

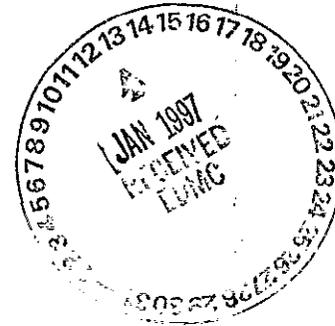
**MARTIN MARIETTA**

0046400

**MARTIN MARIETTA ENERGY SYSTEMS, INC.**POST OFFICE BOX 2003  
OAK RIDGE, TENNESSEE 37831-7440

July 11, 1991

Ms. Joan Kessner  
Westinghouse Hanford Company  
2355 Stevens Drive  
Richland, Washington 99352



Dear Ms. Kessner:

#### **Analytical Results on Project 91-029: 100B Drill Cuttings Samples**

Attached are the results on two 100B Drill Cuttings samples, Project 91-029, received into the Analytical Chemistry Department (ACD) laboratories on April 22, 1991. Also attached are copies of the Chain of Custody records for the samples, a sample identification table, and a summary of the protocol utilized to perform these analyses in accordance with agreements between the OSM and K-25 ACD. As previously requested in the letter dated December 20, 1990, the results are reported in ACD's AnaLis report format. All data quality objectives were satisfied on this project.

#### Semi-volatiles: BNA

The samples were not extracted within the prescribed holding times, missing the holding time for extraction by one (1) day. Once extracted, the samples were analyzed within the prescribed holding time for analysis. All surrogate standards were within percent recovery acceptance limits.

#### Volatiles: VOA

The samples were not analyzed within the prescribed holding times, missing the holding time by forty-three (43) days. All surrogate standards were within percent recovery acceptance limits.

Ms. Joan Kessner

2

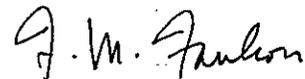
July 11, 1991

I certify that this data package is in compliance with the terms and conditions of the OSM's revised Statement of Work and letter dated December 20, 1990, both technically and for completeness, for other than the conditions stated above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures.

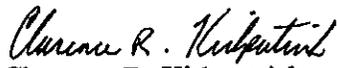
Sincerely,



Deborah L. Amburgey  
Program Manager  
Hanford Support Program



Fred M. Faulcon  
Program Manager  
Waste Management Analysis



Clarence R. Kirkpatrick  
Acting Department Manager  
Analytical Chemistry Department (K-25)

dla

#### Attachments

cc/attach: D.L.Amburgey  
S.R.Smith - RC

cc: N.P.Buddin  
H.H.Sullivan

**PROTOCOL UTILIZED FOR ANALYSES OF  
100B DRILL CUTTINGS SAMPLES  
AND SAMPLE IDENTIFICATION FOR  
PROJECT 91-029**

<u>Analysis</u>	<u>Protocol</u>
A. Semi-Volatiles	ACD 2470 [BNA (CLP) protocol]
B. Volatiles	ACD 2440 [VOA (CLP) protocol]

Table 1.1 - Sample Identification Table for Project 91-029: 100B Drill Cuttings Samples

Date Sample Group Received	OSM Sample ID Number	Lab Sample ID Number	Matrix	Comments
4/22/91	91-029-01	910425-006	liquid	
	91-029-02	910425-007	liquid	
Blanks		910430-073	blank	BNA blank for 910425-006 and -007
		910618-070	blank	VOA blank for 910425-006 and -007

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

Date Printed:  
11-JUL-1991 09:55

AnalIS ID: 910425-006      Project: G132 0291      Customer Sample ID: 91-029-01  
Customer: KESSNER/KLAGES      Requisition Number:  
Date Sampled: 17-APR-1991      Date Sample Received: 22-APR-1991  
Sampled By:      Date Sample Completed: 27-JUN-1991  
Material Description: DRILL CUTTINGS      [ ] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
132008	EPA-3550	Prep (BNA- SW-846-Sox)	C		MF MCMYLER	2723	30-APR-1991

Prep (BNA- SW-846-Sox)

-----  
Analyst = MF MCMYLER  
pH = 7  
Date Extracted = 30-APR-1991  
Sample Volume Extracted (mL) = 1000  
Extraction Method = Separatory Funnel  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 1.0  
Associated Blank = 910430-073

Program Manager: D. L. Amburgey  
Date Approved: 27-JUN-1991

AnalIS ID: 910425-006  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >11360  
 Instrument ID: 5970-3  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-01  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## BNA Base/Neutral/Acid Organic Compounds (TCL)

Date Extracted/Prepared: 30-APR-1991  
 Preparation Procedure Number: EPA-3550  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910430-073  
 □ : Result has been Corrected for Spike

Date Analyzed: 1-MAY-1991  
 Analysis Procedure Number: ACD 2470  
 Dilution Factor: 1.0  
 Analyst: C MEEHAN  
 QA File Number: 910501CM-0119

