnesium | 3310 | | | P | — |
| 7439-96-5 | Manganese | 138 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 6.2 | B | | P | — |
| 7440-09-7 | Potassium | 820 | B | | P | — |
| 7782-49-2 | Selenium | 0.59 | U | WN | F | UJ |
| 7440-22-4 | Silver | 0.70 | U | | P | U |
| 7440-23-5 | Sodium | 139 | B | | P | U |
| 7440-28-0 | Thallium | 0.27 | U | | F | U |
| 7440-62-2 | Vanadium | 41.4 | | | P | — |
| 7440-66-6 | Zinc | 71.8 | | | P | — |
| | Cyanide | | | | NR | — |
| 7440-67-7 | Zirconium | 17.1 | U | | P | U |

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Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

002

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07FY9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-06S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 95.6

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5650 | | | P | |
| 7440-36-0 | Antimony | 2.9 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.6 | B | | F | J |
| 7440-39-3 | Barium | 41.2 | | | P | |
| 7440-41-7 | Beryllium | 0.21 | B | | P | |
| 7440-43-9 | Cadmium | 0.30 | U | | P | U |
| 7440-70-2 | Calcium | 2310 | | | P | |
| 7440-47-3 | Chromium | 9.4 | | | P | |
| 7440-48-4 | Cobalt | 6.0 | B | | P | |
| 7440-50-8 | Copper | 16.7 | | | P | U |
| 7439-89-6 | Iron | 14200 | | | P | |
| 7439-92-1 | Lead | 3.4 | | | F | |
| 7439-95-4 | Magnesium | 3610 | | | P | |
| 7439-96-5 | Manganese | 142 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 8.3 | | | P | |
| 7440-09-7 | Potassium | 862 | B | | P | |
| 7782-49-2 | Selenium | 0.54 | U | N | F | UJ |
| 7440-22-4 | Silver | 0.39 | B | | P | |
| 7440-23-5 | Sodium | 166 | B | | P | |
| 7440-28-0 | Thallium | 0.24 | U | | F | U |
| 7440-62-2 | Vanadium | 37.0 | | | P | |
| 7440-66-6 | Zinc | 63.7 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 17.5 | U | | P | U |

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Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

003

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ0

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N&AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-02S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 99.6

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 33.9 | B | | P | |
| 7440-36-0 | Antimony | 2.9 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 0.36 | U | | F | UJ |
| 7440-39-3 | Barium | 0.14 | U | | P | U |
| 7440-41-7 | Beryllium | 0.06 | U | | P | U |
| 7440-43-9 | Cadmium | 0.29 | U | | P | U |
| 7440-70-2 | Calcium | 4.0 | B | | P | UJ |
| 7440-47-3 | Chromium | 0.51 | U | | P | UJ |
| 7440-48-4 | Cobalt | 0.25 | U | | P | UJ |
| 7440-50-8 | Copper | 8.4 | | | P | U |
| 7439-89-6 | Iron | 451 | | | P | |
| 7439-92-1 | Lead | 0.77 | | | F | |
| 7439-95-4 | Magnesium | 7.3 | B | | P | |
| 7439-96-5 | Manganese | 0.23 | B | N | P | J |
| 7439-97-6 | Mercury | 0.04 | U | | CV | U |
| 7440-02-0 | Nickel | 0.51 | U | | P | UJ |
| 7440-09-7 | Potassium | 15.5 | U | | P | U |
| 7782-49-2 | Selenium | 0.75 | B | N | F | J |
| 7440-22-4 | Silver | 0.70 | U | | P | U |
| 7440-23-5 | Sodium | 22.1 | B | | P | UJ |
| 7440-28-0 | Thallium | 0.25 | U | | F | U |
| 7440-62-2 | Vanadium | 0.49 | U | | P | U |
| 7440-66-6 | Zinc | 1.8 | B | | P | U |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 17.2 | U | | P | U |

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Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

004

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N3AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-03S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 94.1

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5700 | | | P | |
| 7440-36-0 | Antimony | 3.0 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.2 | B | | F | J |
| 7440-39-3 | Barium | 36.8 | B | | P | |
| 7440-41-7 | Beryllium | 0.19 | B | | P | |
| 7440-43-9 | Cadmium | 0.31 | U | | P | U |
| 7440-70-2 | Calcium | 2870 | | | P | |
| 7440-47-3 | Chromium | 11.2 | | | P | |
| 7440-48-4 | Cobalt | 6.6 | B | | P | |
| 7440-50-8 | Copper | 20.7 | | | P | |
| 7439-89-6 | Iron | 13500 | | | P | |
| 7439-92-1 | Lead | 4.1 | | | F | |
| 7439-95-4 | Magnesium | 4080 | | | P | |
| 7439-96-5 | Manganese | 175 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 9.5 | | | P | |
| 7440-09-7 | Potassium | 763 | B | | P | |
| 7782-49-2 | Selenium | 0.62 | B | N | F | J |
| 7440-22-4 | Silver | 0.74 | U | | P | U |
| 7440-23-5 | Sodium | 171 | B | | P | |
| 7440-28-0 | Thallium | 0.27 | U | | F | U |
| 7440-62-2 | Vanadium | 34.1 | | | P | |
| 7440-66-6 | Zinc | 50.7 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 18.0 | U | | P | U |

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Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

005

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014, NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-04S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 94.6

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5010 | | | P | |
| 7440-36-0 | Antimony | 2.9 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.1 | B | | F | J |
| 7440-39-3 | Barium | 44.7 | | | P | |
| 7440-41-7 | Beryllium | 0.22 | B | | P | |
| 7440-43-9 | Cadmium | 0.30 | U | | P | U |
| 7440-70-2 | Calcium | 2800 | | | P | |
| 7440-47-3 | Chromium | 9.3 | | | P | |
| 7440-48-4 | Cobalt | 6.1 | B | | P | |
| 7440-50-8 | Copper | 17.8 | | | P | U |
| 7439-89-6 | Iron | 12700 | | | P | |
| 7439-92-1 | Lead | 3.1 | | | F | |
| 7439-95-4 | Magnesium | 3720 | | | P | |
| 7439-96-5 | Manganese | 156 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 8.8 | | | P | |
| 7440-09-7 | Potassium | 324 | B | | P | |
| 7782-49-2 | Selenium | 0.60 | U | N | F | UJ |
| 7440-22-4 | Silver | 0.96 | B | | P | |
| 7440-23-5 | Sodium | 136 | B | | P | U |
| 7440-28-0 | Thallium | 0.27 | U | | F | U |
| 7440-62-2 | Vanadium | 30.1 | | | P | |
| 7440-66-6 | Zinc | 30.3 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 17.4 | U | | P | U |

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Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

006

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: 807PZ3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.N3AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-07S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 95.0

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5020 | | | P | |
| 7440-36-0 | Antimony | 3.1 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.0 | B | | F | J |
| 7440-39-3 | Barium | 39.4 | B | | P | |
| 7440-41-7 | Beryllium | 0.18 | B | | P | |
| 7440-43-9 | Cadmium | 0.31 | U | | P | U |
| 7440-70-2 | Calcium | 3010 | | | P | |
| 7440-47-3 | Chromium | 8.0 | | | P | |
| 7440-48-4 | Cobalt | 6.8 | B | | P | |
| 7440-50-8 | Copper | 13.6 | | | P | U |
| 7439-89-6 | Iron | 15300 | | | P | |
| 7439-92-1 | Lead | 3.1 | | | F | |
| 7439-95-4 | Magnesium | 3460 | | | P | |
| 7439-96-5 | Manganese | 149 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 7.1 | B | | P | |
| 7440-09-7 | Potassium | 784 | B | | P | |
| 7782-49-2 | Selenium | 1.1 | | +N | F | J |
| 7440-22-4 | Silver | 0.98 | B | | P | |
| 7440-23-5 | Sodium | 151 | B | | P | U |
| 7440-28-0 | Thallium | 0.26 | U | | F | U |
| 7440-62-2 | Vanadium | 41.6 | | | P | |
| 7440-66-6 | Zinc | 60.5 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 18.3 | U | | P | U |

✓ aak 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

007

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ4

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-05S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 93.8

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5550 | | | P | |
| 7440-36-0 | Antimony | 3.1 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 2.3 | | | F | J |
| 7440-39-3 | Barium | 50.8 | | | P | |
| 7440-41-7 | Beryllium | 0.19 | B | | P | |
| 7440-43-9 | Cadmium | 0.32 | U | | P | U |
| 7440-70-2 | Calcium | 8010 | | | P | |
| 7440-47-3 | Chromium | 10.0 | | | P | |
| 7440-48-4 | Cobalt | 6.2 | B | | P | |
| 7440-50-8 | Copper | 17.6 | | | P | U |
| 7439-89-6 | Iron | 13200 | | | P | |
| 7439-92-1 | Lead | 4.0 | | | F | |
| 7439-95-4 | Magnesium | 4350 | | | P | |
| 7439-96-5 | Manganese | 213 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 10.[illegible] | | | P | |
| 7440-09-7 | Potassium | 794 | B | | P | |
| 7782-49-2 | Selenium | 0.61 | U | WN | F | UJ |
| 7440-22-4 | Silver | 0.76 | U | | P | U |
| 7440-23-5 | Sodium | 166 | B | | P | |
| 7440-28-0 | Thallium | 0.27 | U | | F | U |
| 7440-62-2 | Vanadium | 32.4 | | | P | |
| 7440-66-6 | Zinc | 31.3 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 18.6 | U | | P | U |

Jum 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

008

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ5

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014, NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-13S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 93.1

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 6810 | | | P | |
| 7440-36-0 | Antimony | 3.1 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.9 | B | | F | J |
| 7440-39-3 | Barium | 56.1 | | | P | |
| 7440-41-7 | Beryllium | 0.28 | B | | P | |
| 7440-43-9 | Cadmium | 0.31 | U | | P | U |
| 7440-70-2 | Calcium | 4650 | | | P | |
| 7440-47-3 | Chromium | 14.0 | | | P | |
| 7440-48-4 | Cobalt | 9.1 | B | | P | |
| 7440-50-8 | Copper | 17.6 | | | F | U |
| 7439-89-6 | Iron | 15900 | | | P | |
| 7439-92-1 | Lead | 4.2 | | | F | |
| 7439-95-4 | Magnesium | 5130 | | | P | |
| 7439-96-5 | Manganese | 226 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 14.3 | | | P | |
| 7440-09-7 | Potassium | 1030 | B | | P | |
| 7782-49-2 | Selenium | 0.59 | U | N | F | UJ |
| 7440-22-4 | Silver | 1.2 | B | | P | |
| 7440-23-5 | Sodium | 189 | B | | P | |
| 7440-28-0 | Thallium | 0.26 | U | | F | U |
| 7440-62-2 | Vanadium | 36.7 | | | P | |
| 7440-66-6 | Zinc | 43.0 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 18.2 | U | | P | U |

✓ um 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

009

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

B07PZ6

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N8AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-08S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.4

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4310 | | | P | |
| 7440-36-0 | Antimony | 3.0 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.2 | B | | F | J |
| 7440-39-3 | Barium | 41.0 | | | P | |
| 7440-41-7 | Beryllium | 0.16 | B | | P | |
| 7440-43-9 | Cadmium | 0.31 | U | | P | U |
| 7440-70-2 | Calcium | 2850 | | | P | |
| 7440-47-3 | Chromium | 7.7 | | | P | |
| 7440-48-4 | Cobalt | 7.3 | B | | P | |
| 7440-50-8 | Copper | 15.2 | | | P | U |
| 7439-89-6 | Iron | 12900 | | | P | |
| 7439-92-1 | Lead | 3.5 | | S | F | |
| 7439-95-4 | Magnesium | 2960 | | | P | |
| 7439-96-5 | Manganese | 144 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 7.9 | B | | P | |
| 7440-09-7 | Potassium | 542 | B | | P | |
| 7782-49-2 | Selenium | 0.57 | U | WN | F | UJ |
| 7440-22-4 | Silver | 0.86 | B | | P | |
| 7440-23-5 | Sodium | 158 | B | | P | |
| 7440-28-0 | Thallium | 0.25 | U | | F | U |
| 7440-62-2 | Vanadium | 39.2 | | | P | |
| 7440-66-6 | Zinc | 30.5 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 17.9 | U | | P | U |

Jan 4 to 93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

010

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N0AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-09S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.2

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4630 | | | P | |
| 7440-36-0 | Antimony | 3.0 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.2 | B | | F | J |
| 7440-39-3 | Barium | 29.5 | B | | P | |
| 7440-41-7 | Beryllium | 0.13 | B | | P | |
| 7440-43-9 | Cadmium | 0.31 | U | | P | U |
| 7440-70-2 | Calcium | 2800 | | | P | |
| 7440-47-3 | Chromium | 8.7 | | | P | |
| 7440-48-4 | Cobalt | 5.9 | B | | P | |
| 7440-50-8 | Copper | 13.7 | | | P | W |
| 7439-89-6 | Iron | 12300 | | | P | |
| 7439-92-1 | Lead | 2.6 | | | F | |
| 7439-95-4 | Magnesium | 3570 | | | P | |
| 7439-96-5 | Manganese | 177 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 8.0 | B | | P | |
| 7440-09-7 | Potassium | 555 | B | | P | |
| 7782-49-2 | Selenium | 0.54 | U | N | F | UJ |
| 7440-22-4 | Silver | 0.74 | U | | P | U |
| 7440-23-5 | Sodium | 149 | B | | P | U |
| 7440-28-0 | Thallium | 0.24 | U | | F | U |
| 7440-62-2 | Vanadium | 33.6 | | | P | |
| 7440-66-6 | Zinc | 28.8 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 18.1 | U | | P | U |

✓ um 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

011

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07PZ8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014.NBAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-148

Level (low/med): LOW Date Received: 12/04/92

% Solids: 97.1

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4640 | | | P | |
| 7440-36-0 | Antimony | 2.9 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.2 | B | | F | J |
| 7440-39-3 | Barium | 29.7 | B | | P | |
| 7440-41-7 | Beryllium | 0.14 | B | | P | |
| 7440-43-9 | Cadmium | 0.29 | U | | P | U |
| 7440-70-2 | Calcium | 2590 | | | P | |
| 7440-47-3 | Chromium | 9.1 | | | P | |
| 7440-48-4 | Cobalt | 5.7 | B | | P | |
| 7440-50-8 | Copper | 11.0 | | | P | U |
| 7439-89-6 | Iron | 11600 | | | P | |
| 7439-92-1 | Lead | 2.5 | | | F | |
| 7439-95-4 | Magnesium | 3520 | | | P | |
| 7439-96-5 | Manganese | 149 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 3.7 | | | P | |
| 7440-09-7 | Potassium | 630 | B | | P | |
| 7782-49-2 | Selenium | 0.64 | B | N | F | J |
| 7440-22-4 | Silver | 0.95 | B | | P | |
| 7440-23-5 | Sodium | 124 | B | | P | U |
| 7440-28-0 | Thallium | 0.24 | U | | F | U |
| 7440-62-2 | Vanadium | 27.1 | | | P | |
| 7440-66-6 | Zinc | 28.0 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 17.3 | U | | P | U |

✓ cmm 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

012

FORM I - IN ILM02.1

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07PZ9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N2AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-15S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 86.0

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 7000 | | | P | |
| 7440-36-0 | Antimony | 3.1 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 2.0 | B | | P | J |
| 7440-39-3 | Barium | 73.8 | | | P | |
| 7440-41-7 | Beryllium | 0.24 | B | | P | |
| 7440-43-9 | Cadmium | 0.32 | U | | P | U |
| 7440-70-2 | Calcium | 22400 | | | P | |
| 7440-47-3 | Chromium | 13.6 | | | P | |
| 7440-48-4 | Cobalt | 8.7 | B | | P | |
| 7440-50-8 | Copper | 16.9 | | | P | U |
| 7439-89-6 | Iron | 15600 | | | P | |
| 7439-92-1 | Lead | 6.5 | | | F | |
| 7439-95-4 | Magnesium | 6500 | | | P | |
| 7439-96-5 | Manganese | 265 | | N | P | J |
| 7439-97-6 | Mercury | 0.06 | U | | CV | U |
| 7440-02-0 | Nickel | 13.3 | | | P | |
| 7440-09-7 | Potassium | 1140 | | | P | |
| 7782-49-2 | Selenium | 0.95 | B | SN | F | J |
| 7440-22-4 | Silver | 0.76 | U | | P | U |
| 7440-23-5 | Sodium | 194 | B | | P | |
| 7440-28-0 | Thallium | 0.30 | U | | F | U |
| 7440-62-2 | Vanadium | 33.9 | | | P | |
| 7440-66-6 | Zinc | 40.9 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 18.6 | U | | P | U |

✓ cm 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

013

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07Q00

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014, NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-16S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.5

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4140 | | | P | |
| 7440-36-0 | Antimony | 2.9 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.3 | B | W | F | J |
| 7440-39-3 | Barium | 43.1 | | | P | |
| 7440-41-7 | Beryllium | 0.20 | B | | P | |
| 7440-43-9 | Cadmium | 0.30 | U | | P | U |
| 7440-70-2 | Calcium | 3530 | | | P | |
| 7440-47-3 | Chromium | 7.5 | | | P | |
| 7440-48-4 | Cobalt | 7.5 | B | | P | |
| 7440-50-8 | Copper | 13.7 | | | P | U |
| 7439-89-6 | Iron | 14900 | | | P | |
| 7439-92-1 | Lead | 2.5 | | | F | |
| 7439-95-4 | Magnesium | 3420 | | | P | |
| 7439-96-5 | Manganese | 183 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 8.8 | | | P | |
| 7440-09-7 | Potassium | 504 | B | | P | |
| 7782-49-2 | Selenium | 0.67 | B | WN | F | J |
| 7440-22-4 | Silver | 0.81 | B | | P | |
| 7440-23-5 | Sodium | 173 | B | | P | |
| 7440-28-0 | Thallium | 0.26 | U | | F | U |
| 7440-62-2 | Vanadium | 40.5 | | | P | |
| 7440-66-6 | Zinc | 30.6 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 17.4 | U | | P | U |

✓ am 4/6/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

014

SAMPLE NUMBER:

B07Q01

# INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014, NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-10S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 90.5

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5800 | | | P | |
| 7440-36-0 | Antimony | 2.9 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.3 | B | | F | J |
| 7440-39-3 | Barium | 58.3 | | | P | |
| 7440-41-7 | Beryllium | 0.31 | B | | P | |
| 7440-43-9 | Cadmium | 0.30 | U | | P | U |
| 7440-70-2 | Calcium | 6410 | | | P | |
| 7440-47-3 | Chromium | 10.2 | | | P | |
| 7440-48-4 | Cobalt | 7.3 | B | | P | |
| 7440-50-8 | Copper | 14.6 | | | P | U |
| 7439-89-6 | Iron | 15000 | | | P | |
| 7439-92-1 | Lead | 3.3 | | | F | |
| 7439-95-4 | Magnesium | 4620 | | | P | |
| 7439-96-5 | Manganese | 190 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 10.3 | | | P | |
| 7440-09-7 | Potassium | 1010 | | | P | |
| 7782-49-2 | Selenium | 0.63 | U | N | F | UJ |
| 7440-22-4 | Silver | 0.75 | B | | P | |
| 7440-23-5 | Sodium | 142 | B | | P | U |
| 7440-28-0 | Thallium | 0.28 | U | | F | U |
| 7440-62-2 | Vanadium | 34.9 | | | P | |
| 7440-66-6 | Zinc | 35.6 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 17.5 | U | | P | U |

✓ aac 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

015

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07Q02

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014,N&AS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-11S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 90.1

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 5730 | | | P | |
| 7440-36-0 | Antimony | 3.1 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.5 | B | | F | J |
| 7440-39-3 | Barium | 54.0 | | | P | |
| 7440-41-7 | Beryllium | 0.24 | B | | P | |
| 7440-43-9 | Cadmium | 0.31 | U | | P | U |
| 7440-70-2 | Calcium | 6330 | | | P | |
| 7440-47-3 | Chromium | 9.6 | | | P | |
| 7440-48-4 | Cobalt | 8.3 | B | | P | |
| 7440-50-8 | Copper | 14.7 | | | P | U |
| 7439-89-6 | Iron | 15300 | | | P | |
| 7439-92-1 | Lead | 5.3 | | | F | |
| 7439-95-4 | Magnesium | 4910 | | | P | |
| 7439-96-5 | Manganese | 200 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 11.3 | | | P | |
| 7440-09-7 | Potassium | 1010 | B | | P | |
| 7782-49-2 | Selenium | 0.60 | U | N | F | UJ |
| 7440-22-4 | Silver | 0.79 | B | | P | |
| 7440-23-5 | Sodium | 145 | B | | P | U |
| 7440-28-0 | Thallium | 0.27 | U | | F | U |
| 7440-62-2 | Vanadium | 35.4 | | | P | |
| 7440-66-6 | Zinc | 38.0 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 18.4 | U | | P | U |

✓ am 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

016

# INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07Q03

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N212014, NSAS No.: SDG No.: S212127

Matrix (soil/water): SOIL Lab Sample ID: 12127-12S

Level (low/med): LOW Date Received: 12/04/92

% Solids: 96.2

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

| CAS No. | Analyte | Concentration | C | Q | M | Qual |
|---|---|---|---|---|---|---|
| 7429-90-5 | Aluminum | 4320 | | | P | |
| 7440-36-0 | Antimony | 2.8 | U | N | P | UJ |
| 7440-38-2 | Arsenic | 1.0 | B | | F | J |
| 7440-39-3 | Barium | 38.1 | B | | P | |
| 7440-41-7 | Beryllium | 0.18 | B | | P | |
| 7440-43-9 | Cadmium | 0.29 | U | | P | U |
| 7440-70-2 | Calcium | 5170 | | | P | |
| 7440-47-3 | Chromium | 9.3 | | | P | |
| 7440-48-4 | Cobalt | 6.5 | B | | P | |
| 7440-50-8 | Copper | 11.8 | | | P | U |
| 7439-89-6 | Iron | 12600 | | | P | |
| 7439-92-1 | Lead | 2.9 | | | F | |
| 7439-95-4 | Magnesium | 3560 | | | P | |
| 7439-96-5 | Manganese | 178 | | N | P | J |
| 7439-97-6 | Mercury | 0.05 | U | | CV | U |
| 7440-02-0 | Nickel | 3.8 | | | P | |
| 7440-09-7 | Potassium | 551 | B | | P | |
| 7782-49-2 | Selenium | 0.68 | B | WN | F | J |
| 7440-22-4 | Silver | 0.69 | U | | P | U |
| 7440-23-5 | Sodium | 129 | B | | P | U |
| 7440-28-0 | Thallium | 0.26 | U | | F | U |
| 7440-62-2 | Vanadium | 34.2 | | | P | |
| 7440-66-6 | Zinc | 28.0 | | | P | |
| | Cyanide | | | | NR | |
| 7440-67-7 | Zirconium | 16.9 | U | | P | U |

Jane 4/10/93

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

017

# ATTACHMENT 5

*Data Review Supporting Documentation*

# INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

| | | |
|---|---|---|
| PROJECT: White Bluffs Pickling Acid crib ERA | REVIEWER: CMR | DATE: 4/2/93 |
| LABORATORY: TMA/Skinner | CASE: N212014 | SDG: |
| SAMPLES/MATRIX: all soil samples: | | |

| | | | |
|---|---|---|---|
| B07PY8 ✓ | B07PZ2 ✓ | B07PZ6 ✓ | B07Q00 ✓ |
| B07PY9 ✓ | B07PZ3 ✓ | B07PZ7 ✓ | B07Q01 ✓ |
| B07PZ0 ✓ | B07PZ4 ✓ | B07PZ8 ✓ | B07Q02 |
| B07PZ1 ✓ | B07PZ5 ✓ | B07PZ9 ✓ | B07Q03 ✓ |

a) All sample calcs. except those circled. b) Level 4 Validation

1990 SOW

## 1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

| Data Package Item | Present?: Yes | No | N/A |
|---|---|---|---|
| Case Narrative | ✓ | — | — |
| Cover Page | ✓ | — | — |
| Traffic Reports (present in Gen Chem 12-018/-023) | — | — | ✓ |
| Sample Data | | | |
| Inorganic Analysis Data Sheets | ✓ | — | — |
| Standards Data | | | |
| Initial and Continuing Calibration Verification | ✓ | — | — |
| CRDL Standard for AA and ICP | ✓ | — | — |
| QC Summary | | | |
| Blanks | ✓ | — | — |
| ICP Interference Check Summary | ✓ | — | — |
| Spike Sample Recovery | ✓ | — | — |
| Post-Digestion Spike Sample Recovery | ✓ | — | — |
| Duplicate | ✓ | — | — |
| Laboratory Control Sample | ✓ | — | — |
| Standard Addition Results | ✓ | — | — |
| ICP Serial Dilutions | ✓ | — | — |
| Instrument Detection Limits | ✓ | — | — |
| ICP Interelement Correction Factors | ✓ | — | — |
| ICP Linear Ranges | ✓ | — | — |
| Preparation Log | ✓ | — | — |
| Analysis Run Log | — | — | — |
| Raw Data | | | |
| ICP Raw Data | ✓ | — | — |
| Furnace AA Raw Data | ✓ | — | — |
| Mercury Raw Data | ✓ | — | — |
| Cyanide Raw Data | — | — | ✓ |
| Additional Data | | | |
| Internal laboratory chain-of-custody | ✓ | — | — |
| Laboratory Sample Preparation Records | ✓ | — | — |

| Data Package Item | Present?: Yes | No | N/A |
|---|---|---|---|
| Percent Solids Analysis Records | ✓ | | |
| Reduction Formulae | | | ✓ |
| Instrument Run Logs | | | ✓ |
| Chemist Notebook Pages | | | ✓ |

2. HOLDING TIMES

Have all samples been analyzed within holding times? (Yes) No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? (Yes) No N/A

Are the correlation coefficients ≥0.995? (Yes) No N/A

Was a midrange cyanide standard distilled? Yes No (N/A)

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results > IDL as estimated (J) and results < IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? (Yes) No N/A

Are the AB solution %R values within control? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? (Yes) No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No (N/A)

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes (No) N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

| | | | |
|---|---|---|---|
| If no, were MSA analyses performed when required? | Yes | No | N/A |
| Are MSA correlation coefficients $\geq$0.995? | Yes | No | N/A |
| If no, was a second MSA analysis performed? | Yes | No | N/A |

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is $\geq$10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

## 17. ANALYTE QUANTITATION AND DETECTION LIMITS

| | | | |
|---|---|---|---|
| Have results been reported and calculated correctly? | Yes | No | N/A |
| Are results within the calibrated range of the instruments and within the linear range of the ICP? | Yes | No | N/A |
| Are all detection limits below the CRQL? | Yes | No | N/A |

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

## 18. OVERALL ASSESSMENT AND SUMMARY

| | | | |
|---|---|---|---|
| Has the laboratory conducted the analysis in accordance with the analytical SOW? | Yes | No | N/A |
| Were project specific data quality objectives met for this analysis? | Yes | No | N/A |

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY - FORM B-1

N212014

| SDG: | REVIEWER: Clare Russell | DATE: 4/2/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: | Metals | Level 4 Validation | |

| FIELD SAMPLE ID | ANALYSIS TYPE | DATE SAMPLED | DATE PREPARED | DATE ANALYZED | PREP. HOLDING TIME, DAYS | ANALYSIS HOLDING TIME, DAYS | QUALIFIER |
|---|---|---|---|---|---|---|---|
| Soil B07PY8 | Hg | 12/2/92 | 12/14/92 | 12/15/92 | 12 | 1 | none |
| B07PY9 | | | | | | | |
| B07PZ0 | | | | | | | |
| B07PZ1 | | | | | | | |
| B07PZ2 | | | | | | | |
| B07PZ3 | | | | | | | |
| B07PZ4 | | | | | | | |
| B07PZ5 | | 12/3/92 | | | 11 | | |
| B07PZ6 | | | | | | | |
| B07PZ7 | | | | | | | |
| B07PZ8 | | | | | | | |
| B07PZ9 | | | | | | | |
| B07Q00 | | | | | | | |
| B07Q01 | | | | | | | |
| B07Q02 | | | | | | | |
| B07Q03 | | | | | | | |



7

CALIBRATION DATA SUMMARY - FORM B-2

N2-12-014

| SDG: | REVIEWER: CMR | DATE: 4/10/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|
| COMMENTS: Metals | | | | Level 4 Validation | |
| CALIB. TYPE: | INITIAL CONTINUING | INSTRUMENT: | | | |
| CALIB. DATE | COMPOUND | RF | RSD/%D/%R | SAMPLES AFFECTED | QUALIFIER |
| GFAA calib. correlation coefficients | | | | | |
| | mercury | | | | none |
| | arsenic | | | | |
| | selenium | | | | |
| | thallium | | | | |
| | lead | | | | |
| ICV and CCV | | | | | |
| | all %R are acceptable | | | | |
| | | | | | |
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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

N2-12-014

| SDG: | REVIEWER: CMRussell | DATE: 4/10/93 | PAGE 1 OF 2 |
|---|---|---|---|
| COMMENTS: Metals | | Level 4 Validation | |

| SAMPLE ID | COMPOUND | | ug/L | RESULT | Q | RT | UNITS | 5X RESULT | 10X RESULT | SAMPLES AFFECTED | QUALIFIER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PBS | aluminum | ✓ | | 5.864 | | | mg/kg | 29.32 | mg/kg | — | none |
| CCB3 | arsenic | ✓ | -2.3 | -0.46 | | | | | | B07PY8, PY9, PZ1, PZ2, PZ3, PZ7, PZ8, PZ9, PZ4, PZ5, PZ6, Q00, Q01, Q02, Q03 | J |
| CCB4 | ↓ | ✓ | -3.9 | -0.78 | | | | -3.9 | mg/kg | B07PZ0 | UJ |
| PBS | cadmium | ✓ | | 0.324 | | | | 1.62 | mg/kg | — | none |
| ICB | calcium | ✓ | 80.9 | 16.18 | | | | 80.9 | mg/kg | B07PZ0 | U |
| CCB1 | | ✓ | 23.6 | 4.72 | | | | | | | |
| CCB3 | | ✓ | 20.1 | 4.02 | | | | | | | |
| PBS | | ✓ | | -7.232 | | | | -7.232 | mg/kg | B07PZ0 | UJ |
| CCB4 | | ✓ | 16.3 | 3.26 | | | | | | | |
| CCB5 | ↓ | ✓ | 19.1 | 3.82 | | | | | | | |
| CCB5 | chromium | ✓ | -2.7 | -0.54 | | | | -2.7 | | B07PZ0 | UJ |
| CCB3 | cobalt | ✓ | -2.2 | -0.44 | | | | -2.2 | | B07PZ0 | UJ |
| CCB5 | ↓ | ✓ | -1.8 | -0.36 | | | | | | | |
| ICB | Copper | ✓ | 8.3 | 1.66 | | | | | B07PZ8, B07PZ9, B07Q00, B07Q01, B07Q02, B07Q03 | B07PZ7, B07PZ6, B07PZ5, B07PZ4, B07PY9, B07PZ0, B07PZ2, B07PZ3 | |
| CCB1 | | ✓ | 9.4 | 1.88 | | | | | | | |
| CCB2 | | ✓ | 18.5 | 3.70 | | | | 18.5 | | | U |
| CCB3 | ↓ | ✓ | 9.4 | 1.88 | | | ↓ | | | | |

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

N2-12-014

| SDG: | REVIEWER: CMRussell | DATE: 4/10/93 | PAGE 2 OF 2 |
|---|---|---|---|
| COMMENTS: Metals | | Level 4 Validation | |

| SAMPLE ID | COMPOUND | | RESULT | Q | RT | UNITS | 5X RESULT | 10X RESULT | SAMPLES AFFECTED | QUALIFIER |
|---|---|---|---|---|---|---|---|---|---|---|
| PBS | copper ✓ | | 1.966 | | | mg/kg | | | | |
| CCB4 | ↓ ✓ | 7.9 | 1.58 | | | ↓ | | | | |
| CCB5 | ↓ ✓ | 8.7 | 1.74 | | | | | | | |
| CCB2 | iron* ✓ | 8.5 | 1.70 | | | | | | | |
| CCB3 | ↓ ✓ | 12.6 | 2.52 | | | | | | | |
| PBS | ↓ ✓ | | 2.692 | | | | | | | |
| CCB2 | nickel ✓ | -4.7 | ~~-9.74~~ -0.94 | | | | -4.7 | | B07PZ0 | UJ |
| CCB3 | ↓ ✓ | -3.0 | -0.60 | | | | | | | |
| CCB2 | sodium ✓ | -38.6 | -7.72 | | | | | | | |
| CCB3 | ↓ ✓ | -47.2 | -9.44 | | | | -47.2 | | B07PZ0 | UJ |
| PBS | ↓ ✓ | | 30.402 | | | | 152.01 | B07PZ7 B07PZ8 | B07PY8 B07PZ0 | U |
| CCB5 | ↓ ✓ | -41.0 | -8.2 | | | | | B07Q01 B07Q02 | B07PZ2 B07PZ3, B07Q03 | |
| ICB | zinc ✓ | 16.2 | 3.24 | | | ↓ | 16.2 | | B07PZ0 | U |
| * CCB4 | iron ✓ | 18.2 | 3.64 | | | | ~~3.6~~ 18.2 | | — | none |
| CCB5 | ↓ ✓ | 6.2 | 1.24 | | | ↓ | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

ACCURACY DATA SUMMARY - FORM B-4

| SDG: | REVIEWER: CM Russell | DATE: 4/10/93 | PAGE 1 OF 1 | |
|---|---|---|---|---|
| COMMENTS: Metals | | | Level 4 Validation | |
| SAMPLE ID | COMPOUND | % RECOVERY | SAMPLE(S) AFFECTED | QUALIFIER REQUIRED |
| CRDL Std. | selenium | 164%, 168%, 151% | | none |
| | silver | 133%, 139% | | ↓ |
| | lead | 64% | | ↓ |
| LCS → all acceptable | | | | none |
| matrix spike | antimony | 69.4% | all | UJ |
| (B07Q00S) | manganese | 70.6% | ↓ | J |
| | selenium | 62.5% | ↓ | J(+), UJ(−) |
| postdig. spike | antimony | 101% | | none |
| (B07Q00A) | manganese | 101.4% | | none |
| | | | | |
| anal. spike | Arsenic B07Q00 | 119% | ~~B07~~ B07Q00 | J |
| | | | | |
| | Selenium B07PZ4 | 117% | B07PZ4 | ~~UJ~~ all none |
| | B07PZ6 | 129% | B07PZ6 | ~~UJ~~ all none |
| | ~~Thallium~~ B07Q03 | 79% | B07Q03 | J |
| | B07Q00 | 84% | B07Q00 | J |
| | ~~Lead~~ B07PY8 | 126% | B07PY8 | ~~UJ~~ all none |
| | B07PZ3 | MSA 0.9915 | B07PZ3 | J |





7

PRECISION DATA SUMMARY - FORM B-5

N2-12-014

| SDG: | REVIEWER CMRussell | DATE: 4/10/93 | PAGE 1 OF 1 | | |
|---|---|---|---|---|---|
| COMMENTS: Metals | | | | Level 4 Validation | |
| COMPOUND | SAMPLE ID: | SAMPLE ID: | RPD | SAMPLES AFFECTED | QUALIFIER |
| Anal. dups → all acceptable CMR | | | | | none |
| (B07Q001) | | | | | |
| | | | | | |
| | | | | | |
| serial dil. → all acceptable CMR | | | | | none |
| (B07Q001) | | | | | |
| | | | | | |
| | | | | | |
| GFAA precision → all acceptable | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| field dups | Q07Q02 | Q07Q01 | | | |
| | see the attached calc. summary pages CMR | | | | |
| | | | | | |
| | | | | | |





7

CALCULATION SUMMARY - FORM B-6

~~A2-a~~ N2-12-014

| SDG: | REVIEWER: CMRussell | DATE: 4/10/93 | PAGE 1 OF |
|---|---|---|---|
| COMMENTS: Metals | | Level 4 Validation | |

Field Dup Precision

| | B07Q01 | B07Q02 | % RPD |
|---|---|---|---|
| Al | 5800 | 5730 | 1.2% |
| Sb | 2.9 UJ | 3.1 UJ | — |
| As | 1.3 J | 1.5 J | ~~1.~~ 14.3 |
| Ba | 58.3 | 54.0 | 7.7 |
| Be | 0.31 | 0.24 | 25.5 |
| Cd | 0.30 U | 0.31 U | — |
| Ca | 6410 | 6330 | 1.3 |
| Cr | 10.2 | 9.6 | 6.1 |
| Co | 7.3 | 8.3 | 12.8 |
| Cu | 14.6 U | 14.7 U | — |
| Fe | 15000 | 15300 | 2.0 |
| Pb | 3.3 | 5.3 | 46.5 (±2xCRQL) ✓ |
| Mg | 4620 | 4910 | 6.1 |
| Mn | 190 J | 200 J | 5.1 |
| Hg | 0.05 U | 0.05 U | — |
| Ni | 10.8 | 11.8 | 8.8 |
| K | 1010 | 1010 | 0. |
| Se | 0.63 UJ | 0.60 UJ | — |
| Ag | 0.75 | 0.79 | 5.2 |
| Na | 142 U | 145 U | — |
| Tl | 0.28 U | 0.27 U | — |
| V | 34.9 | 35.4 | 1.4 |
| Zn | 35.6 | 38.0 | 6.5 |
| Zr | 17.5 U | 18.4 U | — |

HCRL-WHC/9316-T-93-024

E-93-16/2978-56

WESTINGHOUSE HANFORD COMPANY
PICKLING ACID CRIB ERA DATA VALIDATION
DISTRIBUTION FORM

Document Title Prelim. QA Rpts. Case # A2-12-018/023 (Anions)

Document Number: HCRL-WHC/9316-L-93-023 Date: 4/20/93

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| | | | | |

Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.1 | File Index | | 2.1 | Incoming Correspondence | | 4.1 | Task Plan |
| 1.2 | Distribution Lists | | 2.2 | Outgoing Correspondence | X | 4.2 | Data Pkg. Completeness Verif. Checklist |
| 1.3 | Project Procedures | | 2.3 | Internal Correspondence | | 4.3 | Data Valid. Calcs./Annotated DP |
| 1.4 | Project Modifications | | | | | 4.4 | Prelim. QA Reports |
| 1.5 | Staff | | 3.1 | Task Order | | 4.5 | Data Valid. & Qual. Summary Rpts. |
| 1.5.1 | Staff Resumes | | 3.2 | Sample Lists | | 4.5.1 | Internal Drafts/Comments/Resol. |
| 1.5.2 | Staff Training | | 3.3 | Data Validation Procedures | | 4.5.2 | WHC Review Draft Comments/Resol. |
| 1.5.3 | Auth. Former Site Employee | | 3.4 | Original Chemical Data | | 4.5.3 | Final Report |
| 1.6 | QA | | 3.5 | Original Radiochem. Data | | 4.6 | Weekly Status Reports |
| 1.6.1 | QA Implement Procedures | | | | | 4.7 | Weekly Management Reports |
| 1.6.2 | QA Audits | | | | | | |
| 1.6.3 | QA Training | | | | | | |
| 1.7 | Budget | | | | | | |
| 1.7.1 | Budget Status | | | | | | |
| 1.7.2 | Invoices | | | | | | |
| 1.8 | Requisitions | | | | | | |
| 1.9 | Meeting Minutes | | | | | | |
| 1.10 | Record of Telecon | | | | | | |
| 1.11 | Progress Reports | | | | | | |
| 1.12 | Subcontractor | | | | | | |
| | | | | | | | |

004635
2/2

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser
1201 Jadwin Avenue, Suite
Richland, Washington
FAX 509 946
509 946

J-2978-56

April 20, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970 / MSIN H6-04
Richland, Washington 99352

Subject: WHC Order No. MLW-SSV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record
White Bluffs Pickling Acid Cribs ERA
TMA Case Number A2-12-018/-023 - Anions

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Cribs ERA. The attached results are provided to you in partial fulfillment of Subtask 03 of our task plan dated March 12, 1993. The subject data package consisted of fourteen low level soil samples submitted for analysis for anions (chloride, fluoride, phosphate, and sulfate). Of these, thirteen required full validation. In addition, a 100 percent validation of the supporting quality control data was performed.

The samples were analyzed by TMA using the U.S. Environmental Protection Agency (EPA) Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020), Method 300.0, modified for soil (leachate) analysis. All analytical results, together with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4. Table 1 is an annotated list of the attachments to this letter report.

## DATA QUALITY OBJECTIVES SUMMARY

Data quality objectives for accuracy and precision (including holding times, instrument and method blanks, matrix spikes, duplicates, laboratory control samples, and initial and continuing calibrations), and quantitation limit requirements were met for this case with the exception of the following: an ion chromatograph initial calibration was not performed on the day of analysis.

## MAJOR DEFICIENCIES (REJECTED DATA)

No data were rejected.

## MINOR DEFICIENCIES (OTHER QUALIFIED DATA)

The following general trends resulted in the qualification of data from multiple samples.

An ion chromatograph initial calibration (ICAL) was not performed on the day of analysis. The ICAL was performed 27 days prior to analysis. A mid-range continuing calibration check standard was analyzed on the day of analysis, but the linearity was not confirmed. Therefore, all anion data were qualified as estimates (J or UJ).

Samples B07Q01 and B07Q02 are field duplicates. The field duplicate precision is acceptable for all anions.

No other data qualifiers were assigned.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the White Bluffs Pickling Acid Cribs ERA data validation effort. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager
HC#134:RL1763.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File - HCRL-WHC/9316-L-93-023

**Table 1 - Annotated List of Attachments**

*Attachment 1 - Glossary of Data Qualifiers*

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

*Attachment 2 - As Received Laboratory Sample Concentration Reports*

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g., Form I).

*Attachment 3 - Summary of Data Qualifications (Form B-7)*

This attachment provides a complete summary of all qualifications applied as a result of the validation.

*Attachment 4 - As Qualified Data Summary*

This attachment provides a tabular data summary of all data qualified from the validation.

*Attachment 5 - Data Review Supporting Documentation*

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

## *Glossary of Data Qualifiers*

***U*** - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

***UJ*** - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

***J*** - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

***R*** - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

***NJ*** - Indicates the presumptive evidence of a compound at an estimated value.

***N*** - Indicates presumptive evidence of a compound.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

PLE ID B07PZ1 FRACTION 01A TEST CODE WCCLPS NAME Anions in Solids - VR232

Date & Time Collected 12/02/92 Category

| ANIONS AND WET CHEMISTRY - SOLIDS | | | | |
|---|---|---|---|---|
| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
| Chloride | 300.0 | 1.4 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.6 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 7.9 | pH | 0.1 |
| Sulfate | 300.0 | 13 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92 Results by Sample

\MPLE ID B07PY9 FRACTION 02A TEST CODE VCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.3 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 6.7 | pH | 0.1 |
| Sulfate | 300.0 | 15 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

Received: 12/04/92

TRA Inc. REPORT
Results by Sample

Work Order # A2-12-018

MPLE ID B07PZ3 FRACTION 03A TEST CODE WCCCLPS NAME Anions in Solids - VM232
Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 7.2 | pH | 0.1 |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TNA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

MPLE ID S07P22 FRACTION 04A TEST CODE VCCLPS NAME Anions in Solids - VW232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.1 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.3 | pH | 0.1 |
| Sulfate | 300.0 | 11 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID B07PZ4 FRACTION 05A TEST CODE WCCLPS NAME Anions in Solids - V8232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.8 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.9 | pH | 0.1 |
| Sulfate | 300.0 | 11 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

AMPLE ID B07PZ5 FRACTION 01A TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/03/92 Category

| ANIONS AND WET CHEMISTRY - SOLIDS | | | | |
|---|---|---|---|---|
| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.5 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 |
| pH | 9045 | 9.0 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

Received: 12/07/92

TNA Inc. REPORT

Results by Sample

Work Order # A2-12-023

MPLE ID B07PZ6 FRACTION 02A TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 7.8 | pH | 0.1 |
| Sulfate | 300.0 | 8 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TNA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

MPLE ID B07PZ8 FRACTION 03R TEST CODE WCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.3 | pH | 0.1 |
| Sulfate | 300.0 | 5 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

AMPLE ID 807PZ9 FRACTION 04B TEST CODE WCCLPS NAME Anions in Solids - W8232

Date & Time Collected 12/03/92 Category

| ANIONS AND WET CHEMISTRY - SOLIDS | | | | |
|---|---|---|---|---|
| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.7 | mg/Kg | 0.2 |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 |
| pH | 9045 | 8.7 | pH | 0.1 |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07000 FRACTION OSB TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 9.1 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

Received: 12/07/92

TMA Inc. REPORT

Results by Sample

Work Order # A2-12-023

AMPLE ID B07PZ7 FRACTION 06C TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/03/92 Category

| ANIONS AND WET CHEMISTRY - SOLIDS | | | | |
|---|---|---|---|---|
| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.6 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID 807001 FRACTION 07C TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.0 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.0 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 9.2 | pH | 0.1 |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

YPLE ID B07902 FRACTION 08C TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 1.1 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 8.8 | pH | 0.1 |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07903 FRACTION 09C TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT |
|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 |
| pH | 9045 | 9.6 | pH | 0.1 |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 |
| | | | | |

FORM I

# ATTACHMENT 3

*Summary of Data Qualifications*

DATA QUALIFICATION SUMMARY - FORM B-7

A2-12-018/-023

| SDG: | REVIEWER: CMR | DATE: 4/8/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: Anions | | | (Level 4 Val'n) |
| COMPOUND | QUALIFIER | SAMPLES AFFECTED | REASON |
| Chloride, fluoride, phosphate + sulfate | J(+) UJ(-) | B07PZ1 | initial not performed on day of analysis |
| | | B07PY9 | |
| | | B07PZ3 | |
| | | B07PZ2 | |
| | | B07PZ4 | |
| | | B07PZ5 | |
| | | B07PZ8 | |
| | | B07Q01 | |
| | | B07PZ6 | |
| | | B07PZ9 | |
| | | B07Q02 | |
| | | B07PZ7 | |
| | | B07Q00 | |
| | | B07Q03 | |

# ATTACHMENT 4

*As Qualified Data Summary*

TNA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

IPLE ID B07PZ1 FRACTION 01A TEST CODE WCCLPS NAME Anions in Solids - WN232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 1.4 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.6 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 7.9 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 13 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

✓ amc 4/8/93

TRA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

APLE ID B07PY9 FRACTION 02A TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.3 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 | UJ |
| pH | 9045 | 6.7 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 15 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

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Received: 12/04/92

TMA Inc. REPORT
Results by Sample

Work Order # A2-12-818

SAMPLE ID B07P23 FRACTION 03A TEST CODE WCCCLPS NAME Anions in Solids - VM232
Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 7.2 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

✓ amc 4/8/93

TNA Inc. REPORT Work Order # AZ-12-018

Received: 12/04/92

Results by Sample

MPLE ID B07PZ2 FRACTION 04A TEST CODE WCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 1.1 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 8.3 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 11 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

✓ aur 4/8/93

TRA Inc. REPORT Work Order # A2-12-018

Received: 12/04/92

Results by Sample

SAMPLE ID 897P74 FRACTION 05A TEST CODE WCCLPS NAME Anions in Solids - WW232

Date & Time Collected 12/02/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.8 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 8.9 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 11 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |
| | | | | | |

FORM I

✓ amc 4/8/93

TNA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

AMPLE ID B07PZ5 FRACTION 01A TEST CODE WCCLPS NAME Anions in Solids - VW232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.5 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 2 | mg/Kg | 0.8 | J |
| pH | 9045 | 9.0 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

✓ 4/8/93

000051

Received: 12/07/92

TRA Inc. REPORT

Results by Sample

Work Order # A2-12-023

AMPLE ID 807P26 FRACTION 02A TEST CODE VCCLPS NAME Anions in Solids - VN232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.0 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.4 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 | UJ |
| pH | 9045 | 7.8 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 8 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

✓ [illegible] 4/8/93

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

MPLE ID B07PZ3 FRACTION 03B TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 8.3 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 5 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

✓ 4/8/93

Received: 12/07/92

TMA Inc. REPORT
Results by Sample

Work Order # A2-12-023

SAMPLE ID B07PZ9 FRACTION 04B TEST CODE VCCLPS NAME Anions in Solids - VM232
Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.7 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | <0.8 | mg/Kg | 0.8 | UJ |
| pH | 9045 | 8.7 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |
| | | | | | |

FORM I

✓ mm 4/8/93

Received: 12/07/92

TMA Inc. REPORT

Results by Sample

Work Order # A2-12-023

SAMPLE ID B07Q00 FRACTION 05B TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 9.1 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

✓ CMC 4/8/93

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

IMPLE ID B07P27 FRACTION 06C TEST CODE VCCLPS NAME Anions in Solids - VM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 1.8 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 8.6 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

TNA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92 Results by Sample

SAMPLE ID B07001 FRACTION 07C TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.0 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 1.0 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 9.2 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |
| | | | | | |

FORM I

√ mm 4/8/93

TNA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

MPLE ID B07002 FRACTION 08C TEST CODE WCCLPS NAME Anions in Solids - WH232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.2 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 1.1 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 8.8 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 10 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |

FORM I

✓ 4/8/93

TMA Inc. REPORT Work Order # A2-12-023

Received: 12/07/92

Results by Sample

SAMPLE ID B07003 FRACTION 09C TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 12/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

| ANALYSIS | METHOD | RESULT | UNITS | LIMIT | Qual |
|---|---|---|---|---|---|
| Chloride | 300.0 | 2.1 | mg/Kg | 0.4 | J |
| Fluoride | 300.0 | 0.3 | mg/Kg | 0.2 | J |
| Phosphate | 300.0 | 1 | mg/Kg | 0.8 | J |
| pH | 9045 | 9.6 | pH | 0.1 | NOT VALIDATED |
| Sulfate | 300.0 | 6 | mg/Kg | 2.0 | J |
| Ammonia Nitrogen | 350.3 | <0.2 | mg/Kg | 0.2 | NOT VALIDATED |
| | | | | | |

FORM I

√ mm 4/8/93

# ATTACHMENT 5

*Data Review Supporting Documentation*

# WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

| | | |
|---|---|---|
| PROJECT: White Bluffs Picking Acid Cribs ERA | REVIEWER: CMC | DATE: 4/2/92 |
| LABORATORY: TMA/ARLI | CASE: 12-018/-023 | SDG: |

| SAMPLES/MATRIX: | | | |
|---|---|---|---|
| | B07PZ1 ✓ | | B07PZ5✓ B07PZ7 |
| Soil | B07PY9 ✓ | soil | B07PZ8✓ B07Q00✓ |
| A2-12-018 | B07PZ3 ✓ | A2-12-023 | B07Q01✓ B07Q03✓ |
| | B07PZ2✓ | | B07PZ6✓ |
| | B07PZ4 ✓ | | B07PZ9✓ |
| | | | B07Q02✓ |

this on

Validate Anions Only (300.0) - Level 4

## 1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

| Data Package Item | Present?: | Yes | No | N/A |
|---|---|---|---|---|
| Case Narrative | | ✓ | | |
| Cover Page | | ✓ | | |
| Traffic Reports/Chain-of-Custody | | ✓ | | |
| Sample Analysis Data Report Forms | | ✓ | | |
| Standards Data | (12-023) | ✓ | ~~CMC~~ | |
| QC Summary | | | | |
| Blanks Summary Report Forms | | ✓ | | |
| Spike Sample Recovery Report Forms | | ✓ | | |
| Duplicate Sample Analysis Report Forms | | ✓ | | |
| Laboratory Control Sample Report Forms | | ✓ | ~~CMC~~ | |
| Raw Data | | | | |
| Ion Chromatograph Chromatograms | no initial calibration 12/4/92 | ✓ | | |
| TOC and TOX Instrument Printouts | | | ~~CMC~~ | ✓ |
| Laboratory Bench Sheets | sampl data 12/31/92 | | ~~CMC~~ | ✓ |
| Additional Data | | | | |
| Laboratory Sample Preparation Logs | | | ✓ | |
| Instrument Run Logs | | | ~~CMC~~ | ✓ |
| Internal Laboratory Chain-of-Custory | | | | ✓ |
| Percent Solids Analysis Records | | ✓ | | |
| Reduction Formulae | | | | ✓ |
| Chemist Notebook Pages | | | | ✓ |

## 2. HOLDING TIMES

Were all samples analyzed within holding times? several 1 day out, no qual Yes (No) N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

| | | | |
|---|---|---|---|
| Were all instruments calibrated daily, each set-up time and were the proper number of standards used? | Yes | No | N/A |
| Are the correlation coefficients ≥0.995? | Yes | No | N/A |
| Was a balance check conducted prior to the TDS analysis? | Yes | No | N/A |
| Was the titrant normality checked? | Yes | No | N/A |

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

| | | | |
|---|---|---|---|
| Have ICV and CCV been analyzed at the proper frequency? | Yes | No | N/A |
| Are ICV and CCV percent recoveries within control? | Yes | No | N/A |
| Are there calculation errors? | Yes | No | N/A |

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

| | | | |
|---|---|---|---|
| Are target analytes present in the laboratory blanks? | Yes | No | N/A |

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

| | | | |
|---|---|---|---|
| Are target analytes present in the field blanks? | Yes | No | N/A |

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

| | | | |
|---|---|---|---|
| Are spike recoveries within the acceptance limits? | Yes | No | N/A |

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

## 13. ANALYTE QUANTITATION AND DETECTION LIMITS

| | | | |
|---|---|---|---|
| Have results been reported and calculated correctly? | Yes | No | N/A |
| Are instrument detection limits below the CRDL? | Yes | No | N/A |

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

## 14. OVERALL ASSESSMENT AND SUMMARY

| | | | |
|---|---|---|---|
| Has the laboratory conducted the analysis in accordance with the analytical SOW? | Yes | No | N/A |
| Were project specific data quality objectives met for this analysis? | Yes | No | N/A |

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY - FORM B-1

A2-12-018 / A2-12-023

| SDG: | REVIEWER: | | | DATE: 4/2/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|---|---|
| COMMENTS: | | | | | | | |
| FIELD SAMPLE ID | ANALYSIS TYPE | DATE SAMPLED | DATE PREPARED | DATE ANALYZED | PREP. HOLDING TIME, DAYS | ANALYSIS HOLDING TIME, DAYS | QUALIFIER |
| B07PZ1 | anions | 12/2/92 | | 12/31/93 | | 29 | none |
| B07PZ2 | | 12/2/92 | | | | | |
| B07PY9 | | 12/2/92 | | | | | |
| B07PZ4 | | 12/2/92 | | | | | |
| B07PZ3 | | 12/2/92 | | | | | |
| B07PZ5 | | 12/3/92 | | | | 28 | |
| B07PZ8 | | 12/3/92 | | | | | |
| B07Q01 | | 12/3/92 | | | | | |
| B07PZ6 | | 12/3/92 | | | | | |
| B07PZ9 | | 12/3/92 | | | | | |
| B07Q02 | | 12/3/92 | | | | | |
| B07PZ7 | | 12/3/92 | | | | | |
| B07Q00 | | 12/3/92 | | | | | |
| B07Q03 | | 12/3/92 | | | | | |
| | | | | | | | |
| | | | | | | | |

12-018

CALIBRATION DATA SUMMARY - FORM B-2

A2-12-018/-023

| SDG: | REVIEWER: Clare Russell | DATE: 4/8/93 | PAGE 1 OF 1 | | |
|---|---|---|---|---|---|
| COMMENTS: | | | | | |
| CALIB. TYPE: | INITIAL CONTINUING | INSTRUMENT: | | | |
| CALIB. DATE | COMPOUND | RF | RSD/%D/%R | SAMPLES AFFECTED | QUALIFIER |
| ~~-018~~ ICAL 12/4/93 | → acceptable; but | not on day of analysis | | all | J or UJ |
| -018 CCAL 12/3/92 | | (27 days prior to analysis) | | | |
| -023 " " | | | | | |
| | → all acceptable. | | | | none |

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

#OK A2-12-018/-023

| SDG: | REVIEWER: CMRussell | DATE: 4/8/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: | | | |

| SAMPLE ID | COMPOUND | RESULT | Q | RT | UNITS | 5X RESULT | 10X RESULT | SAMPLES AFFECTED | QUALIFIER |
|---|---|---|---|---|---|---|---|---|---|
| Blank (06A) | ND all | | | | | | | all (-018) | none |
| (10A) | ND all | | | | | | | all (-023) | none |

A2-12-018/-023

ACCURACY DATA SUMMARY - FORM B-4

| SDG: | REVIEWER: CMRussell | DATE: 4/8/93 | PAGE 1 OF 1 | |
|---|---|---|---|---|
| COMMENTS: | | | | |
| SAMPLE ID | COMPOUND | % RECOVERY | SAMPLE(S) AFFECTED | QUALIFIER REQUIRED |
| matrix spike | | | | |
| B07PZ1 → | all acceptable | | all (-018 and -023) | none |
| | | | | |
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PRECISION DATA SUMMARY - FORM B-5

A2-12-018/-023

| SDG: | REVIEWER Clare Russell | DATE: 4/8/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: | | | |

| COMPOUND | SAMPLE ID: | SAMPLE ID: | RPD | SAMPLES AFFECTED | QUALIFIER |
|---|---|---|---|---|---|
| labdup (B07PY9) → | all acceptable | | | all (-018 and -023) | none |
| | | | | | |
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(3)

CALCULATION SUMMARY - FORM B-6

A2-12-018 / -023

| SDG: | REVIEWER: CMR | DATE: 4/8/93 | PAGE 1 OF ___ |
|---|---|---|---|

COMMENTS:

| Field Dup Precision | B07Q01 | B07Q02 | % RPD |
|---|---|---|---|
| chloride | 2.0 (J) | 2.2 (J) | 9.5% |
| fluoride | 1.0 (J) | 1.1 (J) | 9.5% |
| phosphate | 1.0 (J) | 1.0 (J) | 0% |
| sulfate | 10 (J) | 10 (J) | 0% |

✓ field precision is acceptable. CMR

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc
1201 Jadwin Avenue, Suite 204
Richland, WA 99352
FAX 509 946 4203
509 946 4342

J-2978-56

April 16, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970 / MSIN H6-04
Richland, Washington 99352

Subject: WHC Order No. MLW-SSV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record
White Bluffs Pickling Acid Cribs ERA
TMA Case Number A2-12-011 - Volatile Organics

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Cribs ERA. The attached results are provided to you in partial fulfillment of Subtask 03 of our task plan dated March 12, 1993. The subject data package consisted of one low level soil sample submitted for analysis for volatile organics. The sample results were fully validated. In addition, all of the supporting quality control summaries were reviewed.

The samples were analyzed by TMA using the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) statement of work. All analytical results, together with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4. Table 1 is an annotated list of the attachments to this letter report.

## DATA QUALITY OBJECTIVES SUMMARY

Data quality objectives for accuracy and precision (including GC/MS tuning, surrogates, matrix spike/matrix spike duplicates, continuing calibrations, compound identifications, and internal standards), and quantitation limit requirements were met for this case with the exception of the following: low concentrations of acetone and methylene chloride were detected in the method blank.

## MAJOR DEFICIENCIES (REJECTED DATA)

No data were rejected.

## MINOR DEFICIENCIES (OTHER QUALIFIED DATA)

The following resulted in the qualification of the sample data. All qualified data are discussed in Attachments 3 and 5.

Acetone was detected in the method blank. The acetone concentration in the sample was less than 10 times the blank concentration. Therefore, the acetone concentration for the sample was qualified as undetected (U) at the concentration reported, which was above the contract required quantitation limit (CRQL).

Methylene chloride was detected in the method blank. The methylene chloride concentration in the sample was less than 10 times the blank concentration. Therefore, the methylene chloride concentration for the sample was qualified as undetected (U), and the associated quantitation level was raised to the CRQL.

No other data qualifiers were assigned.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the White Bluffs Pickling Acid Cribs ERA data validation effort. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager
HC#134:RL1744.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File - HCRL-WHC/9316-L-93-009

**Table 1 - Annotated List of Attachments**

*Attachment 1 - Glossary of Data Qualifiers*

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

*Attachment 2 - As Received Laboratory Sample Concentration Reports*

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g., Form I).

*Attachment 3 - Summary of Data Qualifications (Form B-7)*

This attachment provides a complete summary of all qualifications applied as a result of the validation.

*Attachment 4 - As Qualified Data Summary*

This attachment provides a tabular data summary of all data qualified from the validation.

*Attachment 5 - Data Review Supporting Documentation*

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

## *Glossary of Data Qualifiers*

***U*** - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

***UJ*** - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

***J*** - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

***R*** - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

***NJ*** - Indicates the presumptive evidence of a compound at an estimated value.

***N*** - Indicates presumptive evidence of a compound.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PY8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21208R20

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: not dec. 8 Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 2 | BJ |
| 67-64-1 | Acetone | 12 | B |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PY8

Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21208R20

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: not dec. 8 Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

# ATTACHMENT 3

*Summary of Data Qualifications*

(4)

# DATA QUALIFICATION SUMMARY - FORM B-7

| SDG: 12011 | REVIEWER: AS | DATE: 4/7/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: | | | (Level 2 Validation) |
| COMPOUND | QUALIFIER | SAMPLES AFFECTED | REASON |
| Methylene Chloride | U at CRQL | B07PY8 | Blank contamination |
| Acetone | U at value | ↓ | ↓ |

√ 4/9/93

# ATTACHMENT 4

*As Qualified Data Summary*

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PY8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21208R20

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: not dec. 8 Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 2 | BJ |
| 67-64-1 | Acetone | 12 | B |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PY8

Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21208R20

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: not dec. 8 Date Analyzed: 12/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

4/9/93

# ATTACHMENT 5

*Data Review Supporting Documentation*

# VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

| | | |
|---|---|---|
| PROJECT: White Bluffs Pickling Acid Cribs | REVIEWER: CMM | DATE: 4/2/93 |
| LABORATORY: TMA /ARLE | CASE: A2-12-011 | SDG: |
| SAMPLES/MATRIX: | | |
| B07PY8 (soil) | | |
| | | |
| | | |
| | | |

Level 2

## 1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

| Data Package Item | Present?: Yes | No | N/A |
|---|---|---|---|
| Case Narrative | ✓ | | |
| Data Summary | ✓ | | |
| Chain-of-Custody | ✓ | | |
| QC Summary | | | |
| Surrogate report | ✓ | | |
| MS/MSD report | ✓ | | |
| Blank summary report | ✓ | | |
| GC/MS tuning report (4500) 12/7/92 10:51, 12/8/92 13:45 | ✓ | | |
| Internal standard summary report | ✓ | | |
| Sample Data | | | |
| Sample reports | ✓ | | |
| TIC reports for each sample | ✓ | | |
| RIC reports for all samples | ✓ | | |
| Raw and corrected spectra for all detected results | ✓ | | |
| Raw and corrected library search data for all reported TIC | ✓ | | |
| Quantitation and calculation data for all TIC | ✓ | | |
| Standards Data | | | |
| Initial calibration report | ✓ | | |
| RIC and quantitation reports for initial calibration | ✓ | | |
| Continuing calibration reports | ✓ | | |
| RIC and quantitation reports for cont. calibrations | ✓ | | |
| Internal standard summary report | ✓ | | |
| Raw QC Data | | | |
| Tuning report, spectra and mass lists | ✓ | | |
| Blank analysis reports | ✓ | | |
| TIC reports for all blanks | ✓ | | |
| RIC and quantitation reports for blanks | ✓ | | |
| Raw and corrected spectra for all detected results in blanks | ✓ | | |
| Raw and corrected library search data for all reported TIC | ✓ | | |

| Data Package Item | Present?: Yes | No | N/A |
|---|---|---|---|
| Quantitation and calculation data for all TIC | | | X |
| MS/MSD report forms | X | | |
| RIC and quantitation reports for MS/MSD | X | | |
| Additional Data | | | |
| Moisture/% solids data sheets — % moisture data present in metals pkg. | | | X |
| Reduction formulae | | | X |
| Instrument time logs | | | X |
| Chemist notebook pages | | | X |
| Sample preparation sheets | | | X |

## 2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

## 3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

### 3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? (Yes) No N/A

Do all tunes on all instruments meet the tuning criteria? (Yes) No N/A

Do all tunes on all instruments meet the expanded criteria? (Yes) No N/A

Has the laboratory made any calculation or transciption errors? Yes (No) N/A

Have the proper significant figures been reported? (Yes) No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

### 3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? (Yes) No N/A

Are all RSD values ≤30% (2/88 SOW)? Yes No (N/A)

Are all RRF values ≥0.05 (2/88 SOW)? Yes No (N/A)

| | | | |
|---|---|---|---|
| Are all applicable RSD values ≤20.5% (3/90 SOW)? | Yes | ~~No~~ | N/A |
| Are all applicable RSD values ≤40% (3/90 SOW)? | Yes | No | N/A |
| Are all applicable RRF values within SOW limits (3/90 SOW)? | Yes | No | N/A |
| Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)? | Yes | No | N/A |

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

## 3.3. CONTINUING CALIBRATION

| | | | |
|---|---|---|---|
| Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed? | Yes | No | N/A |
| Are all RRF values ≥0.05 (2/88 SOW)? | ~~Yes~~ | No | N/A |
| Are all %D values ≤25% (2/88 or 3/90 SOW)? | Yes | No | N/A |
| Are all %D values ≤40% (3/90 SOW)? | Yes | No | N/A |
| Are all RRF values within SOW limits (3/90 SOW)? | Yes | No | N/A |
| Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)? | Yes | No | N/A |

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

# 4. BLANKS

## 4.1 LABORATORY BLANKS

| | | | |
|---|---|---|---|
| Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed? | Yes | No | N/A |
| Are TCL compounds present in the laboratory blanks? | Yes | No | N/A |

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

## 4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results $\leq 5$ times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative. None submitte

## 5. ACCURACY

### 5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but > 10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

### 5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A (Level: Val'c

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

## 5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

None Submitted

ACTION: Note the results of the performance audit sample in the validation narrative.

## 6. PRECISION

### 6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A (Level II Val'n.

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

### 6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

None submitted

ACTION: Note the results of the field duplicate samples in the validation narrative.

### 6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No. N/A

None submitted

ACTION: Note the results of the field split samples in the validation narrative.