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	10U	106-47-8	4-Chloroaniline	10U
111-44-4	bis(2-Chloroethyl)ether	10U	87-68-3	Hexachlorobutadiene	10U
95-57-8	2-Chlorophenol	10U	59-50-7	4-Chloro-3-methylphenol	10U
541-73-1	1,3-Dichlorobenzene	10U	91-57-6	2-Methylnaphthalene	10U
106-46-7	1,4-Dichlorobenzene	10U	77-47-4	Hexachlorocyclopentadiene	10U
100-51-6	Benzyl Alcohol	10U	88-06-2	2,4,6-Trichlorophenol	10U
95-50-1	1,2-Dichlorobenzene	10U	95-95-4	2,4,5-Trichlorophenol	50U
95-48-7	2-Methylphenol	10U	91-58-7	2-Chloronaphthalene	10U
108-60-1	bis(2-Chloroisopropyl)ether	10U	88-74-4	2-Nitroaniline	50U
106-44-5	4-Methylphenol	10U	131-11-3	Dimethylphthalate	10U
621-64-7	N-Nitroso-di-n-propylamine	10U	208-96-8	Acenaphthylene	10U
67-72-1	Hexachloroethane	10U	99-09-2	3-Nitroaniline	50U
98-95-3	Nitrobenzene	10U	83-32-9	Acenaphthene	10U
78-59-1	Isophorone	10U	51-28-5	2,4-Dinitrophenol	50U
88-75-5	2-Nitrophenol	10U	100-02-7	4-Nitrophenol	50U
105-67-9	2,4-Dimethylphenol	10U	132-64-9	Dibenzofuran	10U
65-85-0	Benzoic Acid	50U	121-14-2	2,4-Dinitrotoluene	10U
111-91-1	bis(2-Chloroethoxy)methane	10U	606-20-2	2,6-Dinitrotoluene	10U
120-83-2	2,4-Dichlorophenol	10U	84-66-2	Diethylphthalate	10U
120-82-1	1,2,4-Trichlorobenzene	10U	7005-72-3	4-Chlorophenyl-phenylether	10U
91-20-3	Naphthalene	10U	86-73-7	Fluorene	10U

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

## ANALYSIS DATA REPORT

Date Printed:  
11-JUL-1991 09:55

AnalIS ID: 910425-006  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >11360  
 Instrument ID: 5970-3  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-01  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## BNA Base/Neutral/Acid Organic Compounds (TCL)

Date Extracted/Prepared: 30-APR-1991  
 Preparation Procedure Number: EPA-3550  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910430-073  
 [ ] : Result has been Corrected for Spike

Date Analyzed: 1-MAY-1991  
 Analysis Procedure Number: ACD 2470  
 Dilution Factor: 1.0  
 Analyst: C MEEHAN  
 QA File Number: 910501CM-0119

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	50U	53-70-3	Dibenz(a,h)anthracene	10U
534-52-1	4,6-Dinitro-2-methylphenol	50U	191-24-2	Benzo(g,h,i)perylene	10U
86-30-6	N-Nitrosodiphenylamine	10U			
101-55-3	4-Bromophenyl-phenylether	10U			
118-74-1	Hexachlorobenzene	10U			
87-86-5	Pentachlorophenol	50U			
85-01-8	Phenanthrene	10U			
120-12-7	Anthracene	10U			
84-74-2	Di-n-butylphthalate	10U			
206-44-0	Fluoranthene	10U			
129-00-0	Pyrene	10U			
85-68-7	Butylbenzylphthalate	10U			
91-94-1	3,3'-Dichlorobenzidine	20U			
56-55-3	Benzo(a)anthracene	10U			
117-81-7	bis(2-Ethylhexyl)phthalate	10U			
218-01-9	Chrysene	10U			
117-84-0	Di-n-octylphthalate	10U			
205-99-2	Benzo(b)fluoranthene	10U			
207-08-9	Benzo(k)fluoranthene	10U			
50-32-8	Benzo(a)pyrene	10U			
193-39-5	Indeno(1,2,3-cd)pyrene	10U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

## ANALYSIS DATA REPORT

Date Printed:  
11-JUL-1991 09:55

AnalIS ID: 910425-006  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >00253  
 Instrument ID: 5970-2  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-01  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:  
 Preparation Procedure Number:  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910618-070  
 [ ] : Result has been Corrected for Spike

Date Analyzed: 18-JUN-1991  
 Analysis Procedure Number: ACD 2440  
 Dilution Factor: 1.0  
 Analyst: RW ANDERSON  
 QA File Number: 910618JWS-0216

CAS	ug/L	CAS	ug/L
74-87-3	10U	79-00-5	5U
74-83-9	10U	71-43-2	5U
75-01-4	10U	10061-02-6	5U
75-00-3	10U	75-25-2	5U
75-09-2	2 JB	108-10-1	10U
67-64-1	10U	591-78-6	10U
75-15-0	5U	127-18-4	5U
75-35-4	5U	79-34-5	5U
75-34-3	5U	108-88-3	5U
540-59-0	5U	108-90-7	5U
67-66-3	5U	100-41-4	5U
107-06-2	5U	100-42-5	5U
78-93-3	10U	1330-20-7	5U
71-55-6	5U		
56-23-5	5U		
108-05-4	10U		
75-27-4	5U		
78-87-5	5U		
10061-01-5	5U		
79-01-6	5U		
124-48-1	5U		