## 7. SYSTEM PERFORMANCE

### 7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

## 8. COMPOUND IDENTIFICATION AND QUANTITATION

### 8.1 COMPOUND IDENTIFICATION

| | | | |
|---|---|---|---|
| Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? | Yes | No | N/A |
| Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra? | Yes | No | N/A |
| Do the relative intensities between the standard and sample spectra agree within 20%? | Yes | No | N/A |
| Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination? | Yes | No | N/A |
| Are molecular ions present in the reference specrum present in the sample spectrum? | Yes | No | N/A |

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

### 8.2 REPORTED RESULTS AND QUANTITATION LIMITS

| | | | |
|---|---|---|---|
| Has the laboratory used the correct RRF values and internal standard(s) for quantitation? | Yes | No | N/A |
| Are results and quantitation limits calculated properly? | Yes | No | N/A |
| Has the laboratory reported the sample quantitation limits within 5xCRQL values? | Yes | No | N/A |

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

### 8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

| | | | |
|---|---|---|---|
| Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW? | Yes | No | N/A |
| Has the laboratory properly identified and coded all TIC? | Yes | No | N/A |

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

## 9. OVERALL ASSESSMENT AND SUMMARY

| | | | |
|---|---|---|---|
| Has the laboratory conducted the analysis in accordance with the analytical SOW? | Yes | No | N/A |
| Were project specific data quality objectives met for this analysis? | Yes | No | N/A |

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

4/9/93

HOLDING TIME SUMMARY - FORM B-1

A2-12-011

| SDG: | REVIEWER: Clare Russell | DATE: 4/2/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: | | | |

| FIELD SAMPLE ID | ANALYSIS TYPE | DATE SAMPLED | DATE PREPARED | DATE ANALYZED | PREP. HOLDING TIME, DAYS | ANALYSIS HOLDING TIME, DAYS | QUALIFIER |
|---|---|---|---|---|---|---|---|
| soil B07P98 | VOA | 12/1/92 | Zane | 12/8/92 | Zane | 7 days | none |

CALIBRATION DATA SUMMARY - FORM B-2

| SDG: A2-12-011 | REVIEWER: AS | DATE: 4/7/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|
| COMMENTS: | | (Level 2 Validation) | | | |
| CALIB. TYPE: | INITIAL CONTINUING | INSTRUMENT: | | 4500 – packed | |
| CALIB. DATE | COMPOUND | RF | RSD/%D/%R | SAMPLES AFFECTED | QUALIFIER |
| Tuning 12/7/93 | All tuning criteria met | — | — | — | — |
| 12/8/93 | | — | — | — | — |
| | | | | | |
| Ical 12/7/93 | Chloromethane* | | 21.3% | — | — |
| | Acetone* | | 38.2% | — | — |
| | | | *Two compounds allowed to be | | |
| | | | up to 40% RSD | | |
| Ical 12/8/92 | All %D & RRF acceptable | | — | — | — |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

✓ [signature] 4/9/93

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

| SDG: 1201 | REVIEWER: HS | DATE: ~~12/8/92~~ 4/7/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: | | | Level 2 Validation |

| SAMPLE ID | COMPOUND | RESULT | Q | RT | UNITS | 5X RESULT | 10X RESULT | SAMPLES AFFECTED | QUALIFIER |
|---|---|---|---|---|---|---|---|---|---|
| VBLK 120841 | Methylene chloride | 2 J | | | | | 20 | B07P48 | U at CRQL |
| ↓ | Acetone | 16 | | | | | 160 | ↓ | U at value |

4/9/93

ACCURACY DATA SUMMARY - FORM B-4

| SDG: 12011 | REVIEWER: AS | DATE: 4/7/93 | PAGE 1 OF 1 | |
|---|---|---|---|---|
| COMMENTS: | | | Level 2 Validation | |
| SAMPLE ID | COMPOUND | % RECOVERY | SAMPLE(S) AFFECTED | QUALIFIER REQUIRED |
| All Surrogate | recoveries acceptable - | 99 - 111 % | — | — |
| | | | | |
| All MS/MSD - | recoveries acceptable - | 104 - ~~116~~ 119 % | — | — |
| (using | sample B07PY8) | | | |
| All I.S. | recoveries + RT acceptable | | — | — |

✓ 4/9/93

PRECISION DATA SUMMARY - FORM B-5

| SDG: 12011 | REVIEWER HS | DATE: 4/7/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|
| COMMENTS: | | | | | |
| COMPOUND | SAMPLE ID: | SAMPLE ID: | RPD | SAMPLES AFFECTED | QUALIFIER |
| All RPDs acceptable = 0-7% | | — | — | — | — |
| There were no field duplicates in this package | | | | | |

B07PY8 ms/msd

✓ 4/9/93

(4)

(4)

CALCULATION SUMMARY - FORM B-6

| SDG: 12011 | REVIEWER: AS | DATE: 4/7/93 | PAGE 1 OF 1 |
|---|---|---|---|

COMMENTS:

Sample B07PY8

Methylene Choride = $\left(\frac{1332(50)}{21955(1.524)\cancel{(5)}\cancel{(.92)}}\right) \div 0.92$ = ~~1.13~~ = 2.15 ~~1.99~~ cm

Acetone = $\frac{3923(50)}{21955(.840)\cancel{(5)}\cancel{(.92)}} \frac{1}{(0.92)}$ = ~~2.31~~ = 11.6 ~~10.63~~ cm

cm 4/9/93

HCRL-WHC/9316-T-93-016

E-93-16/2978-56

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PICKLING ACID CRIB ERA DATA VALIDATION
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Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.1 | File Index | | 2.1 | Incoming Correspondence | | 4.1 | Task Plan |
| 1.2 | Distribution Lists | | 2.2 | Outgoing Correspondence | X | 4.2 | Data Pkg. Completeness Verif. Checkli. |
| 1.3 | Project Procedures | | 2.3 | Internal Correspondence | | 4.3 | Data Valid. Calcs./Annotated DP |
| 1.4 | Project Modifications | | | | | 4.4 | Prelim. QA Reports |
| 1.5 | Staff | | 3.1 | Task Order | | 4.5 | Data Valid. & Qual. Summary Rpts. |
| 1.5.1 | Staff Resumes | | 3.2 | Sample Lists | | 4.5.1 | Internal Drafts/Comments/Resol. |
| 1.5.2 | Staff Training | | 3.3 | Data Validation Procedures | | 4.5.2 | WHC Review Draft Comments/Resol. |
| 1.5.3 | Auth. Former Site Employee | | 3.4 | Original Chemical Data | | 4.5.3 | Final Report |
| 1.6 | QA | | 3.5 | Original Radiochem. Data | | 4.6 | Weekly Status Reports |
| 1.6.1 | QA Implement Procedures | | | | | 4.7 | Weekly Management Reports |
| 1.6.2 | QA Audits | | | | | | |
| 1.6.3 | QA Training | | | | | | |
| 1.7 | Budget | | | | | | |
| 1.7.1 | Budget Status | | | | | | |
| 1.7.2 | Invoices | | | | | | |
| 1.8 | Requisitions | | | | | | |
| 1.9 | Meeting Minutes | | | | | | |
| 1.10 | Record of Telecon | | | | | | |
| 1.11 | Progress Reports | | | | | | |
| 1.12 | Subcontractor | | | | | | |
| | | | | | | | |

HARTCROWSER

Earth and Environmental Technologies

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J-2978-56

April 20, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970 / MSIN H6-04
Richland, Washington 99352

Subject: WHC Order No. MLW-SSV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record
White Bluffs Pickling Acid Cribs ERA
TMA Case Number A2-12-011 - Semivolatile Organics

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Cribs ERA. The attached results are provided to you in partial fulfillment of Subtask 03 of our task plan dated March 12, 1993. The subject data package consisted of two low level soil samples (including one equipment blank) submitted for analysis for semivolatile organics. The sample results were fully validated. In addition, all of the supporting quality control summaries were reviewed.

The samples were analyzed by TMA using the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) statement of work. All analytical results, together with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4. Table 1 is an annotated list of the attachments to this letter report.

## DATA QUALITY OBJECTIVES SUMMARY

Data quality objectives for accuracy and precision (including GC/MS tuning, surrogates, matrix spike/matrix spike duplicates, continuing calibrations, compound identifications, and internal standards), and quantitation limit requirements were met for this case with the exception of the following: a low concentration of di-n-butyl phthalate and several tentatively identified compounds (TICs) were detected in the method blank and its associated samples; and a TIC was detected in the equipment blank and the associated sample.

## MAJOR DEFICIENCIES (REJECTED DATA)

No data were rejected.

## MINOR DEFICIENCIES (OTHER QUALIFIED DATA)

The following general trends resulted in the qualification of the sample data. All qualified data are discussed in Attachments 3 and 5.

Di-n-butyl phthalate was detected in the method blank. The di-n-butyl phthalate concentration in the samples was less than 10 times the blank concentration. Therefore, the di-n-butyl phthalate concentrations for the samples were qualified as undetected (U), and the associated quantitation level was raised to the CRQL.

Low level TICs were detected in the method blank. Several TICs were also detected in the samples. TIC sample concentrations which were less than 5 times the blank concentration were qualified as undetected at estimated concentrations based on presumptive evidence (UJN).

The remaining TIC compounds which were not qualified as undetected were qualified as estimated concentrations based on presumptive evidence (JN).

Sample B07PZ0 was an equipment blank. After method blank qualification, equipment blank data were reviewed. Low level TICs were detected in the equipment blank. One of these TICs was also detected in the sample. TIC sample concentrations which were less than 5 times the blank concentration were qualified as undetected at estimated concentrations based on presumptive evidence (UJN).

The mass spectra for di-n-butyl phthalate in sample B07PZ0 were not included in the original data package. Westinghouse Hanford was notified of the missing pages. The requested pages were received from Westinghouse Hanford and are acceptable. These pages were then incorporated into the data package, as directed by Westinghouse Hanford.

No other data qualifiers were assigned.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the White Bluffs Pickling Acid Cribs ERA data validation effort. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager
HC#134:RL1755.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File - HCRL-WHC/9316-L-93-015

**Table 1 - Annotated List of Attachments**

*Attachment 1 - Glossary of Data Qualifiers*

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

*Attachment 2 - As Received Laboratory Sample Concentration Reports*

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g., Form I).

*Attachment 3 - Summary of Data Qualifications (Form B-7)*

This attachment provides a complete summary of all qualifications applied as a result of the validation.

*Attachment 4 - As Qualified Data Summary*

This attachment provides a tabular data summary of all data qualified from the validation.

*Attachment 5 - Data Review Supporting Documentation*

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

## *Glossary of Data Qualifiers*

*U* - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

*UJ* - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

*J* - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

*R* - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

*NJ* - Indicates the presumptive evidence of a compound at an estimated value.

*N* - Indicates presumptive evidence of a compound.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PY8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 360 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 | U |
| 95-57-8 | 2-Chlorophenol | 360 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 360 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 360 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 360 | U |
| 95-48-7 | 2-Methylphenol | 360 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 360 | U |
| 106-44-5 | 4-Methylphenol | 360 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 | U |
| 67-72-1 | Hexachloroethane | 360 | U |
| 98-95-3 | Nitrobenzene | 360 | U |
| 78-59-1 | Isophorone | 360 | U |
| 88-75-5 | 2-Nitrophenol | 360 | U |
| 105-67-9 | 2,4-Dimethylphenol | 360 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 | U |
| 120-83-2 | 2,4-Dichlorophenol | 360 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 | U |
| 91-20-3 | Naphthalene | 360 | U |
| 106-47-8 | 4-Chloroaniline | 360 | U |
| 87-68-3 | Hexachlorobutadiene | 360 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 | U |
| 91-57-6 | 2-Methylnaphthalene | 360 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 360 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 870 | U |
| 91-58-7 | 2-Chloronaphthalene | 360 | U |
| 88-74-4 | 2-Nitroaniline | 870 | U |
| 131-11-3 | Dimethylphthalate | 360 | U |
| 208-96-8 | Acenaphthylene | 360 | U |
| 99-09-2 | 3-Nitroaniline | 870 | U |
| 83-32-9 | Acenaphthene | 360 | U |
| 51-28-5 | 2,4-Dinitrophenol | 870 | U |

EPA SAMPLE NO.

B07PY8

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 870 | U |
| 132-64-9 | Dibenzofuran | 360 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 360 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 360 | U |
| 84-66-2 | Diethylphthalate | 360 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 | U |
| 86-73-7 | Fluorene | 360 | U |
| 100-01-6 | 4-Nitroaniline | 870 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 870 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 360 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 | U |
| 118-74-1 | Hexachlorobenzene | 360 | U |
| 87-86-5 | Pentachlorophenol | 870 | U |
| 85-01-8 | Phenanthrene | 360 | U |
| 120-12-7 | Anthracene | 360 | U |
| 86-74-8 | Carbazole | 360 | U |
| 84-74-2 | Di-n-Butylphthalate | 42 | BJ |
| 206-44-0 | Fluoranthene | 360 | U |
| 129-00-0 | Pyrene | 360 | U |
| 85-68-7 | Butylbenzylphthalate | 360 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 | U |
| 56-55-3 | Benzo(a)Anthracene | 360 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 360 | U |
| 218-01-9 | Chrysene | 360 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 360 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 360 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 360 | U |
| 50-32-8 | Benzo(a)Pyrene | 360 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 360 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 360 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 360 | U |

(1) - Cannot be separated from Diphenylamine

000006

EPA SAMPLE NO.

B07PY8

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 65000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.73 | 140 | BJ |
| 3. | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.77 | 180 | BJ |
| 5. | HEXANEDIOIC ACID ESTER | 25.80 | 12000 | J |

EPA SAMPLE NO.

B07PZ0

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 320 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 320 | U |
| 95-57-8 | 2-Chlorophenol | 320 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 320 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 320 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 320 | U |
| 95-48-7 | 2-Methylphenol | 320 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 320 | U |
| 106-44-5 | 4-Methylphenol | 320 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 320 | U |
| 67-72-1 | Hexachloroethane | 320 | U |
| 98-95-3 | Nitrobenzene | 320 | U |
| 78-59-1 | Isophorone | 320 | U |
| 88-75-5 | 2-Nitrophenol | 320 | U |
| 105-67-9 | 2,4-Dimethylphenol | 320 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 320 | U |
| 120-83-2 | 2,4-Dichlorophenol | 320 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 320 | U |
| 91-20-3 | Naphthalene | 320 | U |
| 106-47-8 | 4-Chloroaniline | 320 | U |
| 87-68-3 | Hexachlorobutadiene | 320 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 320 | U |
| 91-57-6 | 2-Methylnaphthalene | 320 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 320 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 320 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 780 | U |
| 91-58-7 | 2-Chloronaphthalene | 320 | U |
| 88-74-4 | 2-Nitroaniline | 780 | U |
| 131-11-3 | Dimethylphthalate | 320 | U |
| 208-96-8 | Acenaphthylene | 320 | U |
| 99-09-2 | 3-Nitroaniline | 780 | U |
| 83-32-9 | Acenaphthene | 320 | U |
| 51-28-5 | 2,4-Dinitrophenol | 780 | U |

EPA SAMPLE NO.

B07PZ0

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 780 | U |
| 132-64-9 | Dibenzofuran | 320 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 320 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 320 | U |
| 84-66-2 | Diethylphthalate | 320 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 320 | U |
| 86-73-7 | Fluorene | 320 | U |
| 100-01-6 | 4-Nitroaniline | 780 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 780 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 320 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 320 | U |
| 118-74-1 | Hexachlorobenzene | 320 | U |
| 87-86-5 | Pentachlorophenol | 780 | U |
| 85-01-8 | Phenanthrene | 320 | U |
| 120-12-7 | Anthracene | 320 | U |
| 86-74-8 | Carbazole | 320 | U |
| 84-74-2 | Di-n-Butylphthalate | 130 | BJ |
| 206-44-0 | Fluoranthene | 320 | U |
| 129-00-0 | Pyrene | 320 | U |
| 85-68-7 | Butylbenzylphthalate | 320 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 320 | U |
| 56-55-3 | Benzo(a)Anthracene | 320 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 320 | U |
| 218-01-9 | Chrysene | 320 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 320 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 320 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 320 | U |
| 50-32-8 | Benzo(a)Pyrene | 320 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 320 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 320 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 320 | U |

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
B07PZ0

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 8

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 54000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.38 | 98 | BJ |
| 3. | UNKNOWN HYDROCARBON | 6.73 | 98 | BJ |
| 4. | UNKNOWN HYDROCARBON | 7.42 | 1100 | BJ |
| 5. | UNKNOWN HYDROCARBON | 8.77 | 65 | BJ |
| 6. | UNKNOWN CARBOXYLIC ACID ESTE | 21.22 | 360 | BJ |
| 7. | HEXANEDIOIC ACID ISOMER | 25.78 | 2600 | BJ |
| 8. | UNKNOWN HYDROCARBON | 29.40 | 65 | J |

# ATTACHMENT 3

*Summary of Data Qualifications*

# DATA QUALIFICATION SUMMARY - FORM B-7

| SDG: 12011 | REVIEWER: AS | DATE: 4/7/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: Semivolatiles | | Level 2 Validation | |
| COMPOUND | QUALIFIER | SAMPLES AFFECTED | REASON |
| Di-n-butyl-phthalate | U at CRQL | B07PY8 | blank contaminant |
| ↓ | ↓ | B07PZ0 | ↓ |
| | | | |
| Unknown HC 6.13 | ~~JN~~ UJN | B07PZ0 | TIC in method blank |
| 6.38 | | | |
| 6.73 | | | |
| 7.42 | | | |
| 8.77 | | | |
| Unknown carbonyl compound 21.22 | | | |
| Hexanedioic acid 25.78 | ~~?~~ JN | | presumptive evidence |
| Unknown HC 29.40 | ~~?~~ JN | | presumptive evidence |
| | | | |
| Unknown HC 6.13 | ~~JN~~ UJN | B07PY8 | TIC in method blank |
| 6.73 | | | |
| 7.42 | | | |
| 8.77 | | | |
| Hexanedioic acid 25.78 | | | TIC in Equip. blank |
| | | | |
| | | | |
| ~~Di-n-butyl-phthalate~~ | ~~JN~~ | ~~B07PZ0~~ | ~~Missing mass spectra~~ |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

✓ CMR 4/16/93

# ATTACHMENT 4

*As Qualified Data Summary*

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 000004

B07PY8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual |
|---|---|---|---|---|
| 108-95-2 | Phenol | 360 | U | u |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 | U | |
| 95-57-8 | 2-Chlorophenol | 360 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 360 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 360 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 360 | U | |
| 95-48-7 | 2-Methylphenol | 360 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 360 | U | |
| 106-44-5 | 4-Methylphenol | 360 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 | U | |
| 67-72-1 | Hexachloroethane | 360 | U | |
| 98-95-3 | Nitrobenzene | 360 | U | |
| 78-59-1 | Isophorone | 360 | U | |
| 88-75-5 | 2-Nitrophenol | 360 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 360 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 360 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 | U | |
| 91-20-3 | Naphthalene | 360 | U | |
| 106-47-8 | 4-Chloroaniline | 360 | U | |
| 87-68-3 | Hexachlorobutadiene | 360 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 | U | |
| 91-57-6 | 2-Methylnaphthalene | 360 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 360 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 870 | U | |
| 91-58-7 | 2-Chloronaphthalene | 360 | U | |
| 88-74-4 | 2-Nitroaniline | 870 | U | |
| 131-11-3 | Dimethylphthalate | 360 | U | |
| 208-96-8 | Acenaphthylene | 360 | U | |
| 99-09-2 | 3-Nitroaniline | 870 | U | |
| 83-32-9 | Acenaphthene | 360 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 870 | U | |



✓ cmc 4/16/93

000003

EPA SAMPLE NO.

B07PY8

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

b Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 870 | U | U |
| 132-64-9 | Dibenzofuran | 360 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 360 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 360 | U | |
| 84-66-2 | Diethylphthalate | 360 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 | U | |
| 86-73-7 | Fluorene | 360 | U | |
| 100-01-6 | 4-Nitroaniline | 870 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 870 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 360 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 | U | |
| 118-74-1 | Hexachlorobenzene | 360 | U | |
| 87-86-5 | Pentachlorophenol | 870 | U | |
| 85-01-8 | Phenanthrene | 360 | U | |
| 120-12-7 | Anthracene | 360 | U | |
| 86-74-8 | Carbazole | 360 | U | |
| 84-74-2 | Di-n-Butylphthalate | 42 | BJ | 360 U |
| 206-44-0 | Fluoranthene | 360 | U | U |
| 129-00-0 | Pyrene | 360 | U | |
| 85-68-7 | Butylbenzylphthalate | 360 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 | U | |
| 56-55-3 | Benzo(a)Anthracene | 360 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 360 | U | |
| 218-01-9 | Chrysene | 360 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 360 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 360 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 360 | U | |
| 50-32-8 | Benzo(a)Pyrene | 360 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 360 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 360 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 360 | U | |

(1) - Cannot be separated from Diphenylamine

✓ mx 4/16/93

000006
EPA SAMPLE NO.

B07PY8

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21216S14

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/16/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 65000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.73 | 140 | BJ |
| 3. | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.77 | 180 | BJ |
| 5. | HEXANEDIOIC ACID ESTER | 25.80 | 12000 | J |

Qua

√ MK 4/16/93

000007

EPA SAMPLE NO.

B07PZ0

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 320 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 320 | U |
| 95-57-8 | 2-Chlorophenol | 320 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 320 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 320 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 320 | U |
| 95-48-7 | 2-Methylphenol | 320 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 320 | U |
| 106-44-5 | 4-Methylphenol | 320 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 320 | U |
| 67-72-1 | Hexachloroethane | 320 | U |
| 98-95-3 | Nitrobenzene | 320 | U |
| 78-59-1 | Isophorone | 320 | U |
| 88-75-5 | 2-Nitrophenol | 320 | U |
| 105-67-9 | 2,4-Dimethylphenol | 320 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 320 | U |
| 120-83-2 | 2,4-Dichlorophenol | 320 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 320 | U |
| 91-20-3 | Naphthalene | 320 | U |
| 106-47-8 | 4-Chloroaniline | 320 | U |
| 87-68-3 | Hexachlorobutadiene | 320 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 320 | U |
| 91-57-6 | 2-Methylnaphthalene | 320 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 320 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 320 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 780 | U |
| 91-58-7 | 2-Chloronaphthalene | 320 | U |
| 88-74-4 | 2-Nitroaniline | 780 | U |
| 131-11-3 | Dimethylphthalate | 320 | U |
| 208-96-8 | Acenaphthylene | 320 | U |
| 99-09-2 | 3-Nitroaniline | 780 | U |
| 83-32-9 | Acenaphthene | 320 | U |
| 51-28-5 | 2,4-Dinitrophenol | 780 | U |

Qual. (u)



✓ CMC 4/16/93

000008

EPA SAMPLE NO.

B07PZ0

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 780 | U | U |
| 132-64-9 | Dibenzofuran | 320 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 320 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 320 | U | |
| 84-66-2 | Diethylphthalate | 320 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 320 | U | |
| 86-73-7 | Fluorene | 320 | U | |
| 100-01-6 | 4-Nitroaniline | 780 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 780 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 320 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 320 | U | |
| 118-74-1 | Hexachlorobenzene | 320 | U | |
| 87-86-5 | Pentachlorophenol | 780 | U | |
| 85-01-8 | Phenanthrene | 320 | U | |
| 120-12-7 | Anthracene | 320 | U | |
| 86-74-8 | Carbazole | 320 | U | |
| 84-74-2 | Di-n-Butylphthalate | 130 | BJ | 320 U |
| 206-44-0 | Fluoranthene | 320 | U | U |
| 129-00-0 | Pyrene | 320 | U | |
| 85-68-7 | Butylbenzylphthalate | 320 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 320 | U | |
| 56-55-3 | Benzo(a)Anthracene | 320 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 320 | U | |
| 218-01-9 | Chrysene | 320 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 320 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 320 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 320 | U | |
| 50-32-8 | Benzo(a)Pyrene | 320 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 320 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 320 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 320 | U | |

(1) - Cannot be separated from Diphenylamine

✓ cure 4/16/93

000009

EPA SAMPLE NO.

B07PZ0

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12011 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212011-02D

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S10

Level: (low/med) LOW Date Received: 12/03/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 12/08/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 8

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q | Qua |
|---|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 54000 | BJ | UJ |
| 2. | UNKNOWN HYDROCARBON | 6.38 | 98 | BJ | |
| 3. | UNKNOWN HYDROCARBON | 6.73 | 98 | BJ | |
| 4. | UNKNOWN HYDROCARBON | 7.42 | 1100 | BJ | |
| 5. | UNKNOWN HYDROCARBON | 8.77 | 65 | BJ | |
| 6. | UNKNOWN CARBOXYLIC ACID ESTE | 21.22 | 360 | BJ | |
| 7. | HEXANEDIOIC ACID ISOMER | 25.78 | 2600 | BJ | JN |
| 8. | UNKNOWN HYDROCARBON | 29.40 | 65 | J | JN |

# ATTACHMENT 5

*Data Review Supporting Documentation*

# SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

| | | |
|---|---|---|
| PROJECT: White Bluffs Pickling Acid Cribs | REVIEWER: CMR | DATE: 4/2/93 |
| LABORATORY: TMA/ARLI | CASE: A2-12-011 | SDG: |
| SAMPLES/MATRIX: | | |
| soil B07PY8 | | |
| ↓ B07PZ0 | | |
| | | |
| | | |

## 1. DATA PACKAGE COMPLETENESS

Level 2

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

| Data Package Item | Present?: Yes | No | N/A |
|---|---|---|---|
| Case Narrative | ✓ | | |
| Data Summary | ✓ | | |
| Chain-of-Custody | ✓ | | |
| QC Summary | | | |
| Surrogate report | ✓ | | |
| MS/MSD report | ✓ | | |
| Blank summary report | ✓ | | |
| GC/MS tuning report | ✓ | | |
| Internal standard summary report | ✓ | | |
| Sample Data | | | |
| Sample reports | ✓ | | |
| TIC reports for each sample | ✓ | | |
| RIC reports for all samples | ✓ | | |
| Raw and corrected spectra for all detected results | ✓ | | |
| Raw and corrected library search data for all reported TIC | ✓ | | |
| Quantitation and calculation data for all TIC | ✓ | | |
| Standards Data | | | |
| Initial calibration report | ✓ | | |
| RIC and quantitation reports for initial calibration | ✓ | | |
| Continuing calibration reports | ✓ | | |
| RIC and quantitation reports for cont. calibrations | ✓ | | |
| Internal standard summary report | ✓ | | |
| Raw QC Data | | | |
| Tuning report, spectra and mass lists | ✓ | | |
| Blank analysis reports | ✓ | | |
| TIC reports for all blanks | ✓ | | |
| RIC and quantitation reports for blanks | ✓ | | |
| Raw and corrected spectra for all detected results in blanks | ✓ | | |
| Raw and corrected library search data for all reported TIC | ✓ | | |
| Quantitation and calculation data for all TIC | ✓ | | |
| MS/MSD report forms | ✓ | | |

| Data Package Item | Present?: | Yes | No | N/A |
|---|---|---|---|---|
| RIC and quantitation reports for MS/MSD | | ✓ | | |
| Additional Data | | | | |
| Moisture/% solids data sheets | (AVAILABLE w/metals) | | | ✓ |
| Reduction formulae | | | | ✓ |
| Instrument time logs | | | | ✓ |
| Chemist notebook pages | | | | ✓ |
| Sample preparation sheets | | ✓ | | |

## 2. HOLDING TIMES

| | | | |
|---|---|---|---|
| Were all samples extracted within holding time? | Yes | No | N/A |
| Were all samples analyzed within holding time? | Yes | No | N/A |

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

## 3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

### 3.1 GC/MS TUNING AND PERFORMANCE CHECKS

| | | | | |
|---|---|---|---|---|
| Is a DFTPP tune report present for each applicable 12h period? | Yes | No | N/A | |
| Do all tunes on all instruments meet the tuning criteria? | Yes | No | N/A | |
| Do all tunes on all instruments meet the expanded criteria? | Yes | No | N/A | |
| Has the laboratory made any calculation or transciption errors? | Yes | No | N/A | Level II Val'n. |
| Have the proper significant figures been reported? | Yes | No | N/A | |

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

### 3.2 INITIAL CALIBRATION

| | | | |
|---|---|---|---|
| Is an initial calibration report provided for all instruments? | Yes | No | N/A |
| Are all RSD values ≤30% (2/88 SOW)? | Yes | No | N/A |
| Are all RRF values ≥0.05 (2/88 SOW)? | Yes | No | N/A |
| Are all applicable RSD values ≤20.5% (3/90 SOW)? | Yes | No | N/A |
| Are all applicable RSD values ≤40% (3/90 SOW)? | Yes | No | N/A |

Are all applicable RRF values within SOW limits (3/90 SOW)? Yes No N/A

Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)? Yes No N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

## 3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed? Yes No N/A

Are all RRF values ≥0.05 (2/88 SOW)? ~~Yes~~ No N/A

Are all %D values ≤25% (2/88 or 3/90 SOW)? Yes No N/A

Are all %D values ≤40% (3/90 SOW)? Yes No N/A

Are all RRF values within SOW limits (3/90 SOW)? Yes No N/A

Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)? Yes No N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

## 4. BLANKS

## 4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every extraction batch? Yes No N/A

Are compounds reported in the laboratory blanks? Yes ~~No~~ N/A

Some unknown TICs and TCL were reported.

ACTION: Qualify all sample results < 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results < 5 times the blank concentration in similar fashion.

"JN" all associated TICs

## 4.2. FIELD BLANKS

Are compounds reported in the field blanks? (Equip Blank) TIC Compounds Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

## 5. ACCURACY

### 5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

| | | | |
|---|---|---|---|
| Are any surrogate recoveries out of specification? | Yes | No | N/A |
| Are any surrogate recoveries < 10%? | Yes | No | N/A |
| Are any method blank surrogate recoveries out of specification? | Yes | No | N/A |

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

### 5.2 MATRIX SPIKE RECOVERY

| | | | |
|---|---|---|---|
| Has an MS/MSD analysis been conducted per matrix in the sample group? | Yes | No | N/A |
| Are MS/MSD recoveries within specification? | Yes | No | N/A |
| Are there any calculation errors? | Yes | No | N/A |

Level II Val'n

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

## 5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

None submitte

ACTION: Note the results of the performance audit samples in the validation narrative.

# 6. PRECISION

## 6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

## 6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

None submitte

ACTION: Note the results of the field duplicate samples in the validation narrative.

## 6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

None submitte

ACTION: Note the results of the field split samples in the validation narrative.

# 7. SYSTEM PERFORMANCE

## 7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

# 8. COMPOUND IDENTIFICATION AND QUANTITATION

## 8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? Yes No ~~N/A~~ No TCL compounds were det

Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra? Yes No ~~N/A~~

Do the relative intensities between the standard and sample spectra agree within 20%? Yes No ~~N/A~~

Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination? Yes No ~~N/A~~

Are molecular ions in the reference spectrum present in the sample spectrum? Yes No ~~N/A~~

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

## 8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation? Yes No N/A

Are results and quantitation limits calculated properly? Yes No N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? Yes No N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

## 8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW? Yes No N/A

Has the laboratory properly identified and coded all TIC? Yes No N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

## 9. OVERALL ASSESSMENT AND SUMMARY

| | | | |
|---|---|---|---|
| Has the laboratory conducted the analysis in accordance with the analytical SOW? | Yes | No | N/A |
| Were project specific data quality objectives met for this analysis? | Yes | No | N/A |

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

Mass spectra for B07P30 (di-n-butyl-phthalate) missing. Mass spectra was provided prior to the preliminary QA report, and was acceptable.

A2-12-011

# HOLDING TIME SUMMARY - FORM B-1

| SDG: | REVIEWER: Clare Russell / A.S. | DATE: 4/2/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: Semivolatiles | | | Level 2 Validation |

| FIELD SAMPLE ID | ANALYSIS TYPE | DATE SAMPLED | DATE PREPARED | DATE ANALYZED | PREP. HOLDING TIME, DAYS | ANALYSIS HOLDING TIME, DAYS | QUALIFIER |
|---|---|---|---|---|---|---|---|
| ~~B07PZ8~~ | | | | | | | |
| B07PY8 | SVOA | 12/1/92 | 12/8/92 | 12/16/92 | 7 days | 8 days | — |
| B07PZ0 | ↓ | 12/1/92 | 12/8/92 | 12/17/92 | 7 days | 7 days | — |

4/16/93

CALIBRATION DATA SUMMARY - FORM B-2

| SDG: 12011 | REVIEWER: AS | DATE: 4/7/93 | PAGE 1 OF 1 | | |
|---|---|---|---|---|---|
| COMMENTS: Semivolatiles | | | Level 2 Validation | | |
| CALIB. TYPE: INITIAL CONTINUING | | INSTRUMENT: SHERMA — capillary column | | | |
| CALIB. DATE | COMPOUND | RF | RSD/%D/%R | SAMPLES AFFECTED | QUALIFIER |
| SHERMA | All RRF & %RSD acceptable | | — | — | — |
| IICAL 12/11/92 12:02-13:04 | | | | | |
| | | | | | |
| CCAL 12/16/92 12:43 | All RRF50 & %Ds acceptable | | — | — | — |
| | | | | | |
| | | | | | |
| CCAL 12/17/92 10:16 | All RRF50 & %D acceptable | | — | — | — |
| | | | | | |
| All GC/MS | DFTPP Tuning acceptable | | — | — | — |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

SOW: 1990

✓ MR 4/16/93

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

| SDG: 12091 | REVIEWER: AS | | | DATE: 4/7/93 | | | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|---|---|---|---|
| COMMENTS: | Semivolatile Organics | | | | | | Level 2 Validation | | |
| SAMPLE ID | COMPOUND | RESULT | Q | RT | UNITS | 5X RESULT | 10X RESULT | SAMPLES AFFECTED | QUALIFIER |
| ~~No~~ | | | | | | | | | |
| SBLK 12085 | ~~No TCL detected.~~ | | | | | — | — | — | — |
| | Some unknown | TICs | were | detected | | — | — | — | — |
| | ↓ | | | | | | | | |
| | unknown hydrocarbon | 63000 | J | 6.13 | µg/kg | 315000 | | B07PY8 B07PZ0 | UJN |
| | | 65 | | 6.37 | | 325 | | B07PZ0 | UJN |
| | | 130 | | 6.72 | | 650 | | B07PY8 B07PZ0 | UJN |
| | | 1400 | | 7.40 | | 7000 | | B07PY8 B07PZ0 | UJN |
| | ↓ | 230 | | 8.75 | | 1150 | | B07PY8 B07PZ0 | UJN |
| | unknown carboxylic acid ester | 550 | ↓ | 21.20 | ↓ | 2750 | | B07PZ0 | UJN |
| TCL → | di-n-butyl phthalate | 160 | J | | µg/kg | | 1600 | B07PY8 | U at CRQL |
| Equip Blank B07PZ0 | TIC hexanedioic acid isomer | 2600 | BJ | 25.78 | µg/kg | 13000 ~~2600~~ | | B07PY8 | UJN |
| | TIC unknown hydrocarb. | 65 | J | 29.40 | µg/kg | 325 ~~65~~ | | — | |
| | | | | | | | | | |
| | This was mistakenly flagged BJ by lab, should have been J. | | | | | | | | |
| | | | | | | | | | |

ACCURACY DATA SUMMARY - FORM B-4

| SDG: 12011 | REVIEWER: AS | DATE: 4/7/93 | PAGE 1 OF 1 | |
|---|---|---|---|---|
| COMMENTS: Semivolatiles | | | Level 2 Validation | |
| SAMPLE ID | COMPOUND | % RECOVERY | SAMPLE(S) AFFECTED | QUALIFIER REQUIRED |
| ~~12011~~ | | | | |
| All surrogate | recoveries acceptable | 70-104% | — | — |
| All MS/MSD | recoveries acceptable | 56-90% | — | — |
| All IS area | recoveries & RT acceptable | | — | — |

✓ cmc 4/16/93

PRECISION DATA SUMMARY - FORM B-5

| SDG: 12011 | REVIEWER AS | DATE: 4/7/93 | PAGE 1 OF 1 | | |
|---|---|---|---|---|---|
| COMMENTS: Semivolatiles | | | | Level 2 Validation | |
| COMPOUND | SAMPLE ID: | SAMPLE ID: | RPD | SAMPLES AFFECTED | QUALIFIER |
| All MS/MSD precision | acceptable | 0-7% | | — | — |
| Field Dup → none in | this package | | | | none |
| Field Split → none in | this package | | | | none |

✓ CMR 4/16/93





(5)

CALCULATION SUMMARY - FORM B-6

| SDG: 12011 | REVIEWER: AS | DATE: 4/7/93 | PAGE 1 OF 1 |
|---|---|---|---|

COMMENTS: Semivolatile Organics [Level 2 Validation]

B07P48

= Di-n-butyl-phthalate = $\frac{14168(20)(2)(500)}{36522(1.773)(7)(30)(.92)}$

(42)

$= \frac{14168000 \times .5}{1787196} = 79 = 42$ ✓

B07PZ0 =

Di-n-butyl-phthalate = $\frac{49506(20)(2)(500)}{35040(1.754)(7)(30)(.328)(1)}$

(130)

$= \frac{49506000 \times .5}{1892912} = 261 = 130$ ✓

✓ cmc 4/16/93

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1201 Jadwin Avenue, Suite 204
Richland, Washington 99352
FAX 509.946.4203
509.946.4344

J-2978-50

June 24, 1993

JUN 1993
RECEIVED
OSM DMO

Ms. Jeanette Duncan
Westinghouse Hanford Company
P.O. Box 1970/MSIN H4-23
Richland, Washington 99352

Re: WHC Order No. MLW-SVV-037106
Task Order No. E-93-06
Return of Original Laboratory Data Packages for 300-FF-5 RI and 100-IU-5 ERA Samples

Dear Ms. Duncan:

Enclosed please find the data and/or supporting documentation listed in the attachment to this letter from the 300-FF-5 Operable Unit Remedial Investigations (RI) and 100-IU-5 Expedited Response Action (ERA). These data have been reviewed for completeness and/or validated in accordance with Westinghouse Hanford contract data validation procedures. The initial results of our review of these data, including data qualifiers, are outlined in Preliminary Quality Assurance Reports (PQARs) included with each transmittal as applicable. Please contact me if you have any questions with regard to the materials being returned to you.

Sincerely,

HART CROWSER, INC.

D. MARK GERBOTH, P.E.
Task Manager
HC#135:RL1860.DOC

RECEIVED
JUN 25 1993
VALIDATION DOCUMENTATION
SDLA

Attachment - Data Packages Returned to Westinghouse Hanford, June 24, 1993.

cc: L. Hulstrom, Westinghouse Hanford
300-FF-5 Project File (HCRL-WHC/9306-L-93-138)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Data Returned to Westinghouse Hanford | | | | | | | | |
| June 24, 1993 | | | | | | | | |
| | | | Work Completed | | Data included with this transmittal: | | | |
| Sample Delivery Group Number | Case Numbers | Project | Verified | Validated | ODP | VCL | PQAR | FQAR |
| | 9209L785 | 300-FF-5 | X | X | | | X | |
| | 9209L845 | 300-FF-5 | X | X | | | X | |
| B075W3-TMA-280 | N2-09-019-7079 | 300-FF-5 | X | X | | | X | |
| B01324-TMA-286 | N2-09-167-7101 | 300-FF-5 | X | X | | | X | |
| B01316-TMA-289 | N2-09-095-7086 | 300-FF-5 | X | X | | | X | |
| 9209L910-WES-870 | 9209L910 & 9209L009 | 300-FF-5 | X | X | | | X | |
| B07P66-TMA-347 | N2-11-142-7126 | 300-FF-5 | X | X | | | X | |
| B07P66-TMA-347 | N2-11-141-7124 | 300-FF-5 | X | X | | | X | |
| 21307-WES-1020 | 9211L663 | 300-FF-5 | X | X | | | X | |
| 21308-WES-1023 | 9211L717 | 300-FF-5 | X | X | | | X | |
| B086P9-TMA-438 | N3-03-079-7168 | 300-FF-5 | X | X | | | X | |
| B086Q4-TMA-419 | N3-03-011-7165 | 300-FF-5 | X | X | | | X | |
| 6203-WES-1057 | 9302L748 | 300-FF-5 | X | X | | | X | |
| 7778-WES-1072 | 9303L887 | 300-FF-5 | X | X | | | X | |
| B078PY-TMA-384 | N2-12-018-7133 | 100-IU-5 | X | X | X | | X | |
| 30011-WES-1041 | 9212L005 | 100-IU-5 | X | X | X | | | |
| Notes: | | | | | | | | |
| ODP = Original Data Package | | | | | | | | |
| VCL = Verification Checklist | | | | | | | | |
| PQAR = Preliminary Quality Assurance Report | | | | | | | | |
| FQAR = Final Quality Assurance Record | | | | | | | | |

HCRL-WHC/9316-T-93-005

E-93-16/2978-56

WESTINGHOUSE HANFORD COMPANY
PICKLING ACID CRIB ERA DATA VALIDATION
DISTRIBUTION FORM

Document Title Prelim. QA Record - Case #N2-12-018-7133

Document Number: HCRL-WHC/9316-L-93-004 Date: 4/9/93

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Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.1 | File Index | | 2.1 | Incoming Correspondence | | 4.1 | Task Plan |
| 1.2 | Distribution Lists | | 2.2 | Outgoing Correspondence | X | 4.2 | Data Pkg. Completeness Verif. Checklist |
| 1.3 | Project Procedures | | 2.3 | Internal Correspondence | | 4.3 | Data Valid. Calcs./Annotated DP |
| 1.4 | Project Modifications | | | | | 4.4 | Prelim. QA Reports ✓ |
| 1.5 | Staff | | 3.1 | Task Order | | 4.5 | Data Valid. & Qual. Summary Rpts. |
| 1.5.1 | Staff Resumes | | 3.2 | Sample Lists | | 4.5.1 | Internal Drafts/Comments/Resol. |
| 1.5.2 | Staff Training | | 3.3 | Data Validation Procedures | | 4.5.2 | WHC Review Draft Comments/Resol. |
| 1.5.3 | Auth. Former Site Employee | | 3.4 | Original Chemical Data | | 4.5.3 | Final Report |
| 1.6 | QA | | 3.5 | Original Radiochem. Data | | 4.6 | Weekly Status Reports |
| 1.6.1 | QA Implement Procedures | | | | | 4.7 | Weekly Management Reports |
| 1.6.2 | QA Audits | | | | | | |
| 1.6.3 | QA Training | | | | | | |
| 1.7 | Budget | | | | | | |
| 1.7.1 | Budget Status | | | | | | |
| 1.7.2 | Invoices | | | | | | |
| 1.8 | Requisitions | | | | | | |
| 1.9 | Meeting Minutes | | | | | | |
| 1.10 | Record of Telecon | | | | | | |
| 1.11 | Progress Reports | | | | | | |
| 1.12 | Subcontractor | | | | | | |
| | | | | | | | |

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc
1201 Jadwin Avenue, Suite 204
Richland, WA 99352
FAX 509 946 4203
509 946 4344

2978-56

April 9, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

Subject: WHC Order No. MLW-SVV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record - 100-IU-5
TMA Case Number N2-12-018-7133

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Crib (100-IU-5) Expedited Response Action. The subject data package consisted of ten samples submitted for radiochemical analysis (gamma scan). The samples were analyzed by Thermo Analytical, Inc. according to requirements specified in the Analytical Laboratory Statement of Work issued Westinghouse Hanford Company. Two sample results (B07PZ2 and B07Q02) were selected for validation. These results, along with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4.

## DATA QUALITY OBJECTIVES SUMMARY

All data quality objectives were generally met.

## MAJOR DEFICIENCIES (REJECTED DATA)

There were no major deficiencies resulting in rejected data.

**MINOR DEFICIENCIES (OTHER QUALIFIED DATA)**

No data were qualified in this data delivery group.

In comparing minimum detectable activities (MDAs) with the contract required detection limits (CRDLs), it was noted that the iron-59 MDA was greater then the CRDL. In that no iron-59 was detected and all gamma scan results were very low, this was considered acceptable.

Efficiency curves for initial calibration were not included in this package, but were referenced on the certificates of calibration. This referenced information was considered acceptable.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report for this sampling round is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the 100-IU-5 investigation. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager
HC#134:RL1730.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File (HCRL-WHC/9316-L-93-004)

THIS APPENDIX CONSISTS OF FIVE ATTACHMENTS

*Attachment 1 - Glossary of Data Qualifiers*

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

*Attachment 2 - As Received Laboratory Sample Concentration Reports*

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports.

*Attachment 3 - Summary of Data Qualifications*

This attachment provides a complete summary of all qualifications applied as a result of the validation.

*Attachment 4 - As Qualified Data Summary*

This attachment provides a tabular data summary of all data qualified from the validation.

*Attachment 5 - Data Review Supporting Documentation*

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

ATTACHMENT 1

*Glossary of Data Qualifiers*

*U* - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

*UJ* - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

*J* - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

*R* - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

Test GAM Matrix SOIL
SDG 7133
Contact Dinkar Kharkar

# TMA NORCAL

REPORTING GROUP 7133

## RESULT SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

| CLIENT SAMPLE ID | LAB SAMPLE ID | SUF-FIX | PLANCHET | Cobalt 60 | Cesium 137 |
|---|---|---|---|---|---|
| Preparation batch 2427-094 Prep error 15.0 % | | | | | |
| B07PY8 | N212018-01 | | 7133-001 | U | U |
| B07PZ1 | N212018-02 | | 7133-002 | U | U |
| B07PZ2 | N212018-03 | | 7133-003 | U | U |
| B07PZ4 | N212018-04 | | 7133-004 | U | U |
| B07PZ6 | N212018-05 | | 7133-005 | U | U |
| B07PZ7 | N212018-06 | | 7133-006 | U | U |
| B07Q01 | N212018-07 | | 7133-007 | U | U |
| B07Q02 | N212018-08 | | 7133-008 | U | U |
| B07Q03 | N212018-09 | | 7133-009 | U | U |
| B07Q12 | N212018-10 | | 7133-010 | U | U |
| Reagent Blank | N212018-12 | | 7133-012 | U | U |
| Lab Control Sample | N212018-11 | | 7133-011 | ok | ok |
| Replicate (N212018-01) | N212018-13 | | 7133-013 | - U | - U |
| Nominal values and limits from method | | | RDLs (pCi/G) | 0.05 | 0.05 |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 02/23/93

ATTACHMENT 3

*Summary of Data Qualifications*

TMA/Norcal N2-12-018-7133

Pickling Acid Crib Samples

Gamma Spec

Cobalt 60 (CRDL = .05 pCi/g)

| Customer I.D. # | Calculated Results | Raw Data Results | Reported Results | Q |
|---|---|---|---|---|
| B07PZ2 | 0.034 | 0.035 | 0.03 | U |
| B07Q02 | 0.054 | 0.057 | 0.06 | U |

Cesium 137 (CRDL = .05 pCi/g)

| Customer I.D. # | Calculated Results | Raw Data Results | Reported Results | Q |
|---|---|---|---|---|
| B07PZ2 | 0.031 | 0.031 | 0.03 | U |
| B07Q02 | 0.048 | 0.048 | 0.05 | U |

Radium 226 (CRDL = Not reported)

| Customer I.D. # | Calculated Results | Raw Data Results | Reported Results | Q |
|---|---|---|---|---|
| B07PZ2 | 0.491 | 0.492 | 0.49 | |
| B07Q02 | 0.564 | 0.564 | 0.56 | |

Thorium 228 (CRDL = Not reported)

| Customer I.D. # | Calculated Results | Raw Data Results | Reported Results | Q |
|---|---|---|---|---|
| B07PZ2 | 0.681 | 0.066 | 0.73 | |
| B07Q02 | 0.763 | 0.813 | 0.81 | |

ATTACHMENT 4

*As Qualified Data Summary*

# TMA NORCAL

REPORTING GROUP 7133

Test GAM Matrix SOIL
SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

## RESULT SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

| CLIENT SAMPLE ID | LAB SAMPLE ID | SUF-FIX | PLANCHET | Cobalt 60 | Cesium 137 |
|---|---|---|---|---|---|
| Preparation batch 2427-094 Prep error 15.0 % | | | | | |
| B07PY8 | N212018-01 | | 7133-001 | U | U |
| B07PZ1 | N212018-02 | | 7133-002 | U | U |
| B07PZ2 | N212018-03 | | 7133-003 | U | U |
| B07PZ4 | N212018-04 | | 7133-004 | U | U |
| B07PZ6 | N212018-05 | | 7133-005 | U | U |
| B07PZ7 | N212018-06 | | 7133-006 | U | U |
| B07Q01 | N212018-07 | | 7133-007 | U | U |
| B07Q02 | N212018-08 | | 7133-008 | U | U |
| B07Q03 | N212018-09 | | 7133-009 | U | U |
| B07Q12 | N212018-10 | | 7133-010 | U | U |
| Reagent Blank | N212018-12 | | 7133-012 | U | U |
| Lab Control Sample | N212018-11 | | 7133-011 | ok | ok |
| Replicate (N212018-01) | N212018-13 | | 7133-013 | U | - U |
| Nominal values and limits from method | | | RDLs (pCi/G) | 0.05 | 0.05 |

Precision - ok
Accuracy - ok
Blank - ok
H.T. - ok
CRDL ok

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CRS
Version 2.23
Report date 02/23/93

# ATTACHMENT 5

*Data Review Supporting Documentation*

*Data Package Completeness Checklists*

Supplemental Requirements for Analyses Using
Gamma Spectroscopy

C.0 Completeness Checklist

Analysis Results

- ✓ Results Report for Sample Analyses and Reanalyses
- ✓ Raw Data (Spectra, Printouts of Counts per Channel, Notebook Pages)
- ✓ Calculation Sheets
- ✓ Sample Identifications
- ✓ Detector Identification and Counting Position
- ✓ Analysis Date and Initials of Analyst
- ✓ Amounts of Samples Counted

Initial and Continuing Calibration → initial cal acceptable, ~~no continuing cals~~ M.S. OK

- ✓ Detector Identification — ~~initial cal only~~ M.S.
- ✓ Calibration Date(s) and Initials of Analyst — ~~initial cal only~~ M.S.
- ✓ Identification of Calibration and Check Standards including Radionuclides, Certification, Expiration Date, and Activity — ~~initial cal~~
- ~~NA~~ Amount of (Check) Standard Used
- ✓ ~~NO~~ Raw Data including Counts and Count Duration for Standards
- ✓ ~~NO~~ Efficiencies and/or Geometry and Matrix Factors
- ✓ ~~NO~~ Raw Data of Background Counts, Count Dates, and Duration of Counts
- ✓ ~~NO~~ Kev/Channel
- ✓ ~~NO~~ FWHM

Blanks

- ✓ Detector Identification
- ✓ Date of Analysis
- ✓ MDA of Method
- ✓ Amounts of Reagents Used in Blank
- ✓ Raw Data

## Supplemental Requirements for Analyses Using Gamma Spectroscopy (Cont.)

### Duplicates

✓ Detector Identification
✓ Date of Analysis
✓ Amounts of Samples
✓ Count Durations
✓ Sample Identifications
✓ Results of Analyses and Calculated Precision
✓ Raw Data

### Radiometric and Gravimetric Yields

NA

____ Amounts (Volumes, Concentrations, Activity) of Spikes, Tracers, or Carriers Used
____ Weights of Precipitates or Solids Counted
____ Calculated Recoveries

### Laboratory Control Samples

✓ Detector Identification
✓ Date of Analysis
✓ Calculation of Recoveries
✓ Results of Analyses

TMA NORCAL
REPORTING GROUP 7133

| | |
|---|---|
| SDG | 7133 |
| Contact | Dinkar Kharkar |

| | |
|---|---|
| Client | Westinghouse Hanford |
| Contract | MBH-SVV-069262 |

# SUMMARY DATA SECTION

## TABLE OF CONTENTS


| | |
|---|---|
| About this section | 1 |
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| | |
|---|---|
| Lab id | TMAN |
| Protocol | WHC-HEIS |
| Version | Ver 1.0 |
| Form | DVD-TOC |
| Version | 2.23 |
| Report date | 02/23/93 |

# ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

## SAMPLE SUMMARIES

The Sample Summary Reports (variously titled LAB, SAMPLE, DEPARTMENT and QC SUMMARY to reflect the sort order) show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

## PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

## WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

## REAGENT BLANKS

The Reagent Blank Reports, one for each Reagent Blank relevant to the SDG, show all results and primary supporting information for the blanks.

## LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

# ABOUT THE DATA SUMMARY SECTION

REPLICATES

The Replicate Reports, one for each Replicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

RESULT SUMMARIES

The Result Summary Reports, one for each test used in the SDG, show all results and QC for one parameter on one page. (A test is a short code for the method used to do certain work to the client's specification.)

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show performance data for each method on one page.

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

# TMA NORCAL

REPORTING GROUP 7133

## QC SUMMARY

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

| QC BATCH | CHAIN OF CUSTODY | CLIENT SAMPLE ID | MATRIX | LEVEL | COLLECTED | RECEIVED | LAB SAMPLE ID | DEPARTMENT SAMPLE ID |
|---|---|---|---|---|---|---|---|---|
| 7133 | 002806 | B07PY8 | SOIL | | 12/01/92 | 12/03/92 | N212018-01 | 7133-001 |
| | 002807 | B07PZ1 | SOIL | | 12/02/92 | 12/04/92 | N212018-02 | 7133-002 |
| | | B07PZ2 | SOIL | | 12/02/92 | 12/04/92 | N212018-03 | 7133-003 |
| | | B07PZ4 | SOIL | | 12/02/92 | 12/04/92 | N212018-04 | 7133-004 |
| | 003202 | B07PZ6 | SOIL | | 12/03/92 | 12/07/92 | N212018-05 | 7133-005 |
| | | B07PZ7 | SOIL | | 12/03/92 | 12/07/92 | N212018-06 | 7133-006 |
| | | B07Q01 | SOIL | | 12/03/92 | 12/07/92 | N212018-07 | 7133-007 |
| | | B07Q02 | SOIL | | 12/03/92 | 12/07/92 | N212018-08 | 7133-008 |
| | | B07Q03 | SOIL | | 12/03/92 | 12/07/92 | N212018-09 | 7133-009 |
| | 003207 | B07Q12 | SOIL | | 12/07/92 | 12/11/92 | N212018-10 | 7133-010 |
| | | Reagent Blank | SOIL | | | | N212018-12 | 7133-012 |
| | | Lab Control Sample | SOIL | | | | N212018-11 | 7133-011 |
| | | Replicate (N212018-01) | SOIL | | 12/01/92 | | N212018-13 | 7133-013 |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-OS
Version 2.23
Report date 02/23/93

# TMA NORCAL

REPORTING GROUP 7133

SDG 7133
Contact Dinkar Kharkar

## PREP BATCH SUMMARY

Client Westinghouse Hanford
Contract MBH-SVV-069262

| TEST | MATRIX | METHOD | PREPARATION BATCH | PREP ERROR | PLANCHETS ANALYZED CLIENT | RE | BLANK | LCS | REP/ORIG | MS/ORIG | QUALIFIERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gamma Spectroscopy | | | | | | | | | | | |
| GAM | SOIL | Gamma Scan | 2427-094 | 15.0 | 10 | | 1 | 1 | 1/1 | | |

Replicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Replicate or Spike sample.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-PBS
Version 2.23
Report date 02/23/93

SDG 7133
ontact Dinkar Kharkar

# TMA NORCAL

REPORTING GROUP 7133

## WORK SUMMARY

Client Westinghouse Hanford
Contract MBH-SVV-069262

| NT SAMPLE ID / MATRIX / CUSTODY | LAB SAMPLE ID / COLLECTED / RECEIVED | PLANCHET | TEST | SUF-FIX | PREPARED | ANALYZED | METHOD |
|---|---|---|---|---|---|---|---|
| Y8 / SOIL / 002806 | N212018-01 / 12/01/92 / 12/03/92 | 7133-001 | GAM | | | 02/05/93 | Gamma Scan |
| Z1 / SOIL / 002807 | N212018-02 / 12/02/92 / 12/04/92 | 7133-002 | GAM | | | 02/05/93 | Gamma Scan |
| Z2 / SOIL / 002807 | N212018-03 / 12/02/92 / 12/04/92 | 7133-003 | GAM | | | 02/05/93 | Gamma Scan |
| Z4 / SOIL / 002807 | N212018-04 / 12/02/92 / 12/04/92 | 7133-004 | GAM | | | 02/05/93 | Gamma Scan |
| Z6 / SOIL / 003202 | N212018-05 / 12/03/92 / 12/07/92 | 7133-005 | GAM | | | 02/05/93 | Gamma Scan |
| Z7 / SOIL / 003202 | N212018-06 / 12/03/92 / 12/07/92 | 7133-006 | GAM | | | 02/05/93 | Gamma Scan |
| 1 / SOIL / 003202 | N212018-07 / 12/03/92 / 12/07/92 | 7133-007 | GAM | | | 02/05/93 | Gamma Scan |
| 2 / SOIL / 003202 | N212018-08 / 12/03/92 / 12/07/92 | 7133-008 | GAM | | | 02/05/93 | Gamma Scan |
| 3 / SOIL / 003202 | N212018-09 / 12/03/92 / 12/07/92 | 7133-009 | GAM | | | 02/05/93 | Gamma Scan |
| 2 / SOIL / 003207 | N212018-10 / 12/07/92 / 12/11/92 | 7133-010 | GAM | | | 02/05/93 | Gamma Scan |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CWS
Version 2.23
Report date 02/23/93

TMA NORCAL
REPORTING GROUP 7133

SDG 7133
ntact Dinkar Kharkar

# WORK SUMMARY, cont.

Client Westinghouse Hanford
Contract MBH-SVV-069262

| T SAMPLE ID<br>MATRIX<br>CUSTODY | LAB SAMPLE ID<br>COLLECTED<br>RECEIVED | PLANCHET | TEST | SUF-<br>FIX | PREPARED | ANALYZED | METHOD |
|---|---|---|---|---|---|---|---|
| nt Blank<br>SOIL | N212018-12 | 7133-012 | GAM | | | 02/06/93 | Gamma Scan |
| ontrol Sample<br>SOIL | N212018-11 | 7133-011 | GAM | | | 02/06/93 | Gamma Scan |
| cate (N212018-01)<br>SOIL<br>002806 | N212018-13<br>12/01/92<br>12/03/92 | 7133-013 | GAM | | | 02/05/93 | Gamma Scan |

## COUNTS OF TESTS BY SAMPLE TYPE

| 'ST | METHOD | REFERENCE | CLIENT | RE | BLANK | LCS | REP SPIKE | TOTALS |
|---|---|---|---|---|---|---|---|---|
| M | Gamma Scan | | 10 | | 1 | 1 | 1 | 13 |
| TALS | | | 10 | | 1 | 1 | 1 | 13 |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CWS
Version 2.23
Report date 02/23/93

N212018-12

# TMA NORCAL
REPORTING GROUP 7133

## REAGENT BLANK

Reagent Blank

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-12
Dept sample id 7133-012

Matrix SOIL
Material

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | U | | 0.3 | | U | GAM |
| Iron 59 | | U | | 0.04 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 0.1 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.02 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.05 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.1 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.02 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.02 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.04 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.03 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | U | | 0.04 | | U | GAM |
| Thorium 228 | 14274-82-9 | U | | 0.03 | | U | GAM |
| Thorium 232 | 7440-29-1 | U | | 0.08 | | U | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-11

# TMA NORCAL

REPORTING GROUP 7133

## LAB CONTROL SAMPLE

Lab Control Sample

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

b sample id N212018-11
t sample id 7133-011

Matrix SOIL
Material

| AMETER | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST | ADDED pCi/G | 2σ ERR pCi/G | REC % | 3σ LMTS (TOTAL) | PROTOCOL LIMITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MA SCAN ANALYTES | | | | | | | | | | | |
| assium 40 | U | | 0.2 | | U | GAM | | | | | |
| n 59 | U | | 0.06 | 0.05 | U | GAM | | | | | |
| omium 51 | U | | 0.1 | | U | GAM | | | | | |
| alt 60 | 0.18 | 0.043 | | 0.05 | | GAM | 0.213 | 0.009 | 85 | 64-136 | |
| c 65 | U | | 0.07 | | U | GAM | | | | | |
| henium 106 | U | | 0.2 | | U | GAM | | | | | |
| ium 134 | U | | 0.02 | | U | GAM | | | | | |
| ium 137 | 0.15 | 0.029 | | 0.05 | | GAM | 0.143 | 0.006 | 105 | 61-139 | |
| opium 152 | U | | 0.04 | 0.1 | U | GAM | | | | | |
| opium 154 | U | | 0.03 | 0.1 | U | GAM | | | | | |
| ium 226 | U | | 0.04 | | U | GAM | | | | | |
| rium 228 | U | | 0.03 | | U | GAM | | | | | |
| rium 232 | U | | 0.1 | | U | GAM | | | | | |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-LCS
Version 2.23
Report date 02/23/93

N212018-13

# TMA NORCAL

REPORTING GROUP 7133

## REPLICATE

B07PY8

SDG 7133
Contact Dinkar Kharkar

REPLICATE
ab sample id N212018-13
ot sample id 7133-013

ORIGINAL
Lab sample id N212018-01
Dept sample id 7133-001
Received 12/03/92

Client Westinghouse Hanford
Contract MBH-SVV-069262

Client sample id B07PY8
Matrix SOIL
Collected 12/01/92
Chain of custody id 002806

| RAMETER | REPLICATE pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST | ORIGINAL pCi/G | 2σ ERR (COUNT) | MDA pCi/G | QUALI-FIERS | RPD % | 3σ TOT | PROT LIMIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IMA SCAN ANALYTES | | | | | | | | | | | | | |
| tassium 40 | 13 | 2.7 | | | | GAM | 14 | 0.90 | | | 7 | 46 | |
| on 59 | U | | 1 | 0.05 | U | GAM | U | | 0.2 | U | - | | |
| omium 51 | U | | 5 | | U | GAM | U | | 1 | U | - | | |
| balt 60 | U | | 0.2 | 0.05 | U | GAM | U | | 0.05 | U | - | | |
| nc 65 | U | | 0.6 | | U | GAM | U | | 0.1 | U | - | | |
| chenium 106 | U | | 1 | | U | GAM | U | | 0.4 | U | - | | |
| sium 134 | U | | 0.2 | | U | GAM | U | | 0.05 | U | - | | |
| sium 137 | U | | 0.2 | 0.05 | U | GAM | U | | 0.04 | U | - | | |
| opium 152 | U | | 0.3 | 0.1 | U | GAM | U | | 0.07 | U | - | | |
| opium 154 | U | | 0.2 | 0.1 | U | GAM | U | | 0.06 | U | - | | |
| dium 226 | 0.50 | 0.32 | | | | GAM | 0.47 | 0.084 | | | 6 | 107 | |
| orium 228 | 0.85 | 0.27 | | | | GAM | 0.71 | 0.051 | | | 18 | 62 | |
| orium 232 | 1.0 | 0.65 | | | | GAM | 0.66 | 0.16 | | | 41 | 126 | |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-REP
Version 2.23
Report date 02/23/93

N212018-01

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PY8

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-01
ept sample id 7133-001
Received 12/03/92

Client sample id B07PY8
Matrix SOIL
Collected 12/01/92
Chain of custody id 002806

| ARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| AMMA SCAN ANALYTES | | | | | | | |
| otassium 40 | 13966-00-2 | 14 | 0.90 | | | | GAM |
| ron 59 | | U | | 0.2 | 0.05 | U | GAM |
| hromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| obalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| inc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| uthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| esium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| esium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| uropium 152 | 14683-23-9 | U | | 0.07 | 0.1 | U | GAM |
| uropium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| adium 226 | 13982-67-7 | 0.47 | 0.084 | | | | GAM |
| horium 228 | 14274-82-9 | 0.71 | 0.051 | | | | GAM |
| horium 232 | 7440-29-1 | 0.66 | 0.16 | | | | GAM |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-02

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ1

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-02
Dept sample id 7133-002
Received 12/04/92

Client sample id B07PZ1
Matrix SOIL
Collected 12/02/92
Chain of custody id 002807

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 15 | 2.0 | | | | GAM |
| Iron 59 | | U | | 0.6 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 3 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.1 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.4 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 1 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.1 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.1 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.2 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.1 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.45 | 0.24 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.69 | 0.16 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.89 | 0.49 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-03

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ2

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-03
ept sample id 7133-003
Received 12/04/92

Client sample id B07PZ2
Matrix SOIL
Collected 12/02/92
Chain of custody id 002807

| ARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| AMMA SCAN ANALYTES | | | | | | | |
| otassium 40 | 13966-00-2 | 14 | 0.77 | | | | GAM |
| ron 59 | | U | | 0.2 | 0.05 | U | GAM |
| hromium 51 | 14392-02-0 | U | | 0.9 | | U | GAM |
| obalt 60 | 10198-40-0 | U | | 0.03 | 0.05 | U | GAM |
| inc 65 | 17982-39-3 | U | | 0.09 | | U | GAM |
| uthenium 106 | 13967-48-1 | U | | 0.3 | | U | GAM |
| esium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| esium 137 | 10045-97-3 | U | | 0.03 | 0.05 | U | GAM |
| uropium 152 | 14683-23-9 | U | | 0.06 | 0.1 | U | GAM |
| uropium 154 | 15585-10-1 | U | | 0.04 | 0.1 | U | GAM |
| adium 226 | 13982-67-7 | 0.49 | 0.068 | | | | GAM |
| horium 228 | 14274-82-9 | 0.73 | 0.042 | | | | GAM |
| horium 232 | 7440-29-1 | 0.71 | 0.14 | | | | GAM |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-04

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ4

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-04
Client sample id B07PZ4
Matrix SOIL
Collected 12/02/92
Received 12/04/92
Chain of custody id 002807

| ARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| AMMA SCAN ANALYTES | | | | | | | |
| otassium 40 | 13966-00-2 | 14 | 0.74 | | | | GAM |
| ron 59 | | U | | 0.2 | 0.05 | U | GAM |
| ıromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| obalt 60 | 10198-40-0 | U | | 0.04 | 0.05 | U | GAM |
| inc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| ıthenium 106 | 13967-48-1 | U | | 0.3 | | U | GAM |
| esium 134 | 17967-70-9 | U | | 0.04 | | U | GAM |
| esium 137 | 10045-97-3 | U | | 0.03 | 0.05 | U | GAM |
| ıropium 152 | 14683-23-9 | U | | 0.07 | 0.1 | U | GAM |
| ıropium 154 | 15585-10-1 | U | | 0.05 | 0.1 | U | GAM |
| adium 226 | 13982-67-7 | 0.51 | 0.066 | | | | GAM |
| horium 228 | 14274-82-9 | 0.99 | 0.072 | | | | GAM |
| horium 232 | 7440-29-1 | 0.76 | 0.15 | | | | GAM |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-05

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ6

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-05
Client sample id B07PZ6
Matrix SOIL
Received 12/07/92
Collected 12/03/92
Chain of custody id 003202

| ARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| AMMA SCAN ANALYTES | | | | | | | |
| otassium 40 | 13966-00-2 | 14 | 1.0 | | | | GAM |
| con 59 | | U | | 0.2 | 0.05 | U | GAM |
| ıromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| obalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| ınc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| ıthenium 106 | 13967-48-1 | U | | 0.3 | | U | GAM |
| esium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| esium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| ıropium 152 | 14683-23-9 | U | | 0.1 | 0.1 | U | GAM |
| ıropium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| adium 226 | 13982-67-7 | 0.48 | 0.086 | | | | GAM |
| horium 228 | 14274-82-9 | 0.83 | 0.061 | | | | GAM |
| horium 232 | 7440-29-1 | 0.82 | 0.18 | | | | GAM |

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-06

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07PZ7

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-06
ept sample id 7133-006
Received 12/07/92

Client sample id B07PZ7
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| ARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| AMMA SCAN ANALYTES | | | | | | | |
| otassium 40 | 13966-00-2 | 16 | 1.1 | | | | GAM |
| ron 59 | | U | | 0.3 | 0.05 | U | GAM |
| nromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| obalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| inc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| uthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| esium 134 | 17967-70-9 | U | | 0.08 | | U | GAM |
| esium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| uropium 152 | 14683-23-9 | U | | 0.09 | 0.1 | U | GAM |
| uropium 154 | 15585-10-1 | U | | 0.05 | 0.1 | U | GAM |
| adium 226 | 13982-67-7 | 0.42 | 0.087 | | | | GAM |
| norium 228 | 14274-82-9 | 0.63 | 0.055 | | | | GAM |
| norium 232 | 7440-29-1 | 0.68 | 0.21 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-07

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07Q01

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

ab sample id N212018-07
pt sample id 7133-007
Received 12/07/92

Client sample id B07Q01
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| RAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| MMA SCAN ANALYTES | | | | | | | |
| otassium 40 | 13966-00-2 | 14 | 0.92 | | | | GAM |
| on 59 | | U | | 0.2 | 0.05 | U | GAM |
| romium 51 | 14392-02-0 | U | | 2 | | U | GAM |
| balt 60 | 10198-40-0 | U | | 0.04 | 0.05 | U | GAM |
| nc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| thenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| sium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| sium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| ropium 152 | 14683-23-9 | U | | 0.1 | 0.1 | U | GAM |
| ropium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| dium 226 | 13982-67-7 | 0.57 | 0.083 | | | | GAM |
| orium 228 | 14274-82-9 | 0.93 | 0.070 | | | | GAM |
| orium 232 | 7440-29-1 | 0.80 | 0.22 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-08

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07Q02

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-08
ept sample id 7133-008
Received 12/07/92

Client sample id B07Q02
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| ARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| AMMA SCAN ANALYTES | | | | | | | |
| otassium 40 | 13966-00-2 | 12 | 1.1 | | | | GAM |
| ron 59 | | U | | 0.3 | 0.05 | U | GAM |
| hromium 51 | 14392-02-0 | U | | 2 | | U | GAM |
| obalt 60 | 10198-40-0 | U | | 0.06 | 0.05 | U | GAM |
| inc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| uthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| esium 134 | 17967-70-9 | U | | 0.06 | | U | GAM |
| esium 137 | 10045-97-3 | U | | 0.05 | 0.05 | U | GAM |
| uropium 152 | 14683-23-9 | U | | 0.1 | 0.1 | U | GAM |
| uropium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| adium 226 | 13982-67-7 | 0.56 | 0.10 | | | | GAM |
| horium 228 | 14274-82-9 | 0.81 | 0.066 | | | | GAM |
| horium 232 | 7440-29-1 | 0.86 | 0.21 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-09

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07Q03

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-09
Dept sample id 7133-009
Received 12/07/92

Client sample id B07Q03
Matrix SOIL
Collected 12/03/92
Chain of custody id 003202

| PARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| GAMMA SCAN ANALYTES | | | | | | | |
| Potassium 40 | 13966-00-2 | 14 | 1.0 | | | | GAM |
| Iron 59 | | U | | 0.3 | 0.05 | U | GAM |
| Chromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| Cobalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| Zinc 65 | 17982-39-3 | U | | 0.1 | | U | GAM |
| Ruthenium 106 | 13967-48-1 | U | | 0.4 | | U | GAM |
| Cesium 134 | 17967-70-9 | U | | 0.05 | | U | GAM |
| Cesium 137 | 10045-97-3 | U | | 0.04 | 0.05 | U | GAM |
| Europium 152 | 14683-23-9 | U | | 0.09 | 0.1 | U | GAM |
| Europium 154 | 15585-10-1 | U | | 0.06 | 0.1 | U | GAM |
| Radium 226 | 13982-67-7 | 0.50 | 0.082 | | | | GAM |
| Thorium 228 | 14274-82-9 | 0.70 | 0.056 | | | | GAM |
| Thorium 232 | 7440-29-1 | 0.77 | 0.20 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