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

Oak Ridge K-25 Site  
Analytical Chemistry Department  
Results of Analyses

Date Printed:  
10-JUL-1991 07:32

AnalIS ID: 910425-007      Project: G132 0291      Customer Sample ID: 91-029-02  
Customer: KESSNER/KLAGES      Requisition Number:  
Date Sampled: 17-APR-1991      Date Sample Received: 22-APR-1991  
Sampled By:      Date Sample Completed: 21-JUN-1991  
Material Description: DRILL CUTTINGS      [] : Result has been Corrected for Spike

Activ. Number	Procedure No.	Analysis	Result	Units	Analyst	QA File Number	Date Completed
132008	EPA-3550	Prep (BNA- SW-846-Sox)	C		MF MCMYLER	2723	30-APR-1991

Prep (BNA- SW-846-Sox)

-----  
Analyst = MF MCMYLER  
pH = 8  
Date Extracted = 30-APR-1991  
Sample Volume Extracted (mL) = 1000  
Extraction Method = Separatory Funnel  
Extraction Solvent = Methylene Chloride  
Extraction Cleanup = Sodium Sulfate  
Final Volume of Extract (mL) = 1.0  
Associated Blank = 910430-073

Program Manager: D. L. Amburgey  
Date Approved: 27-JUN-1991

ANALYSIS DATA REPORT

Date Printed:  
10-JUL-1991 07:32

AnalIS ID: 910425-007  
Laboratory: Organic Mass Spectroscopy Laboratory  
File ID: >11361  
Instrument ID: 5970-3  
Authorized By: D. C. Canada

Customer Sample ID: 91-029-02  
Customer: KESSNER/KLAGES  
Sample Matrix: WATER  
Requisition Number:  
Date Sample Received: 22-APR-1991

BNA Base/Neutral/Acid Organic Compounds (TCL)

Date Extracted/Prepared: 30-APR-1991  
Preparation Procedure Number: EPA-3550  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank: 910430-073  
[] : Result has been Corrected for Spike

Date Analyzed: 1-MAY-1991  
Analysis Procedure Number: ACD 2470  
Dilution Factor: 1.0  
Analyst: C MEEHAN  
QA File Number: 910501CM-0119

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	10U	106-47-8	4-Chloroaniline	10U
111-44-4	bis(2-Chloroethyl)ether	10U	87-68-3	Hexachlorobutadiene	10U
95-57-8	2-Chlorophenol	10U	59-50-7	4-Chloro-3-methylphenol	10U
541-73-1	1,3-Dichlorobenzene	10U	91-57-6	2-Methylnaphthalene	10U
106-46-7	1,4-Dichlorobenzene	10U	77-47-4	Hexachlorocyclopentadiene	10U
100-51-6	Benzyl Alcohol	10U	88-06-2	2,4,6-Trichlorophenol	10U
95-50-1	1,2-Dichlorobenzene	10U	95-95-4	2,4,5-Trichlorophenol	50U
95-48-7	2-Methylphenol	10U	91-58-7	2-Chloronaphthalene	10U
108-60-1	bis(2-Chloroisopropyl)ether	10U	88-74-4	2-Nitroaniline	50U
106-44-5	4-Methylphenol	10U	131-11-3	Dimethylphthalate	10U
621-64-7	N-Nitroso-di-n-propylamine	10U	208-96-8	Acenaphthylene	10U
67-72-1	Hexachloroethane	10U	99-09-2	3-Nitroaniline	50U
98-95-3	Nitrobenzene	10U	83-32-9	Acenaphthene	10U
78-59-1	Isophorone	10U	51-28-5	2,4-Dinitrophenol	50U
88-75-5	2-Nitrophenol	10U	100-02-7	4-Nitrophenol	50U
105-67-9	2,4-Dimethylphenol	10U	132-64-9	Dibenzofuran	10U
65-85-0	Benzoic Acid	50U	121-14-2	2,4-Dinitrotoluene	10U
111-91-1	bis(2-Chloroethoxy)methane	10U	606-20-2	2,6-Dinitrotoluene	10U
120-83-2	2,4-Dichlorophenol	10U	84-66-2	Diethylphthalate	10U
120-82-1	1,2,4-Trichlorobenzene	10U	7005-72-3	4-Chlorophenyl-phenylether	10U
91-20-3	Naphthalene	10U	86-73-7	Fluorene	10U

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

## ANALYSIS DATA REPORT

Date Printed:  
10-JUL-1991 07:32

AnalIS ID: 910425-007  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >11361  
 Instrument ID: 5970-3  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-02  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## BNA Base/Neutral/Acid Organic Compounds (TCL)

Date Extracted/Prepared: 30-APR-1991  
 Preparation Procedure Number: EPA-3550  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910430-073  
 [] : Result has been Corrected for Spike

Date Analyzed: 1-MAY-1991  
 Analysis Procedure Number: ACD 2470  
 Dilution Factor: 1.0  
 Analyst: C MEEHAN  
 QA File Number: 910501CM-0119