N212018-10

TMA NORCAL
REPORTING GROUP 7133

DATA SHEET

B07Q12

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212018-10
)ept sample id 7133-010
Received 12/11/92

Client sample id B07Q12
Matrix SOIL
Collected 12/07/92
Chain of custody id 003207

| 'ARAMETER | CAS NO | RESULT pCi/G | 2σ ERR (COUNT) | MDA pCi/G | RDL pCi/G | QUALI-FIERS | TEST |
|---|---|---|---|---|---|---|---|
| 'AMMA SCAN ANALYTES | | | | | | | |
| 'otassium 40 | 13966-00-2 | 15 | 1.0 | | | | GAM |
| ron 59 | | U | | 0.3 | 0.05 | U | GAM |
| 'hromium 51 | 14392-02-0 | U | | 1 | | U | GAM |
| .obalt 60 | 10198-40-0 | U | | 0.05 | 0.05 | U | GAM |
| 'inc 65 | 17982-39-3 | U | | 0.2 | | U | GAM |
| uthenium 106 | 13967-48-1 | U | | 0.5 | | U | GAM |
| .esium 134 | 17967-70-9 | U | | 0.06 | | U | GAM |
| esium 137 | 10045-97-3 | U | | 0.05 | 0.05 | U | GAM |
| uropium 152 | 14683-23-9 | U | | 0.1 | 0.1 | U | GAM |
| uropium 154 | 15585-10-1 | U | | 0.07 | 0.1 | U | GAM |
| .adium 226 | 13982-67-7 | 0.56 | 0.096 | | | | GAM |
| horium 228 | 14274-82-9 | 1.0 | 0.084 | | | | GAM |
| horium 232 | 7440-29-1 | 0.87 | 0.17 | | | | GAM |



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 02/23/93

Test GAM Matrix SOIL
SDG 7133
Contact Dinkar Kharkar

# TMA NORCAL

REPORTING GROUP 7133

## METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Westinghouse Hanford
Contract MBH-SVV-069262

| CLIENT SAMPLE ID | LAB SAMPLE ID | RAW TEST | SUF-FIX | PLANCHET | MAX MDA pCi/G | ALIQUOT g | RESID mg | YIELD % | COUNT min | FWHM keV | DAYS HELD | PREPARED | ANAL-YZED | DETECTOR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preparation batch 2427-094 Prep error 15.0 % | | | | | | | | | | | | | | |
| B07PY8 | N212018-01 | | | 7133-001 | 0.2 | 585 | | | 175 | | 66 | | 02/05/93 | MB,02,00 |
| B07PZ1 | N212018-02 | | | 7133-002 | 0.6 | 169 | | | 166 | | 65 | | 02/05/93 | JR,01,00 |
| B07PZ2 | N212018-03 | | | 7133-003 | 0.2 | 881 | | | 175 | | 65 | | 02/05/93 | MB,03,00 |
| B07PZ4 | N212018-04 | | | 7133-004 | 0.2 | 772 | | | 176 | | 65 | | 02/05/93 | MB,05,00 |
| B07PZ6 | N212018-05 | | | 7133-005 | 0.2 | 676 | | | 120 | | 64 | | 02/05/93 | MB,02,00 |
| B07PZ7 | N212018-06 | | | 7133-006 | 0.3 | 688 | | | 120 | | 64 | | 02/05/93 | MB,03,00 |
| B07Q01 | N212018-07 | | | 7133-007 | 0.2 | 713 | | | 120 | | 64 | | 02/05/93 | MB,05,00 |
| B07Q02 | N212018-08 | | | 7133-008 | 0.3 | 676 | | | 101 | | 64 | | 02/05/93 | MB,02,00 |
| B07Q03 | N212018-09 | | | 7133-009 | 0.3 | 823 | | | 101 | | 64 | | 02/05/93 | MB,03,00 |
| B07Q12 | N212018-10 | | | 7133-010 | 0.3 | 706 | | | 101 | | 60 | | 02/05/93 | MB,05,00 |
| Blank (Stnd=11062) | N212018-12 | | | 7133-012 | 0.04 | 750 | | | 101 | | | | 02/06/93 | MB,03,00 |
| LCS (Stnd=11061) | N212018-11 | | | 7133-011 | 0.06 | 750 | | | 101 | | | | 02/06/93 | MB,02,00 |
| Replicate (N212018-01) | N212018-13 | | | 7133-013 | 1 | 133 | | | 117 | | 66 | | 02/05/93 | JR,01,00 |
| Nominal values and limits from method | | | | | 0.05 | 750 | - | - | 100 | | 180 | | | |

PROCEDURES EP-060 Environmental soil preparation
EP-100 Preparation

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 0.3 ± 0.5
YIELD ± 
FWHM ± 

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-CMS
Version 2.23
Report date 02/23/93

SDG 7133
Contact Dinkar Kharkar

# REPORT GUIDE

Client Westinghouse Hanford
Contract MBH-SVV-069262

## SAMPLE SUMMARY

The Sample Summary Reports (variously titled LAB, SAMPLE, DEPARTMENT and QC SUMMARY to reflect the sort order) show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The following notes apply to this report:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Reagent Blanks, Replicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Reagent Blank, Replicate, Matrix Spike and Result Summary Reports detail these relationships.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

# PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Report and Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are counted.

* Each preparation batch should have at least one Reagent Blank and LCS in it to validate other results.

* The QUALIFIERS shown are all qualifiers other than U, J and B that occur on any analysis in the preparation batch. The Result Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X — Some data has been manually entered or modified. Transcription errors are possible.

  P — One or more results are 'preliminary'. The data is not ready for final reporting.

  2 — There were two or more results for one parameter on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

SDG 7133
Contact Dinkar Kharkar

# REPORT GUIDE

Client Westinghouse Hanford
Contract MBH-SVV-069262

## WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG).

The following notes apply to this report:

* TEST is a code for the method used to measure related parameters. Results and related information for each parameter are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Reagent Blank, Replicate, Matrix Spike and Result Summary Reports detail these relationships.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

SDG 7133
Contact Dinkar Kharkar

# REPORT GUIDE

Client Westinghouse Hanford
Contract MBH-SVV-069262

## DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Reagent Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure a parameter. If the TEST is empty, no data is available; the parameter was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added (as sum of squares) to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Reagent Blank a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Reagent Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

# DATA SHEET

J — The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B — Some Reagent Blank that QC's this sample had a non-U result and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

For each sample result, all Reagent Blank results in the same preparation batch are compared. The Result Summary Report documents this and other QC relationships.

L — Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H — Similar to 'L' except the recovery was high.

P — The RESULT is 'preliminary'.

X — Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 — There were two or more results available for this parameter. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

* An ERROR is underlined if the 2 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

SDG 7133
Contact Dinkar Kharkar

REPORT GUIDE

Client Westinghouse Hanford
Contract MBH-SVV-069262

# LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* Amounts ADDED are the lab's estimate of the actual amount spiked into this sample with their ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per parameter bias. The bias changes the center of the computed limit range.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined (out of spec) if it is outside either of these ranges.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

# REPLICATE

The Replicate Report shows all results, differences and primary supporting information for one Replicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Replicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Replicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For a parameter, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the (quadratic) sum of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors including that introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

  2. A protocol factor (typically 2) times the average MDA as

SDG 7133
Contact Dinkar Kharkar

GUIDE, cont.

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE

a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined (out of spec) if it is greater than either limit.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

SDG 7133
Contact Dinkar Kharkar

# REPORT GUIDE

Client Westinghouse Hanford
Contract MBH-SVV-069262

## MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* Amounts ADDED are the lab's estimate of the actual amount spiked into the Spike sample with their ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the RESULTs, including that introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per parameter bias. The bias changes the center of the computed limit range.

* The second limits are protocol defined upper and lower QC limits for the recovery.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

SDG 7133
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

# GUIDE, cont.

## MATRIX SPIKE

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

SDG 7133
Contact Dinkar Kharkar

# REPORT GUIDE

Client Westinghouse Hanford
Contract MBH-SVV-069262

## RESULT SUMMARY

The Result Summary Report shows up to four results measured using one method. There is one report for each TEST, as used on the Data Sheet Report. The corresponding Method Summary Report has method performance data.

The following notes apply to this report:

* Each per method report is subdivided into sections, one for each preparation batch. A preparation batch should be work done over a restricted period of time by a small group of people in a defined area of the lab.

  There should be Lab Control Sample and Reagent Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab polcy, Replicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Reagent Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Reagent Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data' means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See it for supporting data.

* Replicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this replicate. 'OUT' corresponds to when the RPD is underlined on the Replicate Report. See it for supporting data.



Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-RG
Version 2.23
Report date 02/23/93

# RESULT SUMMARY

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

The error estimate for a ratio reflects the errors of RESULTs, including errors introduced by rounding the RESULTs prior to printing and the preparation error if one is shown for the preparation batch.

> The preparation error is included once, not once for each result, since preparation errors for the results should be highly correlated.

The ratio is underlined (out of spec) if the absolute value of its difference from a nominal value is greater than its error estimate.

Average ratios are computed. These do not include ratios from Lab Control Sample, Reagent Blank or Matrix Spike results since their matrices are not necessarily similar to normal sample's.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant parameter. Results less than their MDA are not included. No sums are computed for QC Samples since their various planchets may not be physically related.

# METHOD SUMMARY

The Method Summary Report shows performance data for one method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each per method report is subdivided into sections, one for each preparation batch. A preparation batch should be work done over a restricted period of time by a small group of people in a defined area of the lab.

  There should be Lab Control Sample and Reagent Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Replicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the RDL; the smallest RDL if there is more than one.

* Aliquots are underlined if less than a nominal value specified for the method.

* Residues are underlined if outside a range specified for the method.

# METHOD SUMMARY

* Yields, which may be a gravimetric yield, chemical recovery or detector efficiency depending on the method, are underlined if outside a range specified for the method.

* Count times are underlined if less than a nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than a method specified limit.

* Days Held are underlined if greater than a holding time specified in the protocol.

* Analysis dates are underlined if before their sample's preparation date.

APPENDIX 1: COPIES OF CHAINS-OF-CUSTODY

ORIGINALS IN N2-12-070

| Westinghouse Hanford Company | CHAIN OF CUSTODY 003207 |
|---|---|

Custody Form Initiator RZ Steffler

Company Contact Jill Frain / Ron Mitchell — Telephone 376-8941

Project Designation/Sampling Locations White Bluffs Pickling Acid Crib ERA Saf # 92-400 — Collection Date 12-7-92

Ice Chest No. — Field Logbook No. EFL 1060

Bill of Lading/Airbill No. — Offsite Property No.

Method of Shipment Air Express / Samples bagged + on wet ice.

Shipped to TMA / Norcal Richmond, CA.

Possible Sample Hazards/Remarks Unknown

Sample Identification

B07Q10 (5 bottles)
B07Q11 (5 bottles)
B07Q12 (9 bottles)
B07Q14 (5 bottles)
B07Q15 (5 bottles)
B07Q16 (5 bottles)

RZS 12-7-92

RZS 12-7-92

☐ Field Transfer of Custody — CHAIN OF POSSESSION — (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RZ Steffler R. Z. Steffler | Alfonso Galaga | 12-11-92 1515 * ~~12-14-92 0800~~ KB |
| 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: |
|---|---|---|
| | | |

038

Comments: * ~~Received @ TMA/Norcal 12-12-92, opened 12-14-92 KB~~ KB

A-6000-407 (12/90)

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C #3207

Collector RZ STEFFLER Date 12-7-92

Company Contact JILL FRAIN/RON MITCHELL Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q12 | S | 12-7-92 | 1005 | (1) 250ml. plastic TAL METALS (CLP) |
| | | | | (1) 250ml. plastic ANIONS,F,CL,SO4,PO4 (EPA 300.0) NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS FOR Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000 ml. glass GAMMA SPEC. (RC-30) |
| | | | | |
| | S | | | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4 PO4 (EPA 300.0) NO2,NO3 (EPA 353.2) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000ml. glass GAMMA SPEC. (RC-30) |

RJS 12-7-92

RJS 12-7-92

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS.

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS

039

COC # 002807

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler Date 12-2-92

Company Contact J M Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ1 | S | 12-2-92 | 1020 | X (1) Poly 250 ml. TAL metals (CLP) |
| | | | | X (1) Poly 250 ml. ICP metals for Zr. (6010) |
| | | | | (1) Poly 250ml. Anions F, Cl, SO4, PO4 (EPA 300.0) |
| | | | | X NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | X (1) G 12-2-92 EPA 125 VOA (CLP) |
| | | | | X (1) aG 250 ml. Semi VOA (CLP) |
| | | | | X (1) aG 250 ml. TPH (Diesel Range) (8015m) |
| | | | | X (1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | X (1) G 1000 ml. Gamma Spec. (RC-30) |
| | | | | X (1) aG 250ml. TPH (Heavier than Diesel Range (8015M) |
| | | | | (9) Total Containers |
| | | | | |
| B07PY9 | S | 12-2-92 | 1050 | ✓ (1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓ (1) Poly 250 Anions F, Cl, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia EPA 350.2 PH (9040) |
| | | | | ✓ (1) aG 250 ml. Semi VOA (CLP) |
| | | | | ✓ (1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓ (1) Poly 250 ml. ICP metals for Zr. (6010) |
| | | | | (5) Total Containers |
| B07PZ3 | S | 12-2-92 | 1330 | ✓ (1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓ (1) Poly 250 ml. Anions F, Cl, SO4, PO4 (EPA 300.0) NO2-NO3 (EPA 353.2) Ammonia EPA 350.2 PH |
| | | | | ✓ (1) aG 250 ml. Semi Voa (CLP) |
| | | | | ✓ (1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓ (1) Poly 250ml. ICP Metals for Zr. (6010) |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage Samples to be kept cooled to 4°C. prior to analysis.

Possible Sample Hazards Suspected contaminants are nitric and hydrofluoric acid.

A-6000-406 (06/91)

COC#002807

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler  Date 12-2-92

Company Contact JM Frain  Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ2 | S | 12-2-92 | 1435 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr (6010) |
| | | | | ✓(1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) AG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) aG 250ml. TPH (Diesel Range) (8015m) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| ↓ | ↓ | ↓ | ↓ | ✓(1) aG 250ml. TPH (Heavier than Diesel Range (8015M) |
| | | | | (9) Total Containers |
| | | | | |
| B07PZ4 | S | 12-2-92 | 1500 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr (6010) |
| | | | | ✓(1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (EPA 353.2) Ammonia (EPA 350.2) PH (904 |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) AG 250ml. Semi VOA (CLP) |
| | | | | ✓(1) AG 250ml. TPH (Diesel Range) (8015m) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | ✓(1) aG 250ml. TPH (Heavier than Diesel Range - |
| ↓ | ↓ | ↓ | ↓ | 8015M) |
| | | | | (9) Total Containers |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF#92-400

Special Handling and/or Storage Samples to be kept cooled to 4°C prior to analysis.

Possible Sample Hazards Suspected contaminants are nitric and hydrofluoric-acid.

pm 12-2-92

P.41

A-6000-406 (06/91)

| Westinghouse Hanford Company | CHAIN OF CUSTODY | 002807 |
|---|---|---|

Custody Form Initiator RZ. Steffler RM Arnold

Company Contact J M Frain Telephone 509 376-8941

Project Designation/Sampling Locations White Bluffs Collection Date 12-2-92

Pickling Acid Crib 100-IU-5

Ice Chest No. SML-119 Field Logbook No. EFL 1060

Bill of Lading/Airbill No. 251-900 7326 Offsite Property No. N/A

Method of Shipment Emery Air Express Overnight Delivery

Shipped to TMA

Possible Sample Hazards/Remarks NON-DET WITH FIELD INSTRUMENTS

Sample Identification

B07PZ1 (9) Bottles
B07PY9 (5) Bottles
B07PZ3 (5) Bottles
B07PZ2 (9) Bottles
B07PZ4 (9) Bottles

RMA 12-2-92

RMA 12-2-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RM Arnold<br>RM Arnold | Kermit Blum | 12-4-92 1200 |
| 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: 042 |
|---|---|---|

Comments:

A-6000-407 (12/90)

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C # 3202

Collector RZ STEFFLER Date 12-3-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07Q02 | S | 12-3-92 | 1350 | (1) 250ml. plastic TAL METALS (CLP) |
| | | | | (1) 250ml. plastic ANIONS,F,CL,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS FOR Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range |
| | | | | (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000 ml. glass GAMMA SPEC. (RC-30) |
| | | | | |
| B07Q03 | S | 12-3-92 | 1415 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4 PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 125 ml. amber glass VOA (CLP) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. amber glass TPH diesal range (8015M) |
| | | | | (1) 250 ml. amber glass TPH heavier than diesal range |
| | | | | (8015M) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 1000ml. glass GAMMA SPEC. (RC-30) |
| | | | | |

*Type of Sample

| | | | | |
|---|---|---|---|---|
| A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS.

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS

043

A-6000-406 (06/91)

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C.f.C # 3202

Collector RZ Steffler Date 12-3-92

Company Contact Jill Frain / Ron Mitchell Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ7 | S | 12-3-92 | 1130 | ✓ (1) Poly 250ml. TAL metals (CLP) |
| | | | | ✓ (1) Poly 250ml. Anions F, CL, SO4, PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓ (1) Poly 250ml. ICP Metals for Zr. (6010) |
| | | | | ✓ (1) G 125ml. VOA (CLP) |
| | | | | ✓ (1) aG 250ml. Semi VOA (CLP) |
| | | | | ✓ (1) aG 250ml. TPH (Diesel Range) (8015 M) |
| | | | | ✓ (1) aG 250ml. TPH (Heavier Than Diesel Range) (8015M) |
| | | | | ✓ (1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | ✓ | ✓ | ✓ | ✓ (1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | (9) Total Containers |
| | | | | |
| B07Q01 | S | 12-3-92 | 1350 | ✓ (1) 250 ml plastic TAL Metals (CLP) |
| | | | | ✓ (1) 250 ml plastic Anions FCl, SO4, PO4 (EPA 300.0) |
| | | | | NO2, NO3 (~~EPA 353.2~~), Ammonia (EPA 350.2) pH (9040) |
| | | | | ✓ (1) 250 ml plastic ICP Metals for Zr (6010) |
| | | | | ✓ (1) 125 ml amber glass VOA (CLP) |
| | | | | ✓ (1) 250 ml aG SEMI VOA (CLP) |
| | | | | ✓ (1) 250 ml aG TPH diesel range (8015M) |
| | | | | ✓ (1) 250 ml aG TPH heavier than diesal range (8015M) |
| | | | | ✓ (1) 250 ml plastic Calcium Carbonate (~~RC-30~~) 130.2 |
| | ✓ | ✓ | ✓ | ✓ (1) 1000 ml glass Gamma Spec. (RC-30 |
| | | | | (9) Total Containers |
| | | | | |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information SAF # 92-400

Special Handling and/or Storage Samples to maintain 4°C prior to analysis

Possible Sample Hazards Unknown, nothing detectable with field instruments.

NA

A-6000-406 (06/91)

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C # 3202

Collector RZ STEFFLER Date 12-3-92

Company Contact JILL FRAIN/RON MITCHELL Telephone ( 509 ) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ8 | S | 12-3-92 | 1300 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE(EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| B07PZ9 | S | 12-3-92 | 1330 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |
| B07Q00 | S | 12-3-92 | 1340 | (1) 250 ml. plastic TAL METALS (CLP) |
| | | | | (1) 250 ml. plastic ICP METALS for Zr. (6010) |
| | | | | (1) 250 ml. amber glass SEMI VOA (CLP) |
| | | | | (1) 250 ml. plastic CALCIUM CARBONATE (EPA 130.2) |
| | | | | (1) 250 ml. plastic ANIONS F,Cl,SO4,PO4 (EPA 300.0) |
| | | | | NO2,NO3 (~~EPA 353.2~~) AMMONIA (EPA 350.2) pH (9040) |

*Type of Sample

| | | | | |
|---|---|---|---|---|
| A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF # 92-400

Special Handling and/or Storage SAMPLES TO MAINTAIN 4 DEGREES C. PRIOR TO ANALYSIS

Possible Sample Hazards UNKNOWN NOTHING DETECTABLE WITH FIELD INSTRUMENTS. A45

A-6000-406 (06/91)

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST C of C #003202

Collector RZ Steffler Date 12-3-92

Company Contact Jill Frain / Ron Mitchell Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PZ5 | S | 12-3-92 | 1010 | ✓(1) Poly 250ml Tal metals (CLP) |
| | | | | ✓(1) Poly 250ml. Anions F,CL,SO4,PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammoinia EPA 350.2 PH (9040) |
| | | | | ✓(1) aG 250ml. SemiVOA (CLP) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr. (6010) |
| | | | | (5) Total Containers |
| | | | | |
| B07PZ6 | S | 12-3-92 | 1055 | ✓(1) Poly 250ml. TAL Metals (CLP) |
| | | | | ✓(1) Poly 250ml. ICP metals for Zr. (6010) |
| | | | | ✓(1) Poly 250ml. Anions F,CL,SO4,PO4 (EPA 300.0) |
| | | | | NO2-NO3 (~~EPA 353.2~~) Ammonia (EPA 350.2) PH (9040) |
| | | | | ✓(1) G 125ml. VOA (CLP) |
| | | | | ✓(1) aG 250ml. SemiVOA (CLP) |
| | | | | ✓(1) aG 250ml. TPH (Diesel Range) (8015 M) |
| | | | | ✓(1) aG 250ml. TPH (Heavier Than Diesel Range) (8015 M) |
| | | | | ✓(1) Poly 250ml. Calcium Carbonate (EPA 130.2) |
| | | | | ✓(1) G 1000ml. Gamma Spec. (RC-30) |
| | | | | (9) Total Containers |

*Type of Sample

| | | | | |
|---|---|---|---|---|
| A = Air | L = Liquid | SE = Sediment | T = Tissue | X = Other |
| DL = Drum Liquids | O = Oil | SL = Sludge | W = Water | |
| DS = Drum Solids | S = Soil | SO = Solid | WI = Wipe | |

Field Information SAF #92-400

Special Handling and/or Storage Samples to maintain 4°C prior to analysis.

Possible Sample Hazards Unknown, nothing detectable with field instruments. AG

A-6000-406 (06/91)

Westinghouse Hanford Company

# CHAIN OF CUSTODY 003202

Custody Form Initiator: RZ Steffler / RM Arnold

Company Contact: Jill Frain / Ron Mitchell — Telephone: 376-8941

Project Designation/Sampling Locations: White Bluffs Pickling Acid Crib ERA Saf # 92-400 — Collection Date: 12-3-92

Ice Chest No.: — Field Logbook No.: EFL 1060

Bill of Lading/Airbill No.: — Offsite Property No.:

Method of Shipment: Air Express / Samples are bagged and on wet ice.

Shipped to: TMA / Norcal Richmond CA.

Possible Sample Hazards/Remarks: Unknown

Sample Identification

| | |
|---|---|
| B07PZ5 | (5) Bottles |
| B07PZ6 | (9) Bottles |
| B07PZ7 | (9) Bottles |
| B07PZ8 | (5) Bottles |
| B07PZ9 | (5) Bottles |
| B07Q00 | (5) Bottles |
| B07Q01 | (9) Bottles |
| B07Q02 | (9) Bottles |
| B07Q03 | (9) Bottles |

RZS 12-3-92

☐ Field Transfer of Custody — CHAIN OF POSSESSION — (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RZ Steffler / RZ Steffler | SM Steele / SM Steele | 12-4-92 / 1212 |
| SM Steele / SM Steele | Kermit Blum | 12-7-92 0800 * |
| | | |
| | | |

Final Sample Disposition

| Disposal Method: | Disposed by: | Date/Time: |
|---|---|---|
| | | |

Comments: * Received @ TMA/Norcal 12-5-92 @ 1400; opened 12-7-92 KB

A-6000-407 (12/90)

| Westinghouse Hanford Company | CHAIN OF CUSTODY | 002806 |
|---|---|---|

Custody Form Initiator RZ Steffler RM Arnold

Company Contact JM Frain Telephone (509) 376-8941

Project Designation/Sampling Locations White Bluffs – Pickling Acid Crib 100-IU-5 Collection Date 12-1-92

Ice Chest No. Field Logbook No.

Bill of Lading/Airbill No. Offsite Property No.

Method of Shipment Emery Air Express Overnight Express

Shipped to TMA

Possible Sample Hazards/Remarks Nothing Detectible with field instruments.

Sample Identification

B07PY8 (9 Bottles)
B07PZ0 (5 Bottles)

RMA 12-1-92

RMA 12-1-92

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)

| Relinquished by: | Received by: | Date/Time: |
|---|---|---|
| RM Arnold RM Arnold | SMSteele SMSteele | 12-2-92 1030 |
| SMSteele SMSteele | Kermit Blum | 12-3-92 1130 |
| | | |
| | | |

Final Sample Disposition

| Disposal Method: | Disposed by: | Date/Time: |
|---|---|---|

Comments:

048

A-6000-407 (12/90)

COC# 002806

Westinghouse Hanford Company

# SAMPLE ANALYSIS REQUEST

Collector RZ Steffler RM Arnold Date 12-1-92

Company Contact J.M. Frain Telephone (509) 376-8941

| Sample Number | * | Date Collected | Time Collected | Number and Type of Sample Containers/Analysis Requested |
|---|---|---|---|---|
| B07PY8 | S | 12-1-92 | 1435 | (1) 250ml. Poly/TAL Metals/Method CLP |
| | S | | | (1) 250ml. Poly/Anions(300.0)+(353.2)Ammonia(350. |
| | S | | | PH (9040) |
| | S | | | (1) 125ml. GS/VOA/Method CLP |
| | S | | | (1) 250ml. aG/SemiVOA/method CLP |
| | S | | | (1) 250ml. G/TPH(Diesel Range) Method 8015. |
| | S | | | (1) 250ml. G/TPH(Heavier Than Diesel Range) ~~Method~~ RA |
| | S | | | method 8015M |
| | S | | | (1) 250ml. Poly/Calcium Carbonate/Method 130.2 |
| | S | | | (1) 1000ml. G/Gamma Speci/Method RL-430. |
| | S | | | RL-4304 |
| | S | | | (1) 250ml. Poly/ICP metals for Zirconium EPA 6010 |
| | | | | |
| | | | | |
| B07PZ0 | S | 12-1-92 | 1145 | (1) 250ml. Poly TAL Metals/CLP/ |
| | S | | | (1) 250ml. Poly/Anions(300.0)+(353.2) Ammonia(350. |
| | S | | | PH (9040) |
| | S | | | (1) 250ml. Poly/Calcium Carbonate/Method(130.2) |
| | S | | | (1) 250ml. Poly/ICP metals for Zirconium - |
| | S | | | EPA 6010 |
| | S | | | (1) 250ml. aG/Semi VOA/Method CLP |
| | | | | |
| | | | | |
| | | | | |

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information PH Tested at 5.6 SAF#92-400

Special Handling and/or Storage Samples to be kept cooled to 4° C. prior to Analysis.

Possible Sample Hazards Suspected Hydrofluoric Acid and Nitric Acid

049

A-6000-406 (06/91)

APPENDIX 2: ANALYTICAL METHODS USED

# ANALYTICAL METHODS USED - SOIL AND PLANT MATERIAL

1. Gross Alpha and Gross Beta: Approximately 5 gram of soil was dissolved by $HF$-$HNO_3$-$HCl$ treatment. The dissolved solution was made to a known volume. A volume equivalent to 0.1 gram of soil was uniformly deposited on a stainless steel planchet, weighted, and counted on a low background proportional counter for gross alpha and gross beta determination.

2. Carbon-14 Analysis: An aliquot of soil is combusted in the furnace at 925°C in the presence of oxygen and CuO. The $Co_2$ is absorbed in $BaCl_2$ to form $BaCo_3$, filtered and placed in a scintillation vial and counted in the LSC counter in the presence of the scintillator.

3. Strontium-90: $^{90}Sr$ was determined on a 1 gram aliquot. Approximately 3 gram dry soil was dissolved completely by $HF$-$HNO_3$-$HCl$ treatment and made to a known volume. One gram aliquot was taken for $^{90}Sr$ determination. Yttrium carrier was added Yttrium was extracted by HDEHP extraction. Yttrium was converted to yttrium oxide and beta counted.

4. Isotopic Uranium, Plutonium, Americium, and Curium: U, Pu, Am, and Cm were determined by adding appropriate tracers in the dissolved sample and purified by selective ion exchange procedures. Am and Cm are further purified with a DDCP extraction procedure and coprecipitated with a yttrium scavenge. The purified extract is electrodeposited on a stainless steel disc for alpha pulse height spectroscopy. The plutonium plate is striped with $HNO_3$ and $^{241}Pu$ is counted in a liquid scintillation counter with an appropriate cocktail.

5. Technetium-99: Approximately 2 gram was ashed at 500°C with $^{99m}Tc$ tracer and ammonia. The ash was leached with $H_2SO_4$ and $K_2S_2O_8$. The leached sample is filtered. $H_2SO4$ and $K_2S_2O_8$ was added to a 10 mL aliquot of water. The water and the leached sample of soil was extracted with TBP and purified by coprecipitation and anion exchange procedure. The purified Tc was electroplated on a stainless steel disc and counted on a gamma detector to determine yield. After decay of $^{99m}Tc$, the disc was counted on a low background beta counter.

6. Gamma-Scan: Approximately 200 to 750 gram dry soil was placed in an appropriate geometry and counted on a Ge(Li) detector.

TMA/Norcal N2-12-018-7133

Pickling Acid Crib Samples

Gamma Spec

Colbolt 60

| | MDA | 2xMDA | 5xMDA | |
|---|---|---|---|---|
| Customer I.D. # | Original S | Duplicate D | RPD | Q |
| 7133-13 | < | < | ERR | |

Cesium 137

| | MDA | 2xMDA | 5xMDA | |
|---|---|---|---|---|
| Customer I.D. # | Original S | Duplicate D | RPD | Q |
| 7133-13 | < | < | ERR | |

Radium 228

| | MDA | 2xMDA | 5xMDA | |
|---|---|---|---|---|
| | 0.07 | 0.14 | 0.350 | |
| Customer I.D. # | Original S | Duplicate D | RPD | Q |
| 7133-13 | 0.47 | 0.5 | 6.186 | |

Thorium 228

| | MDA | 2xMDA | 5xMDA | |
|---|---|---|---|---|
| | 0.04 | 0.08 | 0.200 | |
| Customer I.D. # | Original S | Duplicate D | RPD | Q |
| 7133-13 | 0.71 | 0.85 | 17.949 | |

TMA/Norcal N2-12-018-7133

Pickling Acid Crib Samples

**Gamma Spectroscopy**

| | | | | |
|---|---|---|---|---|
| Sample # | 7133-3 | | 7133-6 | |
| Cust. I.D. # | B07PZ2 | | B07Q02 | |
| Type | Soil | | Soil | |
| Detector | G-3 MB | | G-2 MB | |
| Aliquot (g or l) | 880.64001 | | 676.35999 | |
| Counting Time (min) | 175.21 | | 101.01 | |
| **Cobalt 60** | | | | |
| Background CTS | 0 | | 0 | |
| Background CPM | 0.0234 | | 0.0655 | |
| Net CPM | 0.242 | | 0.278 | |
| Branch Fraction | 1 | | 1 | |
| Efficiency | 0.00366 | | 0.00343 | |
| Reported Results (pCi/g or pCi/l) | < | * | < | * |
| Calculated Results (pCi/g or pCi/l) | 0.03382072 | | 0.05397837 | |
| Reported MDA | 0.03469 | OK | 0.05704 | OK |
| Calculated MDA | 0.00752631 | | 0.0230409 | |
| Detect/Non Detect | Non Detect | YES | Non Detect | YES |
| Results > MDA? | YES | YES | YES | YES |
| **Cesium 137** | | | | |
| Background CTS | 0 | | 0 | |
| Background CPM | 0.0478 | | 0.0256 | |
| Net CPM | 0.378 | | 0.412 | |
| Branch Fraction | 0.851 | | 0.851 | |
| Efficiency | 0.00734 | | 0.00873 | |
| Reported Results (pCi/g or pCi/l) | < | * | < | * |
| Calculated Results (pCi/g or pCi/l) | 0.03095386 | | 0.04790951 | |
| Reported MDA | 0.03103 | OK | 0.04813 | OK |
| Calculated MDA | 0.00630294 | | 0.00862877 | |
| Detect/Non Detect | Non Detect | YES | Non Detect | YES |
| Results > MDA? | YES | YES | YES | YES |
| **Radium 226** | | | | |
| Background CTS | 335 | | 112 | |
| Background CPM | 0.0636 | | 0.0554 | |
| Net CPM | 3.71 | | 2.988 | |
| Branch Fraction | 0.484 | | 0.484 | |
| Efficiency | 0.00798 | | 0.00729 | |
| Reported Results (pCi/g or pCi/l) | 0.4917 | OK | 0.5642 | OK |
| Calculated Results (pCi/g or pCi/l) | 0.49133112 | | 0.56399703 | |
| Reported MDA | NA | * | NA | * |
| Calculated MDA | 0.0655323 | | 0.09443086 | |
| Detect/Non Detect | Detect | YES | Detect | YES |
| Results > MDA? | YES | NO | YES | NO |
| **Thorium 228** | | | | |
| Background CTS | 633 | | 183 | |
| Background CPM | 0.2183 | | 0.1705 | |
| Net CPM | 12.19 | | 8.88 | |
| Branch Fraction | 0.448 | | 0.448 | |
| Efficiency | 0.02043 | | 0.01731 | |
| Reported Results (pCi/g or pCi/l) | 0.727 | OK | 0.8132 | OK |
| Calculated Results (pCi/g or pCi/l) | 0.68124909 | | 0.76261791 | |
| Reported MDA | NA | * | NA | * |
| Calculated MDA | 0.03850977 | | 0.0560624 | |
| Detect/Non Detect | Detect | YES | Detect | YES |
| Results > MDA? | YES | NO | YES | NO |

HRL-WHC/9316-T-93-017

E-93-16/2978-56

WESTINGHOUSE HANFORD COMPANY
PICKLING ACID CRIB ERA DATA VALIDATION
DISTRIBUTION FORM

Document Title Prelim. QA Rpts. Case # A2-12-018/023 (Semi Vol.)