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	50U	53-70-3	Dibenz(a,h)anthracene	10U
534-52-1	4,6-Dinitro-2-methylphenol	50U	191-24-2	Benzo(g,h,i)perylene	10U
86-30-6	N-Nitrosodiphenylamine	10U			
101-55-3	4-Bromophenyl-phenylether	10U			
118-74-1	Hexachlorobenzene	10U			
87-86-5	Pentachlorophenol	50U			
85-01-8	Phenanthrene	10U			
120-12-7	Anthracene	10U			
84-74-2	Di-n-butylphthalate	10U			
206-44-0	Fluoranthene	10U			
129-00-0	Pyrene	10U			
85-68-7	Butylbenzylphthalate	10U			
91-94-1	3,3'-Dichlorobenzidine	20U			
56-55-3	Benzo(a)anthracene	10U			
117-81-7	bis(2-Ethylhexyl)phthalate	10U			
218-01-9	Chrysene	10U			
117-84-0	Di-n-octylphthalate	10U			
205-99-2	Benzo(b)fluoranthene	10U			
207-08-9	Benzo(k)fluoranthene	10U			
50-32-8	Benzo(a)pyrene	10U			
193-39-5	Indeno(1,2,3-cd)pyrene	10U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

## ANALYSIS DATA REPORT

Date Printed:

10-JUL-1991 07:32

AnalIS ID: 910425-007  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >00252  
 Instrument ID: 5970-2  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-02  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:  
 Preparation Procedure Number:  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910618-070  
 [ ] : Result has been Corrected for Spike

Date Analyzed: 18-JUN-1991  
 Analysis Procedure Number: ACD 2440  
 Dilution Factor: 1.0  
 Analyst: JW SAUNDERS  
 QA File Number: 910618JWS-0216

CAS		ug/Kg	CAS		ug/Kg
74-87-3	Chloromethane	10U	79-00-5	1,1,2-Trichloroethane	5U
74-83-9	Bromomethane	10U	71-43-2	Benzene	5U
75-01-4	Vinyl Chloride	10U	10061-02-6	trans-1,3-Dichloropropene	5U
75-00-3	Chloroethane	10U	75-25-2	Bromoform	5U
75-09-2	Methylene Chloride	2 JB	108-10-1	4-Methyl-2-pentanone	10U
67-64-1	Acetone	19 B	591-78-6	2-Hexanone	10U
75-15-0	Carbon Disulfide	5U	127-18-4	Tetrachloroethene	5U
75-35-4	1,1-Dichloroethene	5U	79-34-5	1,1,2,2-Tetrachloroethane	5U
75-34-3	1,1-Dichloroethane	5U	108-88-3	Toluene	5U
540-59-0	1,2-Dichloroethene (total)	5U	108-90-7	Chlorobenzene	5U
67-66-3	Chloroform	5U	100-41-4	Ethylbenzene	5U
107-06-2	1,2-Dichloroethane	5U	100-42-5	Styrene	5U
78-93-3	2-Butanone	10U	1330-20-7	Xylene (total)	5U
71-55-6	1,1,1-Trichloroethane	5U			
56-23-5	Carbon Tetrachloride	5U			
108-05-4	Vinyl Acetate	10U			
75-27-4	Bromodichloromethane	5U			
78-87-5	1,2-Dichloropropane	5U			
10061-01-5	cis-1,3-Dichloropropene	5U			
79-01-6	Trichloroethene	5U			
124-48-1	Dibromochloromethane	5U			

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

**MARTIN MARIETTA**

MARTIN MARIETTA ENERGY SYSTEMS, INC.

**CHAIN OF CUSTODY RECORD**

ANALYTICAL CHEMISTRY DEPARTMENT

ACD-COC NO 1792

PROJECT NUMBER B 79300		PROJECT NAME 100B - DRILLING			NO. OF CONTAINERS	VOA ABN					REMARKS  (Bottles not labelled MM 4/22-91)
SAMPLERS (SIGNATURE) JGH DEANNA L. KLAGES											
CUSTOMER NUMBER	ACD NUMBER	SAMPLING		SAMPLE TYPE							
		DATE	TIME								
91-029-01	910425-006	4-17-91	1005	LIQUID	3	✓	✓				
91-029-02	-007	4-17-91	1005	LIQUID	3	✓	✓				
<del>JGH</del>											
RELINQUISHED BY (Signature) J.S. Hogan	Date 4-18-91	Time 1130	RECEIVED BY (Signature) M. Z. Masland	Date 4/22/91	Time 0900	RELINQUISHED BY (Signature)	Date	Time	RECEIVED BY (Signature)		
RELINQUISHED BY (Signature)	Date	Time	RECEIVED BY (Signature)	Date	Time	RELINQUISHED BY (Signature)	Date	Time	RECEIVED BY (Signature)		

COOLER RECEIPT FORM  
for SOP 2332

File with receiving  
and C-O-C records.

Date: 4-22-91 Shipper ID and Document No: EMERY document number **248155928** Che **9**  
Cooler ID if noted on outside of cooler: Rm # 5  
Project No: C132 Subproject No: 13799300 Site Location: Hanford

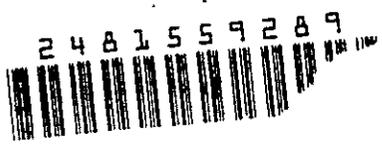
Custody seal on cooler?  Yes  No  
Condition of cooler acceptable?  Yes  No  
Radioactive labels? Yes  No  
Hazardous labels? Yes  No  
Custody form(s) inside of cooler?  Yes  No  
Was cooler required to be maintained at 4 deg C?  Yes  No  
Sample containers intact?  Yes  No  
Are containers those specified for requested parameters?  Yes  No  
Date of login: \_\_\_\_\_  
Lab assigned ID No: \_\_\_\_\_  
Thru \_\_\_\_\_

Custody seals dated and signed? Yes  No  
Prog. Mgr. notified of receipt of cooler?  Yes  No  
Radioactivity recheck OK?  Yes  No  
Samples properly labeled? Yes  No  
Custody form(s) properly completed and signed?  Yes  No  
Thermometer inside of cooler? Yes  No  
Temperature of cooler: 15 deg C (X.X)  
VOA containers free of bubbles?  Yes  No  
Additional information needed from Prog. Mgr.?  Yes  No

NOTE: Nitrite-N, Nitrate-N, o-Phosphate o-Phosphate-P have 48-hour holdin time. LOG IN THESE FIRST - ASAP

The lab numbers plus the project number are used for tracking purposes.

Comments: \_\_\_\_\_ Signed: MZ [Signature]  
Sample bottles not labelled - no problem - BNA/v  
\* cooler delivered late - all ice melted, but samples cold.



Westinhouse Hanford Company

CHAIN OF CUSTODY

Company Contact Deanna L. Klages Telephone 376-4088

Sample Collected by Deanna L. Klages Date 4-17-91 Time 10:05 am

Sample Locations B-Pond/ 600 Area

Ice Chest No. RM#5 Field Logbook and Page No. N/A

Remarks Samples are drill cuttings from 100 B drilling.

Bill of Lading No. \_\_\_\_\_ Offsite Property No. \_\_\_\_\_

Method of Shipment \_\_\_\_\_

Shipped to Oakridge, TN K-25 Lab.

Sample Identification

91-029-01 ABN, 1 L AG

VOA, 2-40ml AGs

91-029-02 ABN, 1 L AG

VOA, 2-40ml AGs

Chain of Possession

Relinquished by: <u>DEANNA L. KLAGES</u> <u>Deanna L. Klages</u>	Received by: <u>C.S. McClellan</u> <u>CSM, OLL</u>	Date/Time: <u>4-17-91</u> <u>1155 hrs</u>
Relinquished by: <u>J. G. HOGAN</u> <u>J. G. HOGAN</u>	Received by: <u>J. G. HOGAN</u>	Date/Time: <u>4-18-91</u> <u>1200</u>
Relinquished by: <u>J.G. HOGAN</u> <u>J. G. HOGAN</u>	Received by: <u>J. DEMAREST</u> <u>J. Demarest</u>	Date/Time: <u>4-18-91</u> <u>1400</u>
Relinquished by: <u>J. DEMAREST</u> <u>J. Demarest</u>	Received by: <u>M. L. ASHFAUGH</u> <u>M. L. ASHFAUGH</u>	Date/Time: <u>4-22-91</u> <u>0900</u>

SAMPLE STATUS REPORT FOR E 4908. E-BLANK 91-029-2 TIME: 4/18/91 13: 0  
DISPATCHED: 4/17/91 13:23 SAMPLE HAS NOT BEEN SLURPED  
RECEIVED: 4/18/91 8:15

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD RANGE?	CHARGE ANS?	CODE
****	*****	*****	***	***	*****
4271	TOT-ACT	< 5.00000E 01 PIC1/G	N	Y	W4A5B

END OF REPORT

**AIR OVERNIGHT SECURITY SIGNATURE SERVICE**

Contractor <b>Battelle/PNL</b>	<b>OFF-SITE PROPERTY CONTROL</b>	CONTROL NUMBER <i>(To be obtained from PROPERTY MANAGEMENT)</i> <b>W91-0306</b>
-----------------------------------	--------------------------------------	---

PART I - TO BE COMPLETED BY ORIGINATOR

Department <b>Laboratory Safety</b>	Section <b>Waste Management and Environmental Compliance</b>	Unit
The following items are to be shipped from <input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor		
Routing <b>Emerg Air Express</b> <input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor		
Shipped to <b>c/o Martin Marietta Energy Systems Blair Road. Highway 58 Oakridge, TN 37831-7440 K-1004A Drop Point A20</b>	Off-site Custodian <b>C. R. Kirkpatrick</b>	
Full Title		

Quantity	Description <i>(Include Serial and any Government Tag Numbers)</i>	Original Cost
1  <i>#44 LBS</i>	<b>Polycooler. Liquid from drill cuttings, packed in wet ice. Ice chest #RM#5</b>	

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 at this site.**

Bill of Lading 2481559289

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

RM Clearance for Public Release <i>[Signature]</i>	RM Survey No	Date <b>1-18-91</b>
Location of Property (Area & Bldg.) <b>222-S/ 200-W AREA</b>	Contact <b>GORDON BLEWETT</b>	Phone <b>373-3467</b>
Date Ready for Shipment <b>4-18-91</b>	Cost Code to be Charged <b>B79300 ORG. CODE 28450</b>	Approximate Date This Property will be Returned <b>N/A</b>
Originated By <b>GORDON BLEWETT</b>	Date <b>4-18-91</b>	Authorized By <b>R. MEZNARICH</b> <i>[Signature]</i>
Signature and Name of Property Control	Custodian Date	Property Management Approval <i>[Signature]</i> Date <b>4/18/91</b>