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roject Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.1 | File Index | | 2.1 | Incoming Correspondence | | 4.1 | Task Plan | |
| 1.2 | Distribution Lists | | 2.2 | Outgoing Correspondence | X | 4.2 | Data Pkg. Completeness Verif. Checklist | |
| 1.3 | Project Procedures | | 2.3 | Internal Correspondence | | 4.3 | Data Valid. Calcs./Annotated DP | |
| 1.4 | Project Modifications | | | | | 4.4 | Prelim. QA Reports | X |
| 1.5 | Staff | | 3.1 | Task Order | | 4.5 | Data Valid. & Qual. Summary Rpts. | |
| 1.5.1 | Staff Resumes | | 3.2 | Sample Lists | | 4.5.1 | Internal Drafts/Comments/Resol. | |
| 1.5.2 | Staff Training | | 3.3 | Data Validation Procedures | | 4.5.2 | WHC Review Draft Comments/Resol. | |
| 1.5.3 | Auth. Former Site Employee | | 3.4 | Original Chemical Data | | 4.5.3 | Final Report | |
| .6 | QA | | 3.5 | Original Radiochem. Data | | 4.6 | Weekly Status Reports | |
| .6.1 | QA Implement Procedures | | | | | 4.7 | Weekly Management Reports | |
| .6.2 | QA Audits | | | | | | | |
| .6.3 | QA Training | | | | | | | |
| .7 | Budget | | | | | | | |
| .7.1 | Budget Status | | | | | | | |
| .7.2 | Invoices | | | | | | | |
| .8 | Requisitions | | | | | | | |
| .9 | Meeting Minutes | | | | | | | |
| .10 | Record of Telecon | | | | | | | |
| .11 | Progress Reports | | | | | | | |
| .12 | Subcontractor | | | | | | | |
| | | | | | | | | |

HARTCROWSER

Earth and Environmental Technologies

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1201 Jadwin Avenue, Suite 2[illegible]
Richland, Washington 99352
FAX 509 946 4203
509 946 43[illegible]

J-2978-56

April 20, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970 / MSIN H6-04
Richland, Washington 99352

Subject: WHC Order No. MLW-SSV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record
White Bluffs Pickling Acid Cribs ERA
TMA Case Number A2-12-018/-023 - Semivolatile Organics

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Cribs ERA. The attached results are provided to you in partial fulfillment of Subtask 03 of our task plan dated March 12, 1993. The subject data package consisted of fourteen low level soil samples submitted for analysis for semivolatile organics. Of these, thirteen samples required full validation. In addition, a 100 percent validation of the supporting quality control data was performed.

The samples were analyzed by TMA using the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) statement of work. All analytical results, together with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4. Table 1 is an annotated list of the attachments to this letter report.

## DATA QUALITY OBJECTIVES SUMMARY

Data quality objectives for accuracy and precision (including GC/MS tuning, surrogates, matrix spike/matrix spike duplicates, continuing calibrations, and compound identifications), and quantitation limit requirements were met for this case with the exception of the following: tentatively identified compounds (TIC) were detected in the method blank and associated samples.

## MAJOR DEFICIENCIES (REJECTED DATA)

No data were rejected.

## MINOR DEFICIENCIES (OTHER QUALIFIED DATA)

The following general trends resulted in the qualification of the sample data. All qualified data are discussed in Attachments 3 and 5.

Low level TICs were detected in the method blank. Several TICs were also detected in the samples. TIC sample concentrations which were less than 5 times the blank concentration were qualified as undetected at estimated concentrations based on presumptive evidence (UJN).

The remaining TIC compounds which were not qualified as undetected were qualified as estimated concentrations based on presumptive evidence (JN).

No other data qualifiers were assigned.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the White Bluffs Pickling Acid Cribs ERA data validation effort. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager
HC#134:RL1756.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File - HCRL-WHC/9316-L-93-016

**Table 1 - Annotated List of Attachments**

*Attachment 1 - Glossary of Data Qualifiers*

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

*Attachment 2 - As Received Laboratory Sample Concentration Reports*

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g., Form I).

*Attachment 3 - Summary of Data Qualifications (Form B-7)*

This attachment provides a complete summary of all qualifications applied as a result of the validation.

*Attachment 4 - As Qualified Data Summary*

This attachment provides a tabular data summary of all data qualified from the validation.

*Attachment 5 - Data Review Supporting Documentation*

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

## *Glossary of Data Qualifiers*

***U*** - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

***UJ*** - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

***J*** - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

***R*** - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

***NJ*** - Indicates the presumptive evidence of a compound at an estimated value.

***N*** - Indicates presumptive evidence of a compound.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

000020

EPA SAMPLE NO.

B07PY9

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-02C

ple wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

al: (low/med) LOW Date Received: 12/04/92

oisture: 2 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ction Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 6.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 800 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 800 | U |
| 131-11-3 | Dimethylphthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 99-09-2 | 3-Nitroaniline | 800 | U |
| 83-32-9 | Acenaphthene | 330 | U |
| 51-28-5 | 2,4-Dinitrophenol | 800 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PY9

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-02C

ple wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

el: (low/med) LOW Date Received: 12/04/92

oisture: 2 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 6.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 800 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 800 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 800 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 800 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PY9

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-02C

ple wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

el: (low/med) LOW Date Received: 12/04/92

oisture: 2 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 6.7

ber TICs found: 6

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| . | UNKNOWN HYDROCARBON | 6.12 | 56000 | BJ |
| . | UNKNOWN HYDROCARBON | 6.70 | 100 | J |
| . | UNKNOWN HYDROCARBON | 7.38 | 1200 | BJ |
| . | UNKNOWN HYDROCARBON | 8.73 | 130 | BJ |
| . | UNKNOWN AMINE | 24.82 | 130 | J |
| . | HEXANEDIOIC ACID ISOMER | 25.73 | 67 | BJ |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ1

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A212018-01F

ple wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

vel: (low/med) LOW Date Received: 12/04/92

Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

ncentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 7.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ1

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-01F

ple wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

el: (low/med) LOW Date Received: 12/04/92

oisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 7.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ1

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-01F

ple wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

el: (low/med) LOW Date Received: 12/04/92

oisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 7.9

ber TICs found: 5

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

| AS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| | UNKNOWN HYDROCARBON | 6.12 | 76000 | BJ |
| | UNKNOWN HYDROCARBON | 6.70 | 140 | J |
| | UNKNOWN HYDROCARBON | 7.40 | 1500 | BJ |
| | UNKNOWN HYDROCARBON | 8.73 | 210 | BJ |
| | PROPANOIC ACID ISOMER | 18.18 | 70 | J |

000026

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ2

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04C

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

Level: (low/med) LOW Date Received: 12/04/92

Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.3

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

| CAS NO. | COMPOUND | | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 330 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U |
| 95-57-8 | 2-Chlorophenol | 330 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 78-59-1 | Isophorone | 330 | U |
| 88-75-5 | 2-Nitrophenol | 330 | U |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U |
| 91-20-3 | Naphthalene | 330 | U |
| 106-47-8 | 4-Chloroaniline | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U |
| 91-57-6 | 2-Methylnaphthalene | 330 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U |
| 91-58-7 | 2-Chloronaphthalene | 330 | U |
| 88-74-4 | 2-Nitroaniline | 810 | U |
| 131-11-3 | Dimethylphthalate | 330 | U |
| 208-96-8 | Acenaphthylene | 330 | U |
| 99-09-2 | 3-Nitroaniline | 810 | U |
| 83-32-9 | Acenaphthene | 330 | U |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ2

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-04C

ple wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

el: (low/med) LOW Date Received: 12/04/92

oisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 810 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 810 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ2

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-04C

ple wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

el: (low/med) LOW Date Received: 12/04/92

oisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.3

ber TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| . | UNKNOWN HYDROCARBON | 6.15 | 62000 | BJ |
| , | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| .. | UNKNOWN HYDROCARBON | 8.77 | 100 | BJ |

000029

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ3

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-03B

ple wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

al: (low/med) LOW Date Received: 12/04/92

oisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

entrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ction Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 7.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ3

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A212018-03B

ple wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

vel: (low/med) LOW Date Received: 12/04/92

foisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 7.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ3

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

lame: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-03B

ple wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

al: (low/med) LOW Date Received: 12/04/92

oisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

action Volume: 2.0(uL) Dilution Factor: -- 1.0

Cleanup: (Y/N) Y pH: 7.2

ber TICs found: 4

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

| AS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| | UNKNOWN HYDROCARBON | 6.17 | 67000 | BJ |
| | UNKNOWN HYDROCARBON | 6.73 | 140 | J |
| | UNKNOWN HYDROCARBON | 7.42 | 1500 | BJ |
| | UNKNOWN HYDROCARBON | 8.77 | 170 | BJ |

000032

EPA SAMPLE NO.

B07PZ4

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05C

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 850 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 850 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 850 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 850 | U |

000033

EPA SAMPLE NO.

B07PZ4

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-05C

ple wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

el: (low/med) LOW Date Received: 12/04/92

oisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0 (uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 850 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 850 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 850 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 850 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

000034

EPA SAMPLE NO.

B07PZ4

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212018-05C

ple wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

el: (low/med) LOW Date Received: 12/04/92

oisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.9

ber TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| .. | UNKNOWN HYDROCARBON | 6.15 | 71000 | BJ |
| | UNKNOWN HYDROCARBON | 7.42 | 1400 | BJ |
| .. | UNKNOWN HYDROCARBON | 8.77 | 140 | BJ |

000035

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ5

Name: TMA/ARLI Contract: WHC

b Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A212023-01B

mple wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

vel: (low/med) LOW Date Received: 12/07/92

Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

ncentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 9.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 840 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 840 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ5

lame: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

ix: (soil/water) SOIL Lab Sample ID: A212023-01B

le wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

l: (low/med) LOW Date Received: 12/07/92

isture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

entrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ction Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 9.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 840 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 840 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ5

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name: TMA/ARLI Contract: WHC

:b Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

.trix: (soil/water) SOIL Lab Sample ID: A212023-01B

mple wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

vel: (low/med) LOW Date Received: 12/07/92

Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

ncentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

jection Volume: 2.0(uL) Dilution Factor: 1.0

: Cleanup: (Y/N) Y pH: 9.0

ıber TICs found: 2

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.17 | 61000 | BJ |
| ˆ. | UNKNOWN HYDROCARBON | 8.78 | 100 | BJ |

000038

EPA SAMPLE NO.

B07PZ6

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Name: TMA/ARLI Contract: WHC

b Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A212023-02C

nple wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

vel: (low/med) LOW Date Received: 12/07/92

foisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0 (uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 7.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ6

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212023-02C

ple wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

el: (low/med) LOW Date Received: 12/07/92

oisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 7.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ6

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

:ix: (soil/water) SOIL Lab Sample ID: A212023-02C

ɔle wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

ɜl: (low/med) LOW Date Received: 12/07/92

ɔisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

:entrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

:ction Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 7.8

'er TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

| AS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| . | UNKNOWN HYDROCARBON | 6.12 | 71000 | BJ |
| | UNKNOWN HYDROCARBON | 8.73 | 140 | BJ |
| . | PROPANOIC ACID ISOMER | 18.17 | 68 | J |

000041

EPA SAMPLE NO.

B07PZ7

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

Level: (low/med) LOW Date Received: 12/07/92

Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ7

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212023-06A

ple wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

el: (low/med) LOW Date Received: 12/07/92

oisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

action Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

000043
EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07PZ7

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212023-06A

ple wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

el: (low/med) LOW Date Received: 12/07/92

oisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.6

ber TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| .. | UNKNOWN HYDROCARBON | 6.17 | 76000 | BJ |
| | UNKNOWN HYDROCARBON | 6.38 | 68 | J |
| . | UNKNOWN HYDROCARBON | 6.73 | 140 | J |
| .. | UNKNOWN HYDROCARBON | 7.43 | 1500 | BJ |
| .. | UNKNOWN HYDROCARBON | 8.77 | 170 | BJ |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ8

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A212023-03A

ple wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

el: (low/med) LOW Date Received: 12/07/92

oisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

centrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 810 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 810 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U |

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ8

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

:ix: (soil/water) SOIL Lab Sample ID: A212023-03A

ɔle wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

ɜl: (low/med) LOW Date Received: 12/07/92

ɔisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

:entrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ɜction Volume: 2.0 (uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 810 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 810 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

000046
EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07PZ8

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

ix: (soil/water) SOIL Lab Sample ID: A212023-03A

le wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

l: (low/med) LOW Date Received: 12/07/92

isture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

entrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

ction Volume: 2.0 (uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.3

er TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

| AS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| . | UNKNOWN HYDROCARBON | 6.15 | 66000 | BJ |
| | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| | UNKNOWN HYDROCARBON | 8.77 | 100 | BJ |

000047
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ9

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A212023-04A

mple wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

vel: (low/med) LOW Date Received: 12/07/92

foisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

ncentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

jection Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 8.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 380 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 380 | U |
| 95-57-8 | 2-Chlorophenol | 380 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 380 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 380 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 380 | U |
| 95-48-7 | 2-Methylphenol | 380 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 380 | U |
| 106-44-5 | 4-Methylphenol | 380 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 380 | U |
| 67-72-1 | Hexachloroethane | 380 | U |
| 98-95-3 | Nitrobenzene | 380 | U |
| 78-59-1 | Isophorone | 380 | U |
| 88-75-5 | 2-Nitrophenol | 380 | U |
| 105-67-9 | 2,4-Dimethylphenol | 380 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 380 | U |
| 120-83-2 | 2,4-Dichlorophenol | 380 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 380 | U |
| 91-20-3 | Naphthalene | 380 | U |
| 106-47-8 | 4-Chloroaniline | 380 | U |
| 87-68-3 | Hexachlorobutadiene | 380 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 380 | U |
| 91-57-6 | 2-Methylnaphthalene | 380 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 380 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 380 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 920 | U |
| 91-58-7 | 2-Chloronaphthalene | 380 | U |
| 88-74-4 | 2-Nitroaniline | 920 | U |
| 131-11-3 | Dimethylphthalate | 380 | U |
| 208-96-8 | Acenaphthylene | 380 | U |
| 99-09-2 | 3-Nitroaniline | 920 | U |
| 83-32-9 | Acenaphthene | 380 | U |
| 51-28-5 | 2,4-Dinitrophenol | 920 | U |

000048
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-04A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 920 | U |
| 132-64-9 | Dibenzofuran | 380 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 380 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 380 | U |
| 84-66-2 | Diethylphthalate | 380 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 380 | U |
| 86-73-7 | Fluorene | 380 | U |
| 100-01-6 | 4-Nitroaniline | 920 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 920 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 380 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 380 | U |
| 118-74-1 | Hexachlorobenzene | 380 | U |
| 87-86-5 | Pentachlorophenol | 920 | U |
| 85-01-8 | Phenanthrene | 380 | U |
| 120-12-7 | Anthracene | 380 | U |
| 86-74-8 | Carbazole | 380 | U |
| 84-74-2 | Di-n-Butylphthalate | 380 | U |
| 206-44-0 | Fluoranthene | 380 | U |
| 129-00-0 | Pyrene | 380 | U |
| 85-68-7 | Butylbenzylphthalate | 380 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 380 | U |
| 56-55-3 | Benzo(a)Anthracene | 380 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 380 | U |
| 218-01-9 | Chrysene | 380 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 380 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 380 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 380 | U |
| 50-32-8 | Benzo(a)Pyrene | 380 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 380 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 380 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 380 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07PZ9

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

L' Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-04A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 75000 | BJ |
| | UNKNOWN HYDROCARBON | 6.70 | 110 | J |
| | UNKNOWN HYDROCARBON | 8.75 | 110 | BJ |
| 4. | PROPANOIC ACID ISOMER | 18.18 | 76 | J |
| 5. | HEXANEDIOIC ACID ISOMER | 25.73 | 110 | J |

000050

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q00

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 820 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 820 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U |

000051
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q00

I Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q00

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

L Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.10 | 52000 | BJ |
| | UNKNOWN HYDROCARBON | 7.38 | 1100 | BJ |
| .. | UNKNOWN HYDROCARBON | 8.73 | 100 | BJ |
| 4. | PROPANOIC ACID ISOMER | 18.18 | 68 | J |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q01

L Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 360 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 | U |
| 95-57-8 | 2-Chlorophenol | 360 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 360 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 360 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 360 | U |
| 95-48-7 | 2-Methylphenol | 360 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 360 | U |
| 106-44-5 | 4-Methylphenol | 360 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 | U |
| 67-72-1 | Hexachloroethane | 360 | U |
| 98-95-3 | Nitrobenzene | 360 | U |
| 78-59-1 | Isophorone | 360 | U |
| 88-75-5 | 2-Nitrophenol | 360 | U |
| 105-67-9 | 2,4-Dimethylphenol | 360 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 | U |
| 120-83-2 | 2,4-Dichlorophenol | 360 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 | U |
| 91-20-3 | Naphthalene | 360 | U |
| 106-47-8 | 4-Chloroaniline | 360 | U |
| 87-68-3 | Hexachlorobutadiene | 360 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 | U |
| 91-57-6 | 2-Methylnaphthalene | 360 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 360 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 860 | U |
| 91-58-7 | 2-Chloronaphthalene | 360 | U |
| 88-74-4 | 2-Nitroaniline | 860 | U |
| 131-11-3 | Dimethylphthalate | 360 | U |
| 208-96-8 | Acenaphthylene | 360 | U |
| 99-09-2 | 3-Nitroaniline | 860 | U |
| 83-32-9 | Acenaphthene | 360 | U |
| 51-28-5 | 2,4-Dinitrophenol | 860 | U |

000054
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q01

I Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 860 | U |
| 132-64-9 | Dibenzofuran | 360 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 360 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 360 | U |
| 84-66-2 | Diethylphthalate | 360 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 | U |
| 86-73-7 | Fluorene | 360 | U |
| 100-01-6 | 4-Nitroaniline | 860 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 860 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 360 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 | U |
| 118-74-1 | Hexachlorobenzene | 360 | U |
| 87-86-5 | Pentachlorophenol | 860 | U |
| 85-01-8 | Phenanthrene | 360 | U |
| 120-12-7 | Anthracene | 360 | U |
| 86-74-8 | Carbazole | 360 | U |
| 84-74-2 | Di-n-Butylphthalate | 360 | U |
| 206-44-0 | Fluoranthene | 360 | U |
| 129-00-0 | Pyrene | 360 | U |
| 85-68-7 | Butylbenzylphthalate | 360 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 | U |
| 56-55-3 | Benzo(a)Anthracene | 360 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 360 | U |
| 218-01-9 | Chrysene | 360 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 360 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 360 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 360 | U |
| 50-32-8 | Benzo(a)Pyrene | 360 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 360 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 360 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 360 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q01

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

L. Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 72000 | BJ |
| | UNKNOWN HYDROCARBON | 6.33 | 72 | J |
| 3. | UNKNOWN HYDROCARBON | 6.68 | 140 | J |
| 4. | UNKNOWN HYDROCARBON | 7.38 | 1500 | BJ |

000056

EPA SAMPLE NO.

B07Q02

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

I Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 860 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 860 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 860 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 860 | U |

EPA SAMPLE NO.

B07Q02

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 860 | U |
| 132-64-9 | Dibenzofuran | 350 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U |
| 84-66-2 | Diethylphthalate | 350 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U |
| 86-73-7 | Fluorene | 350 | U |
| 100-01-6 | 4-Nitroaniline | 860 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 860 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U |
| 118-74-1 | Hexachlorobenzene | 350 | U |
| 87-86-5 | Pentachlorophenol | 860 | U |
| 85-01-8 | Phenanthrene | 350 | U |
| 120-12-7 | Anthracene | 350 | U |
| 86-74-8 | Carbazole | 350 | U |
| 84-74-2 | Di-n-Butylphthalate | 350 | U |
| 206-44-0 | Fluoranthene | 350 | U |
| 129-00-0 | Pyrene | 350 | U |
| 85-68-7 | Butylbenzylphthalate | 350 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U |
| 56-55-3 | Benzo(a)Anthracene | 350 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U |
| 218-01-9 | Chrysene | 350 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U |
| 50-32-8 | Benzo(a)Pyrene | 350 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U |

(1) - Cannot be separated from Diphenylamine

000058

EPA SAMPLE NO.

B07Q02

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

I Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 76000 | BJ |
| [illegible] | UNKNOWN HYDROCARBON | 6.70 | 140 | J |
| [illegible] | UNKNOWN HYDROCARBON | 7.40 | 1600 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.75 | 250 | BJ |
| 5. | UNKNOWN ALCOHOL | 9.07 | 110 | J |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q03

L Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 340 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U |
| 95-57-8 | 2-Chlorophenol | 340 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U |
| 95-48-7 | 2-Methylphenol | 340 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U |
| 106-44-5 | 4-Methylphenol | 340 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U |
| 67-72-1 | Hexachloroethane | 340 | U |
| 98-95-3 | Nitrobenzene | 340 | U |
| 78-59-1 | Isophorone | 340 | U |
| 88-75-5 | 2-Nitrophenol | 340 | U |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U |
| 91-20-3 | Naphthalene | 340 | U |
| 106-47-8 | 4-Chloroaniline | 340 | U |
| 87-68-3 | Hexachlorobutadiene | 340 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U |
| 91-57-6 | 2-Methylnaphthalene | 340 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 830 | U |
| 91-58-7 | 2-Chloronaphthalene | 340 | U |
| 88-74-4 | 2-Nitroaniline | 830 | U |
| 131-11-3 | Dimethylphthalate | 340 | U |
| 208-96-8 | Acenaphthylene | 340 | U |
| 99-09-2 | 3-Nitroaniline | 830 | U |
| 83-32-9 | Acenaphthene | 340 | U |
| 51-28-5 | 2,4-Dinitrophenol | 830 | U |

000060

EPA SAMPLE NO.

B07Q03

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 830 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 830 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 830 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 830 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

EPA SAMPLE NO.

B07Q03

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

Number TICs found: 2

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 63000 | BJ |
| | UNKNOWN HYDROCARBON | 6.37 | 69 | J |

# ATTACHMENT 3

*Summary of Data Qualifications*

DATA QUALIFICATION SUMMARY - FORM B-7

A2-12-018/-023

| SDG: | REVIEWER: CMC | DATE: 4/16/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: Semivolatiles | | Level 4 Validation | |
| COMPOUND | QUALIFIER | SAMPLES AFFECTED | REASON |
| TIC unknown (RT 6.12) | UJN | B07Q03 B07PZ6 | method blank contam |
| | | B07Q02 B07PZ5 | |
| | | B07Q01 B07PZ4 | |
| | | B07Q00 B07PZ3 | |
| | | B07PZ9 B07PZ2 | |
| | | B07PZ8 B07PZ1 | |
| | | B07PZ7 B07PY9 | |
| TIC Unknown (RT 7.38) | UJN | B07Q02 B07PZ4 | method blank contam. |
| | | B07Q01 B07PZ3 | |
| | | B07Q00 B07PZ2 | |
| | | B07PZ8 B07PZ1 | |
| | | B07PZ7 B07PY9 | |
| TIC Unknown (RT 8.73) | UJN | B07Q02 B07PZ5 | method blank contam. |
| | | B07Q00 B07PZ4 | |
| | | B07PZ9 B07PZ3 | |
| | | B07PZ8 B07PZ2 | |
| | | B07PZ7 B07PZ1 | |
| | | B07PZ6 B07PY9 | |
| TIC Unknown (RT 25.73) | UJN | B07PY9 | method blank contam. |
| | | | |
| all other unknown TICs | JN | B07PY9, B07PZ9 | presumptive evidence |
| | | B07PZ1 B07Q00 | |
| | | B07PZ3 B07Q01 | |
| | | B07PZ6 B07Q02 | |
| | | B07PZ7 B07Q03 | |

# ATTACHMENT 4

*As Qualified Data Summary*

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q03

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual |
|---|---|---|---|---|
| 108-95-2 | Phenol | 340 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U | |
| 95-57-8 | 2-Chlorophenol | 340 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U | |
| 95-48-7 | 2-Methylphenol | 340 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U | |
| 106-44-5 | 4-Methylphenol | 340 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U | |
| 67-72-1 | Hexachloroethane | 340 | U | |
| 98-95-3 | Nitrobenzene | 340 | U | |
| 78-59-1 | Isophorone | 340 | U | |
| 88-75-5 | 2-Nitrophenol | 340 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U | |
| 91-20-3 | Naphthalene | 340 | U | |
| 106-47-8 | 4-Chloroaniline | 340 | U | |
| 87-68-3 | Hexachlorobutadiene | 340 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U | |
| 91-57-6 | 2-Methylnaphthalene | 340 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 830 | U | |
| 91-58-7 | 2-Chloronaphthalene | 340 | U | |
| 88-74-4 | 2-Nitroaniline | 830 | U | |
| 131-11-3 | Dimethylphthalate | 340 | U | |
| 208-96-8 | Acenaphthylene | 340 | U | |
| 99-09-2 | 3-Nitroaniline | 830 | U | |
| 83-32-9 | Acenaphthene | 340 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 830 | U | |



✓ 4/16/9

1C

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 000466

B07Q03

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 830 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 830 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 830 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 830 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

✓ CMC 4/16/93

000467

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
B07Q03

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-09A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21218S04

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

Number TICs found: 2

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 63000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.37 | 69 | J |

AS
4/14/93

✓ 4/16/93

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q02

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

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

Qual.

| CAS NO. | COMPOUND | (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 350 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U |
| 95-57-8 | 2-Chlorophenol | 350 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U |
| 95-48-7 | 2-Methylphenol | 350 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U |
| 106-44-5 | 4-Methylphenol | 350 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U |
| 67-72-1 | Hexachloroethane | 350 | U |
| 98-95-3 | Nitrobenzene | 350 | U |
| 78-59-1 | Isophorone | 350 | U |
| 88-75-5 | 2-Nitrophenol | 350 | U |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U |
| 91-20-3 | Naphthalene | 350 | U |
| 106-47-8 | 4-Chloroaniline | 350 | U |
| 87-68-3 | Hexachlorobutadiene | 350 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U |
| 91-57-6 | 2-Methylnaphthalene | 350 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 860 | U |
| 91-58-7 | 2-Chloronaphthalene | 350 | U |
| 88-74-4 | 2-Nitroaniline | 860 | U |
| 131-11-3 | Dimethylphthalate | 350 | U |
| 208-96-8 | Acenaphthylene | 350 | U |
| 99-09-2 | 3-Nitroaniline | 860 | U |
| 83-32-9 | Acenaphthene | 350 | U |
| 51-28-5 | 2,4-Dinitrophenol | 860 | U |

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✓ cure 4/16/93

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 000447

B07Q02

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 860 | U | u |
| 132-64-9 | Dibenzofuran | 350 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U | |
| 84-66-2 | Diethylphthalate | 350 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U | |
| 86-73-7 | Fluorene | 350 | U | |
| 100-01-6 | 4-Nitroaniline | 860 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 860 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U | |
| 118-74-1 | Hexachlorobenzene | 350 | U | |
| 87-86-5 | Pentachlorophenol | 860 | U | |
| 85-01-8 | Phenanthrene | 350 | U | |
| 120-12-7 | Anthracene | 350 | U | |
| 86-74-8 | Carbazole | 350 | U | |
| 84-74-2 | Di-n-Butylphthalate | 350 | U | |
| 206-44-0 | Fluoranthene | 350 | U | |
| 129-00-0 | Pyrene | 350 | U | |
| 85-68-7 | Butylbenzylphthalate | 350 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U | |
| 56-55-3 | Benzo(a)Anthracene | 350 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U | |
| 218-01-9 | Chrysene | 350 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U | |
| 50-32-8 | Benzo(a)Pyrene | 350 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U | |

(1) - Cannot be separated from Diphenylamine

✓ amc 4/16/93

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07Q02

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08A

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 21218S03

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.8

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.13 | 76000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.70 | 140 | J |
| 3. | UNKNOWN HYDROCARBON | 7.40 | 1600 | BJ |
| 4. | UNKNOWN HYDROCARBON | 8.75 | 250 | BJ |
| 5. | UNKNOWN ALCOHOL | 9.07 | 110 | J |

✓ 4/14/9

✓ 4/16/93

000428
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q01

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 360 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 360 | U | |
| 95-57-8 | 2-Chlorophenol | 360 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 360 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 360 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 360 | U | |
| 95-48-7 | 2-Methylphenol | 360 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 360 | U | |
| 106-44-5 | 4-Methylphenol | 360 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 360 | U | |
| 67-72-1 | Hexachloroethane | 360 | U | |
| 98-95-3 | Nitrobenzene | 360 | U | |
| 78-59-1 | Isophorone | 360 | U | |
| 88-75-5 | 2-Nitrophenol | 360 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 360 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 360 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 360 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 360 | U | |
| 91-20-3 | Naphthalene | 360 | U | |
| 106-47-8 | 4-Chloroaniline | 360 | U | |
| 87-68-3 | Hexachlorobutadiene | 360 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 360 | U | |
| 91-57-6 | 2-Methylnaphthalene | 360 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 360 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 360 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 860 | U | |
| 91-58-7 | 2-Chloronaphthalene | 360 | U | |
| 88-74-4 | 2-Nitroaniline | 860 | U | |
| 131-11-3 | Dimethylphthalate | 360 | U | |
| 208-96-8 | Acenaphthylene | 360 | U | |
| 99-09-2 | 3-Nitroaniline | 860 | U | |
| 83-32-9 | Acenaphthene | 360 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 860 | U | |



✓ aur 4/16/93

000429

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q01

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 860 | U |
| 132-64-9 | Dibenzofuran | 360 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 360 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 360 | U |
| 84-66-2 | Diethylphthalate | 360 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 360 | U |
| 86-73-7 | Fluorene | 360 | U |
| 100-01-6 | 4-Nitroaniline | 860 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 860 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 360 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 360 | U |
| 118-74-1 | Hexachlorobenzene | 360 | U |
| 87-86-5 | Pentachlorophenol | 860 | U |
| 85-01-8 | Phenanthrene | 360 | U |
| 120-12-7 | Anthracene | 360 | U |
| 86-74-8 | Carbazole | 360 | U |
| 84-74-2 | Di-n-Butylphthalate | 360 | U |
| 206-44-0 | Fluoranthene | 360 | U |
| 129-00-0 | Pyrene | 360 | U |
| 85-68-7 | Butylbenzylphthalate | 360 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 360 | U |
| 56-55-3 | Benzo(a)Anthracene | 360 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 360 | U |
| 218-01-9 | Chrysene | 360 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 360 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 360 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 360 | U |
| 50-32-8 | Benzo(a)Pyrene | 360 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 360 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 360 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 360 | U |

(1) - Cannot be separated from Diphenylamine

✓ 4/16/93

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA 000430.

B07Q01

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21218S02

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q | |
|---|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 72000 | BJ | U |
| 2. | UNKNOWN HYDROCARBON | 6.33 | 72 | J | J |
| 3. | UNKNOWN HYDROCARBON | 6.68 | 140 | J | J |
| 4. | UNKNOWN HYDROCARBON | 7.38 | 1500 | BJ | U |

✓ HS 4/14/93

✓ WM 4/16/93

000410
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q00

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 340 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U | |
| 95-57-8 | 2-Chlorophenol | 340 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U | |
| 95-48-7 | 2-Methylphenol | 340 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U | |
| 106-44-5 | 4-Methylphenol | 340 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U | |
| 67-72-1 | Hexachloroethane | 340 | U | |
| 98-95-3 | Nitrobenzene | 340 | U | |
| 78-59-1 | Isophorone | 340 | U | |
| 88-75-5 | 2-Nitrophenol | 340 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U | |
| 91-20-3 | Naphthalene | 340 | U | |
| 106-47-8 | 4-Chloroaniline | 340 | U | |
| 87-68-3 | Hexachlorobutadiene | 340 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U | |
| 91-57-6 | 2-Methylnaphthalene | 340 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U | |
| 91-58-7 | 2-Chloronaphthalene | 340 | U | |
| 88-74-4 | 2-Nitroaniline | 820 | U | |
| 131-11-3 | Dimethylphthalate | 340 | U | |
| 208-96-8 | Acenaphthylene | 340 | U | |
| 99-09-2 | 3-Nitroaniline | 820 | U | |
| 83-32-9 | Acenaphthene | 340 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U | |

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000411

EPA SAMPLE NO.

B07Q00

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U | u |
| 132-64-9 | Dibenzofuran | 340 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U | |
| 84-66-2 | Diethylphthalate | 340 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U | |
| 86-73-7 | Fluorene | 340 | U | |
| 100-01-6 | 4-Nitroaniline | 820 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U | |
| 118-74-1 | Hexachlorobenzene | 340 | U | |
| 87-86-5 | Pentachlorophenol | 820 | U | |
| 85-01-8 | Phenanthrene | 340 | U | |
| 120-12-7 | Anthracene | 340 | U | |
| 86-74-8 | Carbazole | 340 | U | |
| 84-74-2 | Di-n-Butylphthalate | 340 | U | |
| 206-44-0 | Fluoranthene | 340 | U | |
| 129-00-0 | Pyrene | 340 | U | |
| 85-68-7 | Butylbenzylphthalate | 340 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U | |
| 56-55-3 | Benzo(a)Anthracene | 340 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U | |
| 218-01-9 | Chrysene | 340 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U | |
| 50-32-8 | Benzo(a)Pyrene | 340 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U | |

(1) - Cannot be separated from Diphenylamine

000412

EPA SAMPLE NO.

B07Q00

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-05A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S15

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.1

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q | G |
|---|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.10 | 52000 | BJ | U |
| 2. | UNKNOWN HYDROCARBON | 7.38 | 1100 | BJ | ↓ |
| 3. | UNKNOWN HYDROCARBON | 8.73 | 100 | BJ | ↓ |
| 4. | PROPANOIC ACID ISOMER | 18.18 | 68 | J | JN |

✓ cwc 4/16/93

000391

EPA SAMPLE NO.

B07PZ9

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-04A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 380 | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 380 | U |
| 95-57-8 | 2-Chlorophenol | 380 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 380 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 380 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 380 | U |
| 95-48-7 | 2-Methylphenol | 380 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 380 | U |
| 106-44-5 | 4-Methylphenol | 380 | U |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 380 | U |
| 67-72-1 | Hexachloroethane | 380 | U |
| 98-95-3 | Nitrobenzene | 380 | U |
| 78-59-1 | Isophorone | 380 | U |
| 88-75-5 | 2-Nitrophenol | 380 | U |
| 105-67-9 | 2,4-Dimethylphenol | 380 | U |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 380 | U |
| 120-83-2 | 2,4-Dichlorophenol | 380 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 380 | U |
| 91-20-3 | Naphthalene | 380 | U |
| 106-47-8 | 4-Chloroaniline | 380 | U |
| 87-68-3 | Hexachlorobutadiene | 380 | U |
| 59-50-7 | 4-Chloro-3-Methylphenol | 380 | U |
| 91-57-6 | 2-Methylnaphthalene | 380 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 380 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 380 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 920 | U |
| 91-58-7 | 2-Chloronaphthalene | 380 | U |
| 88-74-4 | 2-Nitroaniline | 920 | U |
| 131-11-3 | Dimethylphthalate | 380 | U |
| 208-96-8 | Acenaphthylene | 380 | U |
| 99-09-2 | 3-Nitroaniline | 920 | U |
| 83-32-9 | Acenaphthene | 380 | U |
| 51-28-5 | 2,4-Dinitrophenol | 920 | U |

(u)



✓ cmc 7/16/93

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
000322
B07PZ9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-04A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 920 | U |
| 132-64-9 | Dibenzofuran | 380 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 380 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 380 | U |
| 84-66-2 | Diethylphthalate | 380 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 380 | U |
| 86-73-7 | Fluorene | 380 | U |
| 100-01-6 | 4-Nitroaniline | 920 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 920 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 380 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 380 | U |
| 118-74-1 | Hexachlorobenzene | 380 | U |
| 87-86-5 | Pentachlorophenol | 920 | U |
| 85-01-8 | Phenanthrene | 380 | U |
| 120-12-7 | Anthracene | 380 | U |
| 86-74-8 | Carbazole | 380 | U |
| 84-74-2 | Di-n-Butylphthalate | 380 | U |
| 206-44-0 | Fluoranthene | 380 | U |
| 129-00-0 | Pyrene | 380 | U |
| 85-68-7 | Butylbenzylphthalate | 380 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 380 | U |
| 56-55-3 | Benzo(a)Anthracene | 380 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 380 | U |
| 218-01-9 | Chrysene | 380 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 380 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 380 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 380 | U |
| 50-32-8 | Benzo(a)Pyrene | 380 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 380 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 380 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 380 | U |

(1) - Cannot be separated from Diphenylamine

✓ CMC 4/16/93

C00393

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-04A

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 21217S14

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 14 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.7

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 75000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.70 | 110 | J |
| 3. | UNKNOWN HYDROCARBON | 8.75 | 110 | BJ |
| 4. | PROPANOIC ACID ISOMER | 18.18 | 76 | J |
| 5. | HEXANEDIOIC ACID ISOMER | 25.73 | 110 | J |

✓ cmr 4/16/93

000374
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 340 | U | u |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U | |
| 95-57-8 | 2-Chlorophenol | 340 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U | |
| 95-48-7 | 2-Methylphenol | 340 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U | |
| 106-44-5 | 4-Methylphenol | 340 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U | |
| 67-72-1 | Hexachloroethane | 340 | U | |
| 98-95-3 | Nitrobenzene | 340 | U | |
| 78-59-1 | Isophorone | 340 | U | |
| 88-75-5 | 2-Nitrophenol | 340 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U | |
| 91-20-3 | Naphthalene | 340 | U | |
| 106-47-8 | 4-Chloroaniline | 340 | U | |
| 87-68-3 | Hexachlorobutadiene | 340 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U | |
| 91-57-6 | 2-Methylnaphthalene | 340 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U | |
| 91-58-7 | 2-Chloronaphthalene | 340 | U | |
| 88-74-4 | 2-Nitroaniline | 810 | U | |
| 131-11-3 | Dimethylphthalate | 340 | U | |
| 208-96-8 | Acenaphthylene | 340 | U | |
| 99-09-2 | 3-Nitroaniline | 810 | U | |
| 83-32-9 | Acenaphthene | 340 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U | |

000375
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ8

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 810 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 810 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

Qual. (u)

(1) - Cannot be separated from Diphenylamine

000376

EPA SAMPLE NO.

B07PZ8

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-03A

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21217S13

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.15 | 66000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| 3. | UNKNOWN HYDROCARBON | 8.77 | 100 | BJ |

HS 4/14/93

✓ cwc 4/16/93

000355
EPA SAMPLE NO

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 340 | U | u |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U | |
| 95-57-8 | 2-Chlorophenol | 340 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U | |
| 95-48-7 | 2-Methylphenol | 340 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U | |
| 106-44-5 | 4-Methylphenol | 340 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U | |
| 67-72-1 | Hexachloroethane | 340 | U | |
| 98-95-3 | Nitrobenzene | 340 | U | |
| 78-59-1 | Isophorone | 340 | U | |
| 88-75-5 | 2-Nitrophenol | 340 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U | |
| 91-20-3 | Naphthalene | 340 | U | |
| 106-47-8 | 4-Chloroaniline | 340 | U | |
| 87-68-3 | Hexachlorobutadiene | 340 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U | |
| 91-57-6 | 2-Methylnaphthalene | 340 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U | |
| 91-58-7 | 2-Chloronaphthalene | 340 | U | |
| 88-74-4 | 2-Nitroaniline | 820 | U | |
| 131-11-3 | Dimethylphthalate | 340 | U | |
| 208-96-8 | Acenaphthylene | 340 | U | |
| 99-09-2 | 3-Nitroaniline | 820 | U | |
| 83-32-9 | Acenaphthene | 340 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U | |



Vcuc 4/16/93

000350

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U | (U) |
| 132-64-9 | Dibenzofuran | 340 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U | |
| 84-66-2 | Diethylphthalate | 340 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U | |
| 86-73-7 | Fluorene | 340 | U | |
| 100-01-6 | 4-Nitroaniline | 820 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U | |
| 118-74-1 | Hexachlorobenzene | 340 | U | |
| 87-86-5 | Pentachlorophenol | 820 | U | |
| 85-01-8 | Phenanthrene | 340 | U | |
| 120-12-7 | Anthracene | 340 | U | |
| 86-74-8 | Carbazole | 340 | U | |
| 84-74-2 | Di-n-Butylphthalate | 340 | U | |
| 206-44-0 | Fluoranthene | 340 | U | |
| 129-00-0 | Pyrene | 340 | U | |
| 85-68-7 | Butylbenzylphthalate | 340 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U | |
| 56-55-3 | Benzo(a)Anthracene | 340 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U | |
| 218-01-9 | Chrysene | 340 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U | |
| 50-32-8 | Benzo(a)Pyrene | 340 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U | |

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 21217S16

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.17 | 76000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 6.38 | 68 | J |
| 3. | UNKNOWN HYDROCARBON | 6.73 | 140 | J |
| 4. | UNKNOWN HYDROCARBON | 7.43 | 1500 | BJ |
| 5. | UNKNOWN HYDROCARBON | 8.77 | 170 | BJ |

AS 4/14/93

4/16/93

000338

EPA SAMPLE NO.

B07PZ6

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02C

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 340 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U | |
| 95-57-8 | 2-Chlorophenol | 340 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U | |
| 95-48-7 | 2-Methylphenol | 340 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U | |
| 106-44-5 | 4-Methylphenol | 340 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U | |
| 67-72-1 | Hexachloroethane | 340 | U | |
| 98-95-3 | Nitrobenzene | 340 | U | |
| 78-59-1 | Isophorone | 340 | U | |
| 88-75-5 | 2-Nitrophenol | 340 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U | |
| 91-20-3 | Naphthalene | 340 | U | |
| 106-47-8 | 4-Chloroaniline | 340 | U | |
| 87-68-3 | Hexachlorobutadiene | 340 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U | |
| 91-57-6 | 2-Methylnaphthalene | 340 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 820 | U | |
| 91-58-7 | 2-Chloronaphthalene | 340 | U | |
| 88-74-4 | 2-Nitroaniline | 820 | U | |
| 131-11-3 | Dimethylphthalate | 340 | U | |
| 208-96-8 | Acenaphthylene | 340 | U | |
| 99-09-2 | 3-Nitroaniline | 820 | U | |
| 83-32-9 | Acenaphthene | 340 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 820 | U | |



✓ cmc 4/16/9

000339

EPA SAMPLE NO.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ6

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02C

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 820 | U |
| 132-64-9 | Dibenzofuran | 340 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U |
| 84-66-2 | Diethylphthalate | 340 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U |
| 86-73-7 | Fluorene | 340 | U |
| 100-01-6 | 4-Nitroaniline | 820 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 820 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U |
| 118-74-1 | Hexachlorobenzene | 340 | U |
| 87-86-5 | Pentachlorophenol | 820 | U |
| 85-01-8 | Phenanthrene | 340 | U |
| 120-12-7 | Anthracene | 340 | U |
| 86-74-8 | Carbazole | 340 | U |
| 84-74-2 | Di-n-Butylphthalate | 340 | U |
| 206-44-0 | Fluoranthene | 340 | U |
| 129-00-0 | Pyrene | 340 | U |
| 85-68-7 | Butylbenzylphthalate | 340 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U |
| 56-55-3 | Benzo(a)Anthracene | 340 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U |
| 218-01-9 | Chrysene | 340 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U |
| 50-32-8 | Benzo(a)Pyrene | 340 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U |

(1) - Cannot be separated from Diphenylamine

✓ CMR 4/16/93

000340

EPA SAMPLE NO.

B07PZ6

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02C

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S12

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 71000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 8.73 | 140 | BJ |
| 3. | PROPANOIC ACID ISOMER | 18.17 | 68 | J |

AS 4/14/93

✓ WC 4/16/93

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ5

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-01B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | QUAL. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 340 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U | |
| 95-57-8 | 2-Chlorophenol | 340 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U | |
| 95-48-7 | 2-Methylphenol | 340 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U | |
| 106-44-5 | 4-Methylphenol | 340 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U | |
| 67-72-1 | Hexachloroethane | 340 | U | |
| 98-95-3 | Nitrobenzene | 340 | U | |
| 78-59-1 | Isophorone | 340 | U | |
| 88-75-5 | 2-Nitrophenol | 340 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U | |
| 91-20-3 | Naphthalene | 340 | U | |
| 106-47-8 | 4-Chloroaniline | 340 | U | |
| 87-68-3 | Hexachlorobutadiene | 340 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U | |
| 91-57-6 | 2-Methylnaphthalene | 340 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U | |
| 91-58-7 | 2-Chloronaphthalene | 340 | U | |
| 88-74-4 | 2-Nitroaniline | 840 | U | |
| 131-11-3 | Dimethylphthalate | 340 | U | |
| 208-96-8 | Acenaphthylene | 340 | U | |
| 99-09-2 | 3-Nitroaniline | 840 | U | |
| 83-32-9 | Acenaphthene | 340 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U | |



✓ aw 4/16/93

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 000323

B07PZ5

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-01B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U | U |
| 132-64-9 | Dibenzofuran | 340 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U | |
| 84-66-2 | Diethylphthalate | 340 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U | |
| 86-73-7 | Fluorene | 340 | U | |
| 100-01-6 | 4-Nitroaniline | 840 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U | |
| 118-74-1 | Hexachlorobenzene | 340 | U | |
| 87-86-5 | Pentachlorophenol | 840 | U | |
| 85-01-8 | Phenanthrene | 340 | U | |
| 120-12-7 | Anthracene | 340 | U | |
| 86-74-8 | Carbazole | 340 | U | |
| 84-74-2 | Di-n-Butylphthalate | 340 | U | |
| 206-44-0 | Fluoranthene | 340 | U | |
| 129-00-0 | Pyrene | 340 | U | |
| 85-68-7 | Butylbenzylphthalate | 340 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U | |
| 56-55-3 | Benzo(a)Anthracene | 340 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U | |
| 218-01-9 | Chrysene | 340 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U | |
| 50-32-8 | Benzo(a)Pyrene | 340 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U | |

(1) - Cannot be separated from Diphenylamine

✓ am 4/16/93

000324
EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07PZ5

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-01B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

Number TICs found: 2

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.17 | 61000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 8.78 | 100 | BJ |

✓ WR 4/16/93

000305
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05C

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 350 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U | |
| 95-57-8 | 2-Chlorophenol | 350 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U | |
| 95-48-7 | 2-Methylphenol | 350 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U | |
| 106-44-5 | 4-Methylphenol | 350 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U | |
| 67-72-1 | Hexachloroethane | 350 | U | |
| 98-95-3 | Nitrobenzene | 350 | U | |
| 78-59-1 | Isophorone | 350 | U | |
| 88-75-5 | 2-Nitrophenol | 350 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U | |
| 91-20-3 | Naphthalene | 350 | U | |
| 106-47-8 | 4-Chloroaniline | 350 | U | |
| 87-68-3 | Hexachlorobutadiene | 350 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U | |
| 91-57-6 | 2-Methylnaphthalene | 350 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 850 | U | |
| 91-58-7 | 2-Chloronaphthalene | 350 | U | |
| 88-74-4 | 2-Nitroaniline | 850 | U | |
| 131-11-3 | Dimethylphthalate | 350 | U | |
| 208-96-8 | Acenaphthylene | 350 | U | |
| 99-09-2 | 3-Nitroaniline | 850 | U | |
| 83-32-9 | Acenaphthene | 350 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 850 | U | |

000306
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05C

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 850 | U | U |
| 132-64-9 | Dibenzofuran | 350 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U | |
| 84-66-2 | Diethylphthalate | 350 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U | |
| 86-73-7 | Fluorene | 350 | U | |
| 100-01-6 | 4-Nitroaniline | 850 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 850 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U | |
| 118-74-1 | Hexachlorobenzene | 350 | U | |
| 87-86-5 | Pentachlorophenol | 850 | U | |
| 85-01-8 | Phenanthrene | 350 | U | |
| 120-12-7 | Anthracene | 350 | U | |
| 86-74-8 | Carbazole | 350 | U | |
| 84-74-2 | Di-n-Butylphthalate | 350 | U | |
| 206-44-0 | Fluoranthene | 350 | U | |
| 129-00-0 | Pyrene | 350 | U | |
| 85-68-7 | Butylbenzylphthalate | 350 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U | |
| 56-55-3 | Benzo(a)Anthracene | 350 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U | |
| 218-01-9 | Chrysene | 350 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U | |
| 50-32-8 | Benzo(a)Pyrene | 350 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U | |

(1) - Cannot be separated from Diphenylamine

✓ cmc 4/16/93

000307

EPA SAMPLE NO.

B07PZ4

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05C

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 21217S09

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.9

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q | G |
|---|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.15 | 71000 | BJ | U |
| 2. | UNKNOWN HYDROCARBON | 7.42 | 1400 | BJ | d |
| 3. | UNKNOWN HYDROCARBON | 8.77 | 140 | BJ | |

✓ AS 4/14/9

✓ am 4/16/93

000287
EPA SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ3

Lab Name: TMA/ARLL Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-03B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 340 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 340 | U | |
| 95-57-8 | 2-Chlorophenol | 340 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 340 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 340 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 340 | U | |
| 95-48-7 | 2-Methylphenol | 340 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 340 | U | |
| 106-44-5 | 4-Methylphenol | 340 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 340 | U | |
| 67-72-1 | Hexachloroethane | 340 | U | |
| 98-95-3 | Nitrobenzene | 340 | U | |
| 78-59-1 | Isophorone | 340 | U | |
| 88-75-5 | 2-Nitrophenol | 340 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 340 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 340 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 340 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 340 | U | |
| 91-20-3 | Naphthalene | 340 | U | |
| 106-47-8 | 4-Chloroaniline | 340 | U | |
| 87-68-3 | Hexachlorobutadiene | 340 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 340 | U | |
| 91-57-6 | 2-Methylnaphthalene | 340 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 340 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 340 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U | |
| 91-58-7 | 2-Chloronaphthalene | 340 | U | |
| 88-74-4 | 2-Nitroaniline | 840 | U | |
| 131-11-3 | Dimethylphthalate | 340 | U | |
| 208-96-8 | Acenaphthylene | 340 | U | |
| 99-09-2 | 3-Nitroaniline | 840 | U | |
| 83-32-9 | Acenaphthene | 340 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U | |

000288
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ3

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-03B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U | u |
| 132-64-9 | Dibenzofuran | 340 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 340 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 340 | U | |
| 84-66-2 | Diethylphthalate | 340 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 340 | U | |
| 86-73-7 | Fluorene | 340 | U | |
| 100-01-6 | 4-Nitroaniline | 840 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 340 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 340 | U | |
| 118-74-1 | Hexachlorobenzene | 340 | U | |
| 87-86-5 | Pentachlorophenol | 840 | U | |
| 85-01-8 | Phenanthrene | 340 | U | |
| 120-12-7 | Anthracene | 340 | U | |
| 86-74-8 | Carbazole | 340 | U | |
| 84-74-2 | Di-n-Butylphthalate | 340 | U | |
| 206-44-0 | Fluoranthene | 340 | U | |
| 129-00-0 | Pyrene | 340 | U | |
| 85-68-7 | Butylbenzylphthalate | 340 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 340 | U | |
| 56-55-3 | Benzo(a)Anthracene | 340 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 340 | U | |
| 218-01-9 | Chrysene | 340 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 340 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 340 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 340 | U | |
| 50-32-8 | Benzo(a)Pyrene | 340 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 340 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 340 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 340 | U | |

(1) - Cannot be separated from Diphenylamine

✓ CWC 4/16/9

000289
EPA SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07PZ3

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-03B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21217S07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 4

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q | C |
|---|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.17 | 67000 | BJ | U |
| 2. | UNKNOWN HYDROCARBON | 6.73 | 140 | J | J |
| 3. | UNKNOWN HYDROCARBON | 7.42 | 1500 | BJ | U |
| 4. | UNKNOWN HYDROCARBON | 8.77 | 170 | BJ | U |

AS 4/14/93

✓ CWC 4/16/93

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04C

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 330 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U | |
| 95-57-8 | 2-Chlorophenol | 330 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | |
| 95-48-7 | 2-Methylphenol | 330 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U | |
| 106-44-5 | 4-Methylphenol | 330 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U | |
| 67-72-1 | Hexachloroethane | 330 | U | |
| 98-95-3 | Nitrobenzene | 330 | U | |
| 78-59-1 | Isophorone | 330 | U | |
| 88-75-5 | 2-Nitrophenol | 330 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U | |
| 91-20-3 | Naphthalene | 330 | U | |
| 106-47-8 | 4-Chloroaniline | 330 | U | |
| 87-68-3 | Hexachlorobutadiene | 330 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U | |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 810 | U | |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | |
| 88-74-4 | 2-Nitroaniline | 810 | U | |
| 131-11-3 | Dimethylphthalate | 330 | U | |
| 208-96-8 | Acenaphthylene | 330 | U | |
| 99-09-2 | 3-Nitroaniline | 810 | U | |
| 83-32-9 | Acenaphthene | 330 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 810 | U | |



✓ CMC 4/16/9

000271
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04C

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 810 | U | u |
| 132-64-9 | Dibenzofuran | 330 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U | |
| 84-66-2 | Diethylphthalate | 330 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U | |
| 86-73-7 | Fluorene | 330 | U | |
| 100-01-6 | 4-Nitroaniline | 810 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 810 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U | |
| 118-74-1 | Hexachlorobenzene | 330 | U | |
| 87-86-5 | Pentachlorophenol | 810 | U | |
| 85-01-8 | Phenanthrene | 330 | U | |
| 120-12-7 | Anthracene | 330 | U | |
| 86-74-8 | Carbazole | 330 | U | |
| 84-74-2 | Di-n-Butylphthalate | 330 | U | |
| 206-44-0 | Fluoranthene | 330 | U | |
| 129-00-0 | Pyrene | 330 | U | |
| 85-68-7 | Butylbenzylphthalate | 330 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U | |
| 56-55-3 | Benzo(a)Anthracene | 330 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U | |
| 218-01-9 | Chrysene | 330 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U | |
| 50-32-8 | Benzo(a)Pyrene | 330 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U | |

(1) - Cannot be separated from Diphenylamine

✓ cmc 4/16/93

000272

EPA SAMPLE NO.

B07PZ2

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04C

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21217S08

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 4 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

Number TICs found: 3

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.15 | 62000 | BJ |
| 2. | UNKNOWN HYDROCARBON | 7.42 | 1300 | BJ |
| 3. | UNKNOWN HYDROCARBON | 8.77 | 100 | BJ |

Q
W

AS 4/14/93

✓ WMC 4/16/93

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 350 | U | U |
| 111-44-4 | bis(2-Chloroethyl)Ether | 350 | U | |
| 95-57-8 | 2-Chlorophenol | 350 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 350 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 350 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 350 | U | |
| 95-48-7 | 2-Methylphenol | 350 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 350 | U | |
| 106-44-5 | 4-Methylphenol | 350 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 350 | U | |
| 67-72-1 | Hexachloroethane | 350 | U | |
| 98-95-3 | Nitrobenzene | 350 | U | |
| 78-59-1 | Isophorone | 350 | U | |
| 88-75-5 | 2-Nitrophenol | 350 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 350 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 350 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 350 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 350 | U | |
| 91-20-3 | Naphthalene | 350 | U | |
| 106-47-8 | 4-Chloroaniline | 350 | U | |
| 87-68-3 | Hexachlorobutadiene | 350 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 350 | U | |
| 91-57-6 | 2-Methylnaphthalene | 350 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 350 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 350 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 840 | U | |
| 91-58-7 | 2-Chloronaphthalene | 350 | U | |
| 88-74-4 | 2-Nitroaniline | 840 | U | |
| 131-11-3 | Dimethylphthalate | 350 | U | |
| 208-96-8 | Acenaphthylene | 350 | U | |
| 99-09-2 | 3-Nitroaniline | 840 | U | |
| 83-32-9 | Acenaphthene | 350 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 840 | U | |



✓ CMC 4/6/93

000252
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual |
|---|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 840 | U | (u) |
| 132-64-9 | Dibenzofuran | 350 | U | |
| 121-14-2 | 2,4-Dinitrotoluene | 350 | U | |
| 606-20-2 | 2,6-Dinitrotoluene | 350 | U | |
| 84-66-2 | Diethylphthalate | 350 | U | |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 350 | U | |
| 86-73-7 | Fluorene | 350 | U | |
| 100-01-6 | 4-Nitroaniline | 840 | U | |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 840 | U | |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 350 | U | |
| 101-55-3 | 4-Bromophenyl-phenylether | 350 | U | |
| 118-74-1 | Hexachlorobenzene | 350 | U | |
| 87-86-5 | Pentachlorophenol | 840 | U | |
| 85-01-8 | Phenanthrene | 350 | U | |
| 120-12-7 | Anthracene | 350 | U | |
| 86-74-8 | Carbazole | 350 | U | |
| 84-74-2 | Di-n-Butylphthalate | 350 | U | |
| 206-44-0 | Fluoranthene | 350 | U | |
| 129-00-0 | Pyrene | 350 | U | |
| 85-68-7 | Butylbenzylphthalate | 350 | U | |
| 91-94-1 | 3,3'-Dichlorobenzidine | 350 | U | |
| 56-55-3 | Benzo(a)Anthracene | 350 | U | |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 350 | U | |
| 218-01-9 | Chrysene | 350 | U | |
| 117-84-0 | Di-n-Octyl Phthalate | 350 | U | |
| 205-99-2 | Benzo(b)Fluoranthene | 350 | U | |
| 207-08-9 | Benzo(k)Fluoranthene | 350 | U | |
| 50-32-8 | Benzo(a)Pyrene | 350 | U | |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 350 | U | |
| 53-70-3 | Dibenz(a,h)Anthracene | 350 | U | |
| 191-24-2 | Benzo(g,h,i)Perylene | 350 | U | |

(1) - Cannot be separated from Diphenylamine

✓ 4/16/93

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 000253

B07PZ1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01F

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 21217S03

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

Number TICs found: 5

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q | Q |
|---|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 76000 | BJ | UJ |
| 2. | UNKNOWN HYDROCARBON | 6.70 | 140 | J | JN |
| 3. | UNKNOWN HYDROCARBON | 7.40 | 1500 | BJ | UJ |
| 4. | UNKNOWN HYDROCARBON | 8.73 | 210 | BJ | UJ |
| 5. | PROPANOIC ACID ISOMER | 18.18 | 70 | J | JN |

AS 4/14/92

✓ UR 4/16/93

000231

EPA SAMPLE NO.

B07PY9

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-02C

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

Level: (low/med) LOW Data Received: 12/04/92

% Moisture: 2 decanted: (Y/N) N Data Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q | Qual. |
|---|---|---|---|---|
| 108-95-2 | Phenol | 330 | U | u |
| 111-44-4 | bis(2-Chloroethyl)Ether | 330 | U | |
| 95-57-8 | 2-Chlorophenol | 330 | U | |
| 541-73-1 | 1,3-Dichlorobenzene | 330 | U | |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U | |
| 95-50-1 | 1,2-Dichlorobenzene | 330 | U | |
| 95-48-7 | 2-Methylphenol | 330 | U | |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | 330 | U | |
| 106-44-5 | 4-Methylphenol | 330 | U | |
| 621-64-7 | N-Nitroso-Di-n-Propylamine | 330 | U | |
| 67-72-1 | Hexachloroethane | 330 | U | |
| 98-95-3 | Nitrobenzene | 330 | U | |
| 78-59-1 | Isophorone | 330 | U | |
| 88-75-5 | 2-Nitrophenol | 330 | U | |
| 105-67-9 | 2,4-Dimethylphenol | 330 | U | |
| 111-91-1 | bis(2-Chloroethoxy)Methane | 330 | U | |
| 120-83-2 | 2,4-Dichlorophenol | 330 | U | |
| 120-82-1 | 1,2,4-Trichlorobenzene | 330 | U | |
| 91-20-3 | Naphthalene | 330 | U | |
| 106-47-8 | 4-Chloroaniline | 330 | U | |
| 87-68-3 | Hexachlorobutadiene | 330 | U | |
| 59-50-7 | 4-Chloro-3-Methylphenol | 330 | U | |
| 91-57-6 | 2-Methylnaphthalene | 330 | U | |
| 77-47-4 | Hexachlorocyclopentadiene | 330 | U | |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U | |
| 95-95-4 | 2,4,5-Trichlorophenol | 800 | U | |
| 91-58-7 | 2-Chloronaphthalene | 330 | U | |
| 88-74-4 | 2-Nitroaniline | 800 | U | |
| 131-11-3 | Dimethylphthalate | 330 | U | |
| 208-96-8 | Acenaphthylene | 330 | U | |
| 99-09-2 | 3-Nitroaniline | 800 | U | |
| 83-32-9 | Acenaphthene | 330 | U | |
| 51-28-5 | 2,4-Dinitrophenol | 800 | U | |



✓ amc 4/16/93

000232

EPA SAMPLE No.

B07PY9

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-02C

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.7

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 100-02-7 | 4-Nitrophenol | 800 | U |
| 132-64-9 | Dibenzofuran | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 330 | U |
| 84-66-2 | Diethylphthalate | 330 | U |
| 7005-72-3 | 4-Chlorophenyl-phenylether | 330 | U |
| 86-73-7 | Fluorene | 330 | U |
| 100-01-6 | 4-Nitroaniline | 800 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 800 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 330 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 800 | U |
| 85-01-8 | Phenanthrene | 330 | U |
| 120-12-7 | Anthracene | 330 | U |
| 86-74-8 | Carbazole | 330 | U |
| 84-74-2 | Di-n-Butylphthalate | 330 | U |
| 206-44-0 | Fluoranthene | 330 | U |
| 129-00-0 | Pyrene | 330 | U |
| 85-68-7 | Butylbenzylphthalate | 330 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 330 | U |
| 56-55-3 | Benzo(a)Anthracene | 330 | U |
| 117-81-7 | bis(2-Ethylhexyl)Phthalate | 330 | U |
| 218-01-9 | Chrysene | 330 | U |
| 117-84-0 | Di-n-Octyl Phthalate | 330 | U |
| 205-99-2 | Benzo(b)Fluoranthene | 330 | U |
| 207-08-9 | Benzo(k)Fluoranthene | 330 | U |
| 50-32-8 | Benzo(a)Pyrene | 330 | U |
| 193-39-5 | Indeno(1,2,3-cd)Pyrene | 330 | U |
| 53-70-3 | Dibenz(a,h)Anthracene | 330 | U |
| 191-24-2 | Benzo(g,h,i)Perylene | 330 | U |

(u)

(1) - Cannot be separated from Diphenylamine

✓ amc 4/16/93

FORM I SV-2

3/90

000233

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PY9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-02C

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 21217S06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 12/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 12/17/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.7

Number TICs found: 6

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

| CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q | |
|---|---|---|---|---|---|
| 1. | UNKNOWN HYDROCARBON | 6.12 | 56000 | BJ | UJN |
| 2. | UNKNOWN HYDROCARBON | 6.70 | 100 | J | JN |
| 3. | UNKNOWN HYDROCARBON | 7.38 | 1200 | BJ | UJN |
| 4. | UNKNOWN HYDROCARBON | 8.73 | 130 | BJ | UJN |
| 5. | UNKNOWN AMINE | 24.82 | 130 | J | JN |
| 6. | HEXANEDIOIC ACID ISOMER | 25.73 | 67 | BJ | UJN |

✓ AS 4/14/9

✓ cwr 4/16/93

# ATTACHMENT 5

*Data Review Supporting Documentation*

# SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

| | | |
|---|---|---|
| PROJECT: White Bluffs Pickling Acid Cribs ERA | REVIEWER: CMK | DATE: 4/5/93 |
| LABORATORY: TMA/ARLI | CASE: A2-12-018/ A2-12-023 | SDG: |
| SAMPLES/MATRIX: Soils: | | |
| ✓ P07P49 ✓ B07PZ4 | B07PZ8* | B07Q02* |
| ✓ B07PZ1 B07PZ5* | B07PZ9* | B07Q03* |
| ✓ B07PZ2 B07PZ6* | B07Q00* | |
| ✓ B07PZ3 B07PZ7 | B07Q01* | |

All samples except that circled ✓12-018 - Level 4
12-023* - Level 2
Validation

## 1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

| Data Package Item | Present?: | Yes | No | N/A |
|---|---|---|---|---|
| Case Narrative | | ✓ | | |
| Data Summary | | ✓ | | |
| Chain-of-Custody | (see Gen Chem 12-018/12-023) | | | ✓ |
| QC Summary | | | | |
| Surrogate report | | ✓ | | |
| MS/MSD report | | ✓ | | |
| Blank summary report | | ✓ | | |
| GC/MS tuning report | | ✓ | | |
| Internal standard summary report | | ✓ | | |
| Sample Data | | | | |
| Sample reports | | ✓ | | |
| TIC reports for each sample | | ✓ | | |
| RIC reports for all samples | | ✓ | | |
| Raw and corrected spectra for all detected results | | ✓ | | |
| Raw and corrected library search data for all reported TIC | | ✓ | | |
| Quantitation and calculation data for all TIC | | ✓ | | |
| Standards Data | | | | |
| Initial calibration report | | ✓ | | |
| RIC and quantitation reports for initial calibration | | ✓ | | |
| Continuing calibration reports | | ✓ | | |
| RIC and quantitation reports for cont. calibrations | | ✓ | | |
| Internal standard summary report | | ✓ | | |
| Raw QC Data | | | | |
| Tuning report, spectra and mass lists | | ✓ | | |
| Blank analysis reports | | ✓ | | |
| TIC reports for all blanks | | ✓ | | |
| RIC and quantitation reports for blanks | | ✓ | | |
| Raw and corrected spectra for all detected results in blanks | | ✓ | | |
| Raw and corrected library search data for all reported TIC | | ✓ | | |
| Quantitation and calculation data for all TIC | | ✓ | | |
| MS/MSD report forms | | ✓ | | |

| Data Package Item | Present?: Yes | No | N/A |
|---|---|---|---|
| RIC and quantitation reports for MS/MSD | ✓ | | |
| Additional Data | | | |
| Moisture/% solids data sheets (see Gen Chem 12-018/-023) | | | ✓ |
| Reduction formulae | | | ✓ |
| Instrument time logs | | | ✓ |
| Chemist notebook pages | | | ✓ |
| Sample preparation sheets | ✓ | | |

## 2. HOLDING TIMES

| | | | |
|---|---|---|---|
| Were all samples extracted within holding time? | Yes | No | N/A |
| Were all samples analyzed within holding time? | Yes | No | N/A |

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

## 3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

### 3.1 GC/MS TUNING AND PERFORMANCE CHECKS

| | | | |
|---|---|---|---|
| Is a DFTPP tune report present for each applicable 12h period? | Yes | No | N/A |
| Do all tunes on all instruments meet the tuning criteria? | Yes | No | N/A |
| Do all tunes on all instruments meet the expanded criteria? | Yes | No | N/A |
| Has the laboratory made any calculation or transciption errors? | Yes | No | N/A |
| Have the proper significant figures been reported? | Yes | No | N/A |

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

### 3.2 INITIAL CALIBRATION

| | | | |
|---|---|---|---|
| Is an initial calibration report provided for all instruments? | Yes | No | N/A |
| Are all RSD values ≤30% (2/88 SOW)? | Yes | No | N/A |
| Are all RRF values ≥0.05 (2/88 SOW)? | Yes | No | N/A |
| Are all applicable RSD values ≤20.5% (3/90 SOW)? | Yes | No | N/A |
| Are all applicable RSD values ≤40% (3/90 SOW)? | Yes | No | N/A |

| | | | |
|---|---|---|---|
| Are all applicable RRF values within SOW limits (3/90 SOW)? | Yes | No | N/A |
| Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)? | Yes | No | N/A |

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

## 3.3. CONTINUING CALIBRATION

| | | | |
|---|---|---|---|
| Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed? | Yes | No | N/A |
| Are all RRF values ≥0.05 (2/88 SOW)? | Yes | No | N/A |
| Are all %D values ≤25% (2/88 or 3/90 SOW)? | Yes | No | N/A |
| Are all %D values ≤40% (3/90 SOW)? | Yes | No | N/A |
| Are all RRF values within SOW limits (3/90 SOW)? | Yes | No | N/A |
| Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)? | Yes | No | N/A |

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

# 4. BLANKS

## 4.1 LABORATORY BLANKS

| | | | |
|---|---|---|---|
| Has the laboratory conducted a method blank analysis per matrix for every extraction batch? | Yes | No | N/A |
| Are compounds reported in the laboratory blanks? | Yes | No | N/A |

TICs detected in the blank

ACTION: Qualify all sample results < 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results < 5 times the blank concentration in similar fashion.