PART II - TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No	Date Issued	Purchase Order No.	Date Issued
Date				

DISTRIBUTION

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

PRECISION PRINTING SYSTEMS ■ (503) 230-0018

**EMERY**  
**WORLDWIDE**



### SIGNATURE AND TALLY RECORD

80029-46 (8/89) Litho USA

DATE: 04-18-91 SHIPMENT NO.: PSC 24815528-9  
SHIPPER WESTINGHOUSE SHIPPING FOR BATTELLE  
REFERENCE NO.: OSPC# W91-0306

#### SHIPPER NAME AND ADDRESS

WESTINGHOUSE SHIPPING DEPT (509) 376-6665  
US DEPARTMENT OF ENERGY C/O  
BATTELLE NORTHWEST LABORATORIES  
2355 STEVENS DRIVE 1163 BLDG PO BOX 990  
RICHLAND WA 99352

#### CONSIGNEE NAME AND ADDRESS

US DEPARTMENT OF ENERGY  
C/O MARTIN MARIETTA ENERGY SYSTEMS  
ATTENTION CR KIRKPATRICK  
BLAIR ROAD HIGHWAY 58 K-1004A DROP POJ  
OAKRIDGE TN 37831-7740

Pieces <b>1</b>	Weight <b>44 LB</b>	Description/Marks <b>POLYCOOLER DRILL CUTTING (CHEST #1165)</b>	Emery Authorization No.
--------------------	------------------------	--	-------------------------

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. JOYCE DEMAREST 1167/1100 WESTINGHOUSE SHIPPING	RICHLAND WA	<i>[Signature]</i>	15:00 4-10
2. L. D. RYAN / AIR DOWNING HANCOCK	PASCO, WA	<i>[Signature]</i>	15:00 4-10
3. Ted Klueck EWIN	PSC	<i>[Signature]</i>	15:30 4/10
4. Karen Kowalski Horizon Air	PASCO	<i>[Signature]</i>	15:40 4/10
5. RICH CHRISTENSEN HORIZON	SEATTLE	<i>[Signature]</i>	16:15 4/10
6. L. STRECK EMERY	SEA	<i>[Signature]</i>	18:16 4/10
7. R. J. Holland	SEA	<i>[Signature]</i>	0326 4/19
8. M. L. H. V. FELD EWIN	SEA	<i>[Signature]</i>	10:00 4/19

SPECIAL HANDLING INSTRUCTIONS

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 9/14/91 SAMPLES/MATRIX 91-029-01  
 REVIEWED BY JA Lerch J 91-029-02  
 LABORATORY K-25 both liquid  
 CASE # 91-029  
 SDG # —

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	VOA	SemiVOA
1. <u>Holding times</u>		<u>X</u>	<u>X</u>
2. <u>Blanks</u>		<u>X</u>	<u>0</u>
3. <u>Surrogate Recovery</u>		<u>0</u>	<u>0</u>
4. <u>Other</u>		<u>see attachment</u>	
5.			
6.			
7.			
8.			
9.			
10.			

0 = data had no problems  
 X = data qualified due to minor problems  
 M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSMENT: no major problems—all results  
estimated (UJ) due to exceeded holding  
times

NOTES: none

o Refer to the corresponding attachments for explanation of any problems.

RCRA LEVEL C QC

Name JA Lerch Date 9/14/91

QC Check: Holding times

COMMENTS: VOA - holding times exceeded by several weeks  
SemivOA - samples extracted in 11 days, analyzed  
within holding time after extraction

ACTION: qualify sample results as per asm guidelines

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
all VOA	all	UJ			
all SemivOA	all	UJ			

RCRA LEVEL C QC

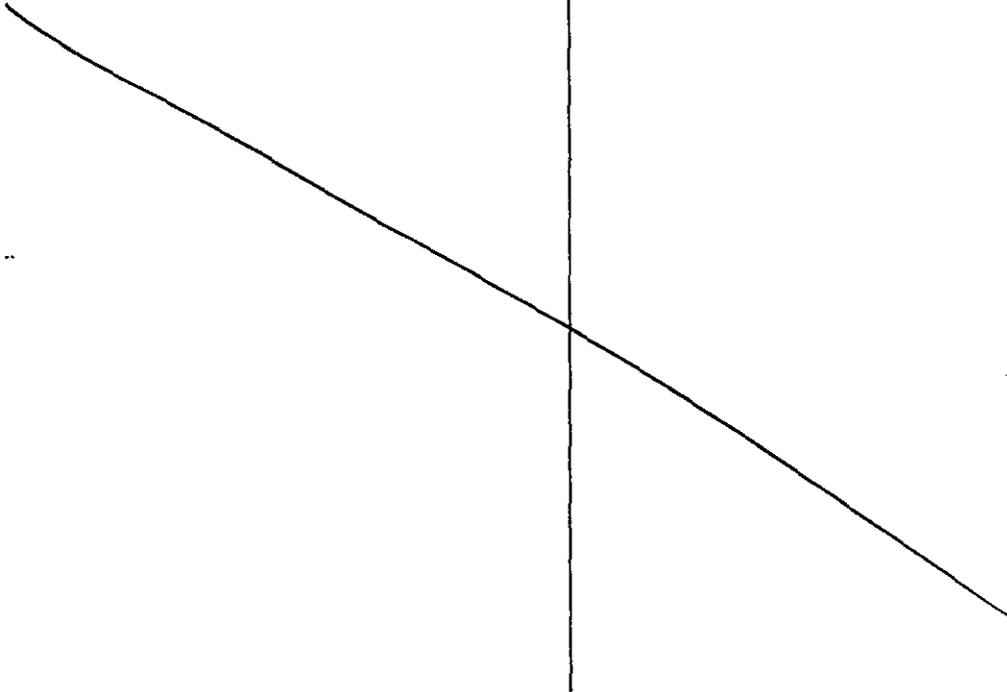
Name JA Lerch Date 9/14/91

QC Check: Surrogate Recovery

COMMENTS: -all semiVOA and VOA surrogate recoveries  
withing control limits for samples  
and blanks

ACTION: none

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
-----------------	--------------------	-------------------	-----------------	--------------------	-------------------



RCRA LEVEL C QC

Name JA Lerch Date 9/14/91

QC Check: Blanks

COMMENTS: SemiVOA - no contaminants detected in SBLKAR  
VOA - MeCl<sub>2</sub>, acetone, bromoform, and 1,1,2,2-tetrachloroethane  
detected in VBLK01

ACTION: qualify associated results as per  
OSM guidelines

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
91-029-01	MeCl <sub>2</sub>	5U			
91-029-02	MeCl <sub>2</sub>	5U			
	acetone	19U			

RCRA LEVEL C QC

Name JA Lerch *[Signature]* Date 9/14/91

QC Check: other

COMMENTS: -MS/MSD results not evaluated (not included  
w/package) - not likely that samples would  
demonstrate any matrix effects

ACTION: none

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
<i>[Table is crossed out with a large diagonal line]</i>					

**ANALYTICAL RESULTS DATA PACKAGE**

**PROJECT 91-029**

**TABLE OF CONTENTS**

	Page No.
1. Case Summary.....	1
2. Protocol and Sample Identification.....	3
3. Chain of Custody Records.....	4
4. AnaLis Data Reports.....	10



MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2003  
OAK RIDGE, TENNESSEE 37831 -7410

July 11, 1991

Ms. Joan Kessner  
Westinghouse Hanford Company  
2355 Stevens Drive  
Richland, Washington 99352

Dear Ms. Kessner:

**Analytical Results on Project 91-029: 100B Drill Cuttings Samples**

Attached are the results on two 100B Drill Cuttings samples, Project 91-029, received into the Analytical Chemistry Department (ACD) laboratories on April 22, 1991. Also attached are copies of the Chain of Custody records for the samples, a sample identification table, and a summary of the protocol utilized to perform these analyses in accordance with agreements between the OSM and K-25 ACD. As previously requested in the letter dated December 20, 1990, the results are reported in ACD's AnaLis report format. All data quality objectives were satisfied on this project.

Semi-volatiles: BNA

The samples were not extracted within the prescribed holding times, missing the holding time for extraction by one (1) day. Once extracted, the samples were analyzed within the prescribed holding time for analysis. All surrogate standards were within percent recovery acceptance limits.

Volatiles: VOA

The samples were not analyzed within the prescribed holding times, missing the holding time by forty-three (43) days. All surrogate standards were within percent recovery acceptance limits.

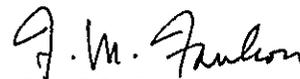
July 11, 1991

I certify that this data package is in compliance with the terms and conditions of the OSM's revised Statement of Work and letter dated December 20, 1990, both technically and for completeness, for other than the conditions stated above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signatures.

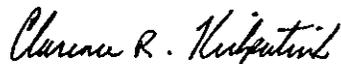
Sincerely,



Deborah L. Amburgey  
Program Manager  
Hanford Support Program



Fred M. Faulcon  
Program Manager  
Waste Management Analysis



Clarence R. Kirkpatrick  
Acting Department Manager  
Analytical Chemistry Department (K-25)

dla

Attachments

cc/attach: D.L.Amburgey  
S.R.Smith - RC

cc: N.P.Buddin  
H.H.Sullivan

**PROTOCOL UTILIZED FOR ANALYSES OF  
100B DRILL CUTTINGS SAMPLES  
AND SAMPLE IDENTIFICATION FOR  
PROJECT 91-029**

Analysis  
A. Semi-Volatiles  
B. Volatiles

Protocol  
ACD 2470 [BNA (CLP) protocol]  
ACD 2440 [VOA (CLP) protocol]

Table 1.1 - Sample Identification Table for Project 91-029: 100B Drill Cuttings Samples

Date Sample Group Received	OSM Sample ID Number	Lab Sample ID Number	Matrix	Comments
4/22/91	91-029-01	910425-006	liquid	
	91-029-02	910425-007	liquid	
Blanks		910430-073	blank	BNA blank for 910425-006 and -007
		910618-070	blank	VOA blank for 910425-006 and -007

\*\*\*\*\*

**CHAIN OF CUSTODY  
AND SAMPLE RECEIPT  
DOCUMENTATION**

\*\*\*\*\*



MARTIN MARIETTA ENERGY SYSTEMS, INC.