## 4.2. FIELD BLANKS

Are compounds reported in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results $\leq 5$ times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

## 5. ACCURACY

### 5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

### 5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

## 5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

# 6. PRECISION

## 6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

## 6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

## 6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

# 7. SYSTEM PERFORMANCE

## 7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

# 8. COMPOUND IDENTIFICATION AND QUANTITATION

## 8.1 COMPOUND IDENTIFICATION

| | | | |
|---|---|---|---|
| Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? | Yes | No | N/A No TCL detec |
| Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra? | Yes | No | N/A |
| Do the relative intensities between the standard and sample spectra agree within 20%? | Yes | No | N/A |
| Have all ions >10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination? | Yes | No | N/A |
| Are molecular ions in the reference spectrum present in the sample spectrum? | Yes | No | N/A |

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

## 8.2 REPORTED RESULTS AND QUANTITATION LIMITS

| | | | |
|---|---|---|---|
| Has the laboratory used the correct RRF values and internal standards for quantitation? | Yes | No | N/A No TCL c |
| Are results and quantitation limits calculated properly? | Yes | No | N/A |
| Has the laboratory reported the sample quantitation limits within 5xCRQL values? | Yes | No | N/A |

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

## 8.3 TENTATIVELY IDENTIFIED COMPOUNDS

| | | | |
|---|---|---|---|
| Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW? | Yes | No | N/A |
| Has the laboratory properly identified and coded all TIC? | Yes | No | N/A |

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

## 9. OVERALL ASSESSMENT AND SUMMARY

| | | | |
|---|---|---|---|
| Has the laboratory conducted the analysis in accordance with the analytical SOW? | Yes | No | N/A |
| Were project specific data quality objectives met for this analysis? | Yes | No | N/A |

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY - FORM B-1

A2-12-018/ A2-12-023

| SDG: | REVIEWER: Clare Russell | DATE: 4/5/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: Semivolatiles | | | Level 4 Validation |

| FIELD SAMPLE ID | ANALYSIS TYPE | DATE SAMPLED | DATE PREPARED | DATE ANALYZED | PREP. HOLDING TIME, DAYS | ANALYSIS HOLDING TIME, DAYS | QUALIFIER |
|---|---|---|---|---|---|---|---|
| P07PY9 | SVOA | 12/2/92 | 12/11/92 | 12/17/92 | 9 ~~9~~ ~~15~~ | 6 | — |
| B07PZ1 | | | | | | | |
| B07PZ2 | | | | | | | |
| B07PZ3 | | | | | | | |
| B07PZ4 | | | | | | | |
| B07PZ5 | | 12/3/92 | | | ~~8~~ 8 | | |
| B07PZ6 | | | | | | | |
| B07PZ7 | | | | | | | |
| B07PZ8 | | | | | | | |
| B07PZ9 | | | | | | | |
| B07Q00 | | | | | | | |
| B07Q01 | | | | 12/18/92 | | 7 | |
| B07Q02 | | | | | | | |
| B07Q03 | | | | | | | |

✓ 4/16/93

WHC-SD-EN-SPP-002, Rev. 1

CALIBRATION DATA SUMMARY - FORM B-2

| SDG: 12018 | REVIEWER: AS | DATE: 4/13/93 | | PAGE 1 OF 1 | |
|---|---|---|---|---|---|
| COMMENTS: Semivolatiles | | | | Level 4 Validation | |
| CALIB. TYPE: | INITIAL CONTINUING | INSTRUMENT: SHERMA - capillary columns | | | |
| CALIB. DATE | COMPOUND | RF | RSD/%D/%R | SAMPLES AFFECTED | QUALIFIER |
| 12/11/92 | All GC/MS DFTPP Tuning | acceptable | | — | — |
| 12/17/92 | ↓ | | | — | — |
| 12/18/92 | | | | — | — |
| | | | | | |
| ICAL 12/11/92 | all RRF and % RSD are acceptable. | | | | none |
| | | | | | |
| CCAL 12/17/92 | all RRF and % RSD are acceptable. | | | | none |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

✓ [illegible] 4/16/93

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

| SDG: 12018 | REVIEWER: AS | DATE: 4/13/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: Semivolatiles | | | Level 4 Validation |

| | SAMPLE ID | COMPOUND | RESULT | Q | RT | UNITS | 5X RESULT | 10X RESULT | SAMPLES AFFECTED | QUALIFIER |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) | SBLK 1211S1 | Unknown TIC 6.12 | 67000 | J | | ug/kg | 335,000 | | B07PY9, | UJN |
| 2) | ↓ | " " 7.38 | 1400 | J | | ↓ | 7000 | | B07PZ1,2, | ↓ |
| 3) | ↓ | " " 8.73 | 200 | J | | ↓ | 1000 | | 3,4,5,6,7, | ↓ |
| 4) | ↓ | Hexanedioic acid 25.73 | 200 | J | | ↓ | 1000 | | 8,9, | ↓ |
| | | | | | | | | see below | B07Q00 | ↓ |
| | | No TCL compounds detected | | | | | | | B07Q01 | ↓ |
| | | | | | | | | | B07Q02 | ↓ |
| | | | | | | | | | B07Q03, | ↓ |
| | | | | | | | | | ~~B07PZ1-HS~~ | |

Samples Affected: B07PZ5, B07PZ4, B07PZ3, B07PZ2, B07PZ1, B07PY9

6.12 1) B07Q03, B07Q02, B07Q01, B07Q00, B07PZ9, B07PZ8, B07PZ7, B07PZ6

7.38 2) B07Q02, B07Q01, B07Q00, B07PZ8, B07PZ7, B07PZ4, B07PZ3, B07PZ2, B07PZ1, B07PY9

8.73 3) B07Q02, B07Q00, B07PZ9, B07PZ8, B07PZ7, B07PZ6, B07PZ5, B07PZ4, B07PZ3, B07PZ2, B07PZ1, B07PY9

25.73 4) B07PY9

CMR 4/16/93

WHC-SD-EN-SPP-002, Rev. 1

WHC-SD-EN-SPP-002, Rev. 1

ACCURACY DATA SUMMARY - FORM B-4

| SDG: 12018/-023 | REVIEWER: HS | DATE: 4/14/93 | PAGE 1 OF 1 | |
|---|---|---|---|---|
| COMMENTS: Semivolatiles | | | Level 4 Validation | |
| SAMPLE ID | COMPOUND | % RECOVERY | SAMPLE(S) AFFECTED | QUALIFIER REQUIRED |
| ✓ All surrogate recoveries within limits | | 60-106% ✓ | — | — |
| ✓ All MS/MSD results acceptable: 64-86% ✓ | | | — | — |
| ✓ all internal standard recoveries are acceptable. | | | — | — |
| | | cwc | | |

✓ cwc 4/16/93

cwc

PRECISION DATA SUMMARY - FORM B-5

| SDG: 12018 | REVIEWER AS | DATE: 4/14/93 | PAGE 1 OF 1 | | |
|---|---|---|---|---|---|
| COMMENTS: Semivolatiles | | | | Level 4 Validation | |
| COMPOUND | SAMPLE ID: | SAMPLE ID: | RPD | SAMPLES AFFECTED | QUALIFIER |
| MS/MSD All RPDs acceptable = | 0 – 11 % | | | | none |
| | | | | | |
| | | | | | |
| Field Duplicates | B07Q02 | B07Q01 | | | none |
| All target compounds were non-detects, | | | | | |
| and precision could not be evaluated. | | | | | |
| | | CWR | | | |
| | | | | | |
| Field Splits → none in this data package. | | | | | none |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | CWR |

✓ CWR 4/16/93

CALCULATION SUMMARY - FORM B-6

| SDG: A212010 | REVIEWER: AS | DATE: 4/14/93 | PAGE 1 OF 7 |
|---|---|---|---|
| COMMENTS: Semivolatiles | | Level 4 Validation | |

See calc sheets, attached

HARTCROWSER

Page 2 of 7
Job No. 2978-56
Date 4/13/93
Made by AS

Project WHC - Prelcaling
Calculations for BNA

GC/MS tuning 12/11/93

m/z 51 = 45.63/100 = 45.6 % ✓

m/z 127 = 48.10/100 = 48.1 % ✓

m/z 443 = ~~13.19/68.64~~ = 1884/9804 = 19.2 % ✓

~~GC~~ 12/17/93

m/z 51 = 5600/14496 = 38.63 % ✓

m/z 275 = 3708/14496 = 25.6 % ✓

m/z 443 = 2164/11648 = 18.6 % ✓

12/18/92 =

m/z 51 = 5424/14080 = 38.5 % ✓

m/z ~~#~~ 127 = 6304/14080 = 44.8 % ✓

m/z 443 = 2010/10640 = 18.9 % ✓

AS

HARTCROWSER

Page 3 of 7
Job No. 2978-56
Date 4/14/93
Made by AS

Project WHC Picked liquor
Calculations for BNA Surrogate recoveries

B07PY9: NBZ = 38.246/50.0 = 76.4% ✓
TPH = 44.74/50.0 = 89.5% ✓
2FP = 59.09/75.0 = 78.8% ✓
2CP = 54.887/75.0 = 73.2% ✓

B07PZ1: FBP = 40.304/50.0 = 80.6% ✓
PHL = 62.38/75.0 = 83.2% ✓
TBP = 61.95/75.0 = 82.6% ✓
DCB = 40.989/50.0 = 81.9% ✓

B07PZ2: NBZ = 39.049/50.0 = 78.1% ✓
TPH = 48.253/50.0 = 96.5% ✓
2FP = 61.982/75.0 = 82.6% ✓
2CP = 55.863/75.0 = 74.5% ✓

B07PZ3: FBP = 42.998/50.0 = 85.9% ✓
PHL = 64.141/~~50.0~~ 75.0 = 85.5% ✓
TBP = 57.44/75.0 = 76.6% ✓
DCB = 42.586/~~75.~~50.0 = 85.2% ✓

B07PZ4:
NBZ = 43.216/50.0 = 86.4% ✓
TPH = 47.415/50.0 = 94.8% ✓
2FP = 67.186/75.0 = 89.6% ✓
2CP = 60.828/75.0 = 81.1% ✓

HARTCROWSER

Page 4 of 7
Job No. 2978-56
Date 4/14/93
Made by AS

Project WHC Pickel liquor
Calculations for MS/MSD results

B07PZ1 MS: 1820/2610 = 69.7% ✓
1261/1740 = 72.4% ✓
1240/1740 = 71.2% ✓
1146/1740 = 65.8% ✓
1278/1740 = 73.4% ✓
1115/1740 = 64.0% ✓

MSD: 1842/2580 = 71.4% ✓
1291/1720 = 75.0% ✓
1910/2580 = 74.0% ✓
2220/2580 = 86.0% ✓
2038/2580 = 78.9% ✓

RPDs = $\frac{70-70}{(70+70)}$

CALCULATION SUMMARY - FORM B-6

Case 12018

| SDG: | REVIEWER: KRAMER | DATE: 4/14 | PAGE 5 OF 7 |
|---|---|---|---|

COMMENTS: RRF 20 | RRF 50 | RRF 50

| | | | | |
|---|---|---|---|---|
| 15 | Phenol | 32150 (20) / 32788 (10) = 1.96 | 59102 (20) / 24298 (25) = 1.946 | 13366 (20) / 27956 (40) = 2.028 |
| | | | | |
| 21 | 1,2-dichlorobenzene | 24914 (20) / 32788 (10) = 1.52 | 46258 (20) / 24298 (25) = 1.5230 | 86450 (20) / 27956 (40) = 1.546 |
| 26 | hexachloroethane | 12790 (20) / 32788 (10) = 0.780 | 24074 (20) / 24298 (25) = 0.793 | 46358 (20) / 27956 (40) = 0.829 |
| 31 | Bis-2ethox... | 37300 (20) / 128702 (10) = 0.570 | 69194 (20) / 92846 (25) = 0.596 | 137260 (20) / 110584 (40) = 0.621 |
| 37 | hexachlorobutadiene | 14836 (20) / 128702 (10) = 0.231 | 29340 (20) / 92846 (25) = 0.253 | 54302 (20) / 110584 (40) = 0.246 |
| 42 | 2,4,5-Trichloro... | 14308 (20) / 76924 (10) = 0.372 | 29182 (20) / 58450 (25) = 0.399 | 54316 (20) / 69874 (40) = 0.389 |
| 47 | 3-Nitroaniline | 11998 (20) / 76924 (10) = 0.312 | 24478 (20) / 58450 (25) = 0.335 | 54329 (20) / 69874 (40) = 0.389 |
| 54 | 2,4-DNT | 15058 (20) / 76924 (10) = 0.392 | 32720 (20) / 58450 (25) = 0.448 | 69168 (20) / 69874 (40) = 0.495 |
| 57 | 4-Nitroaniline | 10720 (20) / 76924 (10) = 0.279 | 23588 (20) / 58450 (25) = 0.323 | 51135 (20) / 69874 (40) = 0.366 |
| 62 | Pentachlorophenol | 8308 (20) / 120760 (10) = 0.138 | 20514 (20) / 97354 (25) = 0.169 | 43672 (20) / 117706 (40) = 0.186 |
| 67 | Fluoranthene | 73554 (20) / 120760 (10) = 1.218 | 172060 (20) / 97354 (25) = 1.413 | 351829 (20) / 117706 (40) = 1.495 |
| 73 | Bis-2ethyl... | 60591 (20) / 104757 (10) = 1.157 | 162262 (20) / 99556 (25) = 1.304 | 340224 (20) / 124658 (40) = 1.365 |
| 77 | Benzo(a)pyrene | 53415 (20) / 85260 (10) = 1.253 | 132039 (20) / 67159 (25) = 1.573 | 259365 (20) / 87166 (40) = 1.488 |

| | RRF 120 | RRF 160 | RRF | % RSD |
|---|---|---|---|---|
| 15 | 169556 (20) / 29358 (60) = 1.925 | 266660 (20) / 37166 (80) = 1.794 | 1.931 | (0.0356/1.931) 100 = 4 |
| 21 | 129846 (20) / 29358 (60) = 1.474 | 234352 (20) / 37166 (80) = 1.576 | 1.528 | (0.0375/1.528) 100 = 2.5 |
| 26 | 72018 (20) / 29358 (60) = 0.818 | 131946 (20) / 37166 (80) = 0.888 | 0.822 | (0.042/0.822) 100 = 5.1 |
| 31 | 227012 (20) / 125538 (60) = 0.603 | 416239 (20) / 177950 (80) = 0.585 | 0.597 | (0.016/0.597) 100 = 2.7 |
| 37 | 87592 (20) / 125538 (60) = 0.233 | 143834 (20) / 177950 (80) = 0.202 | 0.233 | (0.0196/0.233) 100 = 0.08 |
| 42 | 85624 (20) / 84602 (60) = 0.337 | 146350 (20) / 114674 (80) = 0.319 | 0.363 | (0.0341/0.363) 100 = 9.4 |
| 47 | 98504 (20) / 84602 (60) = 0.388 | 170506 (20) / 114674 (80) = 0.372 | 0.359 | (0.0342/0.359) 100 = 9.5 |
| 54 | 120511 (20) / 84602 (60) = 0.475 | 184877 (20) / 114674 (80) = 0.403 | 0.443 | (0.0446/0.443) 100 = 10.1 |
| 57 | 93857 (20) / 84602 (60) = 0.370 | 167707 (20) / 114674 (80) = 0.365 | 0.341 | (0.0393/0.341) 100 = 11.6 |
| 62 | 75766 (20) / 139186 (60) = 0.181 | 127461 (20) / 185031 (80) = 0.172 | 0.169 | (0.0187/0.169) 100 = 11.1 |
| 67 | 520243 (20) / 139186 (60) = 1.246 | 795779 (20) / 185031 (80) = 1.075 | 1.290 | (0.1663/1.290) 100 = 12.9 |
| 73 | 510323 (20) / 142725 (60) = 1.192 | 740411 (20) / 174545 (80) = 1.060 | 1.216 | (0.1207/1.216) 100 = 9 |
| 77 | 451278 (20) / 104994 (60) = 1.433 | 765330 (20) / 148859 (80) = 1.285 | 1.406 | (0.1354/1.406) 100 = 9.6 |

CALCULATION SUMMARY - FORM B-6

Case 12018

| SDG: | REVIEWER: KRolla | DATE: 4/14/93 | PAGE 6 OF 7 |
|---|---|---|---|
| COMMENTS: | PPF 50 | % D | |
| 15 | 51110 (20) / 26640 (25) | 1.862 | (1.931 − 1.862 / 1.931) 100 = 3.6 |
| 21 | 51016 (20) / 26640 (25) | 1.532 | (1.528 − 1.532 / 1.528) 100 = −0.3 |
| 26 | 25632 (20) / 26640 (25) | 0.770 | (0.822 − 0.770 / 0.822) 100 = 6.3 |
| 31 | 73524 (20) / 103916 (25) | 0.566 | (0.597 − 0.566 / 0.597) 100 = 5.2 |
| 37 ~~42~~ | 32334 (20) / 103916 (25) | 0.253 | (0.233 − 0.253 / 0.233) 100 = −8.6 |
| 42 | 32054 (20) / 70678 (25) | 0.363 | (0.363 − 0.363 / 0.363) 100 = 0 |
| 47 | 31634 (20) / 70678 (25) | 0.358 | (0.359 − 0.358 / 0.359) 100 = 0.3 |
| 52 | 28426 (20) / 70678 (25) | 0.322 | (0.305 − 0.322 / 0.305) 100 = −5.6 |
| 58 | 24818 (20) / 127715 (25) | 0.155 | (0.164 − 0.155 / 0.164) 100 = 5.5 |
| 63 | 204940 (20) / 127715 (25) | 1.284 | (1.245 − 1.284 / 1.245) 100 = −3.1 |
| 68 | 237829 (20) / 130046 (25) | 1.432 | (1.377 − 1.432 / 1.377) 100 = −4.0 |
| 72 | 201874 (20) / 130046 (25) | 1.242 | (1.126 − 1.242 / 1.126) 100 = −10.3 |
| 78 | 136974 (20) / 87153 (25) | 1.257 | (1.052 − 1.257 / 1.052) 100 −19.5 |

CALCULATION SUMMARY - FORM B-6

Case 12018

| SDG: | REVIEWER: [illegible] | DATE: 4/4/93 | PAGE ~~3~~ 7 OF 7 |
|---|---|---|---|
| COMMENTS: | RRF 50 | % D | |
| 15 | 60330(20) / 26204(25) | 1.857 | (1.931-1.857/1.931)100 = 3.8 |
| 19 | 53642(20) / 26204(25) | 1.638 | (1.595-1.638/1.595)100 = -2.7 |
| 25 | 45414(20) / 26204(25) | 1.386 | (1.612-1.386/1.612)100 = 4.0 |
| 30 | 32041(20) / 103046(25) | ~~0.511~~ 0.249 | (0.288-0.249/0.288)100 = 3.5 |
| 36 | 65370(20) / 103046(25) | 0.511 | (0.520-0.511/0.520)100 = ~~5.61~~ 1.7 |
| 41 | 32310(20) / 69042(25) | 0.374 | (0.366-0.374/0.366)100 = -2.2 |
| 46 | 166046(20) / 69042(25) | 1.924 | (1.931-1.924/1.931)100 = 0.36 = 0.4 |
| 51 | 144294(20) / 69042(25) | 1.672 | (1.615-1.672/1.615)100 = -3.5 |
| 55 | 118112(20) / 69042(25) | 1.369 | (1.379-1.369/1.379)100 = 0.7 |
| 61 | 46722(20) / 124154(25) | 0.301 | (0.291-0.301/0.291)100 = -1.7 -3.4 |
| 66 | 271311(20) / 124154(25) | 1.748 | (1.730-1.748/1.730)100 = -1.0 |
| 71 | 210768(20) / 133300(25) | 1.265 | (1.261-1.265/1.261)100 = -3.2 |
| 76 | 178432(20) / 95105(25) | 1.501 | (1.389-1.501/1.389)100 = -8.1 |

HCRL-WHC/9316-T-93-008

E-93-16/2978-56

WESTINGHOUSE HANFORD COMPANY
PICKLING ACID CRIB ERA DATA VALIDATION
DISTRIBUTION FORM

Document Title Prelim. QA Record - TMA Case # A2-12-018/-02

Document Number: HCRL-WHC/9316-L-93-007 Date: 4/14/93

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Project Files (1=Administrative; 2=Correspondence; 3=Source Data; 4=Technical Data)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.1 | File Index | | 2.1 | Incoming Correspondence | | 4.1 | Task Plan |
| 1.2 | Distribution Lists | | 2.2 | Outgoing Correspondence | X | 4.2 | Data Pkg. Completeness Verif. Checklist |
| 1.3 | Project Procedures | | 2.3 | Internal Correspondence | | 4.3 | Data Valid. Calcs./Annotated DP |
| 1.4 | Project Modifications | | | | | 4.4 | Prelim. QA Reports |
| 1.5 | Staff | | 3.1 | Task Order | | 4.5 | Data Valid. & Qual. Summary Rpts. |
| 1.5.1 | Staff Resumes | | 3.2 | Sample Lists | | 4.5.1 | Internal Drafts/Comments/Resol. |
| 1.5.2 | Staff Training | | 3.3 | Data Validation Procedures | | 4.5.2 | WHC Review Draft Comments/Resol. |
| 1.5.3 | Auth. Former Site Employee | | 3.4 | Original Chemical Data | | 4.5.3 | Final Report |
| 1.6 | QA | | 3.5 | Original Radiochem. Data | | 4.6 | Weekly Status Reports |
| 1.6.1 | QA Implement Procedures | | | | | 4.7 | Weekly Management Reports |
| 1.6.2 | QA Audits | | | | | | |
| 1.6.3 | QA Training | | | | | | |
| 1.7 | Budget | | | | | | |
| 1.7.1 | Budget Status | | | | | | |
| 1.7.2 | Invoices | | | | | | |
| 1.8 | Requisitions | | | | | | |
| 1.9 | Meeting Minutes | | | | | | |
| 1.10 | Record of Telecon | | | | | | |
| 1.11 | Progress Reports | | | | | | |
| 1.12 | Subcontractor | | | | | | |
| | | | | | | | |

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
[illegible] Swift Avenue, Suite 204
Richland, WA 99352
FAX 509 946 4203
509 946 [illegible]

J-2978-56

April 16, 1993

Ms. Jil Frain
Westinghouse Hanford Company
P.O. Box 1970 / MSIN H6-04
Richland, Washington 99352

Subject: WHC Order No. MLW-SSV-037106
Task Order No. E-93-16
Preliminary Quality Assurance Record
White Bluffs Pickling Acid Cribs ERA
TMA Case Number A2-12-018/-023 - Volatile Organics

Dear Ms. Frain:

Ebasco and Hart Crowser are pleased to provide you with the attached results of our review and validation of the subject data from the White Bluffs Pickling Acid Cribs ERA. The attached results are provided to you in partial fulfillment of Subtask 03 of our task plan dated March 12, 1993. The subject data package consisted of eight low level soil samples submitted for analysis for volatile organics. Of the eight samples, seven required full validation. In addition, a 100 percent validation of the supporting quality control data was performed.

The samples were analyzed by TMA using the U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) statement of work. All analytical results, together with the data qualifiers which we have assigned as a result of our review, are provided in Attachment 4. Table 1 is an annotated list of the attachments to this letter report.

## DATA QUALITY OBJECTIVES SUMMARY

Data quality objectives for accuracy and precision (including GC/MS tuning, surrogates, matrix spike/matrix spike duplicates, continuing calibrations, compound identifications, and internal standards), and quantitation limit requirements were met for this case with the exception of the following: a low concentration of acetone was detected in the method blank, and methylene chloride was detected below the quantitation limit in three of the samples.

## MAJOR DEFICIENCIES (REJECTED DATA)

No data were rejected.

## MINOR DEFICIENCIES (OTHER QUALIFIED DATA)

The following general trends resulted in the qualification of data from multiple samples. All qualified data are discussed in Attachments 3 and 5.

Acetone was detected in the method blank. The acetone concentrations in the samples were less than 10 times the blank concentration. Therefore, the acetone concentrations for each of the eight samples were qualified as undetected (U), and the associated quantitation levels were raised to the contract required quantitation limit (CRQL).

Trace concentrations of methylene chloride were detected in three samples. As the methylene chloride concentrations were near the instrument detection limit and were below the CRQL, the concentrations were qualified as estimates (J).

No other data qualifiers were assigned.

We trust that these preliminary results meet your needs. Our qualifier assignments will be finalized at the time the summary report is published. The final qualifiers may vary from those presented here, reflecting any trends in data quality or laboratory performance observed over the course of the White Bluffs Pickling Acid Cribs ERA data validation effort. Please contact me if you have any questions with regard to our activities.

Sincerely,

**HART CROWSER, INC.**

**D. MARK GERBOTH, P.E.**
Project Manager
HC#134;RL1742.DOC

Attachments

cc: Mark Gerboth (w/o attachments)
Jeff Grover (w/o attachments)
Westinghouse EDMC
Project File - HCRL-WHC/9316-L-93-007

**Table 1 - Annotated List of Attachments**

*Attachment 1 - Glossary of Data Qualifiers*

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

*Attachment 2 - As Received Laboratory Sample Concentration Reports*

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g., Form I).

*Attachment 3 - Summary of Data Qualifications (Form B-7)*

This attachment provides a complete summary of all qualifications applied as a result of the validation.

*Attachment 4 - As Qualified Data Summary*

This attachment provides a tabular data summary of all data qualified from the validation.

*Attachment 5 - Data Review Supporting Documentation*

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

# ATTACHMENT 1

*Glossary of Data Qualifiers*

## *Glossary of Data Qualifiers*

*U* - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

*UJ* - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

*J* - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

*R* - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

*NJ* - Indicates the presumptive evidence of a compound at an estimated value.

*N* - Indicates presumptive evidence of a compound.

# ATTACHMENT 2

*As Received Laboratory Sample Concentration Reports*

000004
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ1

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212018-01C

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R03

evel: (low/med) LOW Data Received: 12/04/92

Moisture: not dec. 5 Data Analyzed: 12/10/92

: Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 11 | U |
| 67-64-1 | Acetone | 8 | BJ |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

1E

# VOLATILE ORGANICS ANALYSIS DATA SHEET
## TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ1

ıb ıme: TMA/ARLI Contract: WHC

ıb Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

ıtrix: (soil/water) SOIL Lab Sample ID: A212018-01C

ımple wt/vol: 5.0 (g/mL) G Lab File ID: 21210R03

ıvel: (low/med) LOW Data Received: 12/04/92

Moisture: not dec. 5 Data Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

ɔil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R06

Level: (low/med) LOW Date Received: 12/04/92

Moisture: not dec. 4 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

1E

# VOLATILE ORGANICS ANALYSIS DATA SHEET
## TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ2

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212018-04B

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R06

evel: (low/med) LOW Data Received: 12/04/92

Moisture: not dec. 4 Date Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R07

Level: (low/med) LOW Data Received: 12/04/92

% Moisture: not dec. 6 Data Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ4

ab ame: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212018-05B

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R07

evel: (low/med) LOW Date Received: 12/04/92

Moisture: not dec. 6 Date Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ6

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R08

Level: (low/med) LOW Data Received: 12/07/92

% Moisture: not dec. 3 Data Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

| CAS NO. | COMPOUND | | Q |
|---|---|---|---|
| 74-87-3 | Chloromethane | 10 | U |
| 74-83-9 | Bromomethane | 10 | U |
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-00-3 | Chloroethane | 10 | U |
| 75-09-2 | Methylene Chloride | 10 | U |
| 67-64-1 | Acetone | 6 | BJ |
| 75-15-0 | Carbon Disulfide | 10 | U |
| 75-35-4 | 1,1-Dichloroethene | 10 | U |
| 75-34-3 | 1,1-Dichloroethane | 10 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 10 | U |
| 67-66-3 | Chloroform | 10 | U |
| 107-06-2 | 1,2-Dichloroethane | 10 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 10 | U |
| 56-23-5 | Carbon Tetrachloride | 10 | U |
| 75-27-4 | Bromodichloromethane | 10 | U |
| 78-87-5 | 1,2-Dichloropropane | 10 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 10 | U |
| 79-01-6 | Trichloroethene | 10 | U |
| 124-48-1 | Dibromochloromethane | 10 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 10 | U |
| 71-43-2 | Benzene | 10 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 10 | U |
| 75-25-2 | Bromoform | 10 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 10 | U |
| 591-78-6 | 2-Hexanone | 10 | U |
| 127-18-4 | Tetrachloroethene | 10 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 10 | U |
| 108-88-3 | Toluene | 10 | U |
| 108-90-7 | Chlorobenzene | 10 | U |
| 100-41-4 | Ethylbenzene | 10 | U |
| 100-42-5 | Styrene | 10 | U |
| 1330-20-7 | Xylene (total) | 10 | U |

000011
EPA SAMPLE NO.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07PZ6

Name: TMA/ARLI Contract: WHC

b Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A212023-02B

mple wt/vol: 5.0 (g/mL) G Lab File ID: 21210R08

vel: (low/med) LOW Date Received: 12/07/92

Moisture: not dec. 3 Date Analyzed: 12/10/92

Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

il Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

umber TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R09

Level: (low/med) LOW Date Received: 12/07/92

Moisture: not dec. 3 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

1E

# VOLATILE ORGANICS ANALYSIS DATA SHEET
## TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ7

La Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R09

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 3 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q01

La Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R17

Level: (low/med) LOW Data Received: 12/07/92

% Moisture: not dec. 9 Data Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

EPA SAMPLE NO.

B07Q01

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

al ame: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212023-07B

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R17

evel: (low/med) LOW Data Received: 12/07/92

Moisture: not dec. 9 Data Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q02

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R11

Level: (low/med) LOW Data Received: 12/07/92

% Moisture: not dec. 9 Data Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 3 | J |
| 67-64-1 | Acetone | 8 | BJ |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

EPA SAMPLE NO.

B07Q02

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

La Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 9 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

EPA SAMPLE NO.

B07Q03

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

al ame: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212023-09B

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R12

evel: (low/med) LOW Date Received: 12/07/92

Moisture: not dec. 4 Data Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07Q03

ab ame: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212023-09B

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R12

evel: (low/med) LOW Date Received: 12/07/92

Moisture: not dec. 4 Date Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

# ATTACHMENT 3

*Summary of Data Qualifications*

DATA QUALIFICATION SUMMARY - FORM B-7

A2.12-018/A2-12-023

| SDG: | REVIEWER: CWC | DATE: 4/7/93 | PAGE 1 OF 1 |
|---|---|---|---|
| COMMENTS: Level 4 Validation | | | |
| COMPOUND | QUALIFIER | SAMPLES AFFECTED | REASON |
| acetone | U at CRQL | B07PZ1 | blank contam. |
| | | B07PZ2 | |
| | | B07PZ4 | |
| | | B07PZ6 | |
| | | B07PZ7 | |
| | | B07Q01 | |
| | | B07Q02 | |
| | | B07Q03 | |
| methylene chloride | J | B07Q01 | below CRQL |
| | | B07Q02 | |
| | | B07Q03 | |

CWC

# ATTACHMENT 4

*As Qualified Data Summary*

000004

EPA SAMPLE NO.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ1

al ame: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212018-01C

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R03

evel: (low/med) LOW Data Received: 12/04/92

Moisture: not dec. 5 Date Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 11 | U |
| 67-64-1 | Acetone | 8 | BJ |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

11 (u) (u) (u)

✓ CWK 4/7/

1E

# VOLATILE ORGANICS ANALYSIS DATA SHEET
## TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ1

a. Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-01C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R03

Level: (low/med) LOW Date Received: 12/04/92

Moisture: not dec. 5 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

✓ 4/7

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ2

La Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 4 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

✓ [illegible] 4/7

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ2

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-04B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R06

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 4 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

✓ 4/1/93

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ4

La Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212018-05B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R07

Level: (low/med) LOW Date Received: 12/04/92

% Moisture: not dec. 6 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

11 U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07PZ4

ab ame: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212018-05B

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R07

evel: (low/med) LOW Date Received: 12/04/92

Moisture: not dec. 6 Date Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

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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4/7/93

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07PZ6

La' Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R08

Level: (low/med) LOW Data Received: 12/07/92

% Moisture: not dec. 3 Data Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

10 U

4/7

000011
EPA SAMPLE NO.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07PZ6

La' Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-02B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R08

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 3 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

B07PZ7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R09

Level: (low/med) LOW Data Received: 12/07/92

Moisture: not dec. 3 Data Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

✓ cmr 4/1

000013

EPA SAMPLE NO.

B07PZ7

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

a' Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-06B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R09

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 3 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

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

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

CMK 4/7/93

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07Q01

La Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R17

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 9 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (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 | 2 | J |
| 67-64-1 | Acetone | 9 | BJ |
| 75-15-0 | Carbon Disulfide | 11 | U |
| 75-35-4 | 1,1-Dichloroethene | 11 | U |
| 75-34-3 | 1,1-Dichloroethane | 11 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 11 | U |
| 67-66-3 | Chloroform | 11 | U |
| 107-06-2 | 1,2-Dichloroethane | 11 | U |
| 78-93-3 | 2-Butanone | 11 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 11 | U |
| 56-23-5 | Carbon Tetrachloride | 11 | U |
| 75-27-4 | Bromodichloromethane | 11 | U |
| 78-87-5 | 1,2-Dichloropropane | 11 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 11 | U |
| 79-01-6 | Trichloroethene | 11 | U |
| 124-48-1 | Dibromochloromethane | 11 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 11 | U |
| 71-43-2 | Benzene | 11 | U |
| 10061-02-6 | trans-1,3-Dichloropropene | 11 | U |
| 75-25-2 | Bromoform | 11 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 11 | U |
| 591-78-6 | 2-Hexanone | 11 | U |
| 127-18-4 | Tetrachloroethene | 11 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 11 | U |
| 108-88-3 | Toluene | 11 | U |
| 108-90-7 | Chlorobenzene | 11 | U |
| 100-41-4 | Ethylbenzene | 11 | U |
| 100-42-5 | Styrene | 11 | U |
| 1330-20-7 | Xylene (total) | 11 | U |

000013

EPA SAMPLE NO.

B07Q01

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-07B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R17

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 9 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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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4/7/93

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EPA SAMPLE NO.

B07Q02

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

al ame: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A212023-08B

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R11

avel: (low/med) LOW Data Received: 12/07/92

Moisture: not dec. 9 Data Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

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EPA SAMPLE NO.

B07Q02

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

La Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A212023-08B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R11

Level: (low/med) LOW Date Received: 12/07/92

% Moisture: not dec. 9 Date Analyzed: 12/10/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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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000018
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07Q03

ı ame: TMA/ARLI Contract: WHC

b Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A212023-09B

mple wt/vol: 5.0 (g/mL) G Lab File ID: 21210R12

vel: (low/med) LOW Date Received: 12/07/92

Moisture: not dec. 4 Date Analyzed: 12/10/92

Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

il Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

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EPA SAMPLE NO.

B07Q03

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

al ame: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12018 SAS No.: NA SDG No.: NA

atrix: (soil/watar) SOIL Lab Sample ID: A212023-09B

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21210R12

evel: (low/med) LOW Date Received: 12/07/92

Moisture: not dec. 4 Date Analyzed: 12/10/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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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4/7/93