# CHAIN OF CUSTODY RECORD

ANALYTICAL CHEMISTRY DEPARTMENT

ACD. COC NO 1792

PROJECT NUMBER **B 79300**  
PROJECT NAME **100 B - DRILLING**

SAMPLERS (SIGNATURE) **JGH**  
**DEANNA L. KLAGES**

NO. OF CONTAINERS

REMARKS

CUSTOMER NUMBER	ACD NUMBER	SAMPLING		SAMPLE TYPE
		DATE	TIME	
91-029-01	910425-006	4-17-91	1005	Liquid
91-029-02	-007	4-17-91	1005	Liquid

3  
3

VOA  
AGN

(Bottles not labelled)  
MM 4/22-91

RELINQUISHED BY (Signature) <i>J S Hogan</i>	Date 4-18-91	Time 1130	RECEIVED BY (Signature) <i>[Signature]</i>	Date 4/22/91	Time 0900	RELINQUISHED BY (Signature)	Date	Time	RECEIVED BY (Signature)
RELINQUISHED BY (Signature)	Date	Time	RECEIVED BY (Signature)	Date	Time	RELINQUISHED BY (Signature)	Date	Time	RECEIVED BY (Signature)

COOLER RECEIPT FORM  
for SOP 2332

File with receiving  
and C-O-C records.

Date: 7-22-91 Shipper ID and Document No: EMERY <sup>document number</sup> **248155928**  
Cooler ID if noted on outside of cooler: RM # 5  
Project No: C132 Subproject No: 13799300 Site Location: Hanford

Custody seal on cooler?  Yes  No

Condition of cooler acceptable?  Yes  No

Radioactive labels? Yes  No

Hazardous labels? Yes  No

Custody form(s) inside of cooler?  Yes  No

Was cooler required to be maintained at 4 deg C?  Yes  No

Sample containers intact?  Yes  No

Are containers those specified for requested parameters?  Yes  No

Date of login: \_\_\_\_\_

Lab assigned ID No: \_\_\_\_\_

Thru \_\_\_\_\_

Custody seals dated and signed? Yes  No

Prog. Mgr. notified of receipt of cooler?  Yes  No

Radioactivity recheck OK?  Yes  No

Samples properly labeled? Yes  No

Custody form(s) properly completed and signed?  Yes  No

Thermometer inside of cooler? Yes  No

Temperature of cooler: 15 deg C (X.X)

VOA containers free of bubbles?  Yes  No

Additional information needed from Prog. Mgr.?  Yes  No

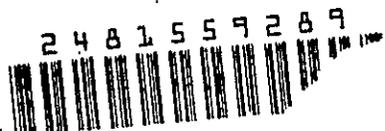
NOTE: Nitrite-N, Nitrate-N, o-Phosphat  
o-Phosphate-P have 48-hour holdi.  
time. LOG IN THESE FIRST - ASAP

The lab numbers plus the project number are used for tracking purposes.

Comments:

Signed: MZ A. A. King

sample bottles not labelled - no problem - BWA/  
\* cooler delivered late - all ice melted,  
but samples cold.



Westinhouse Hanford Company

CHAIN OF CUSTODY

Company Contact Deanna L. Klages Telephone 376-4088

Sample Collected by Deanna L. Klages Date 4-17-91 Time 10:05 am

Sample Locations B-Pond/ 600 Area

Ice Chest No. RM#5 Field Logbook and Page No. N/A

Remarks Samples are drill cuttings from 100 B drilling.

Bill of Lading No. \_\_\_\_\_ Offsite Property No. \_\_\_\_\_

Method of Shipment \_\_\_\_\_

Shipped to Oakridge, TN K-25 Lab.

Sample Identification

91-029-01 ABN, 1 L AG

VOA, 2-40ml AGs

91-029-02 ABN, 1 L AG

VOA, 2-40ml AGs

*[Large diagonal scribbles across the sample identification table]*

Chain of Possession

Relinquished by: <u>DEANNA L. KLAGES</u> <i>Deanna L. Klages</i>	Received by: <u>C.S. McClellan</u> <i>C.S.M. Old</i>	Date/Time: <u>4-17-91</u> <u>1155 hrs</u>
Relinquished by: <u>J. G. HOGAN</u> <i>J.G. HOGAN</i>	Received by: <u>J.B. HOGAN</u> <i>J.B. HOGAN</i>	Date/Time: <u>4-18-91</u> <u>1200</u>
Relinquished by: <u>J.G. HOGAN</u> <i>J.G. HOGAN</i>	Received by: <u>J. DEMAREST</u> <i>J. DEMAREST</i>	Date/Time: <u>4-18 91</u> <u>1400</u>
Relinquished by: <u>J. DEMAREST</u> <i>J. DEMAREST</i>	Received by: <u>M. A. A. A. A.</u> <i>M. A. A. A. A.</i>	Date/Time: <u>4-22-91</u> <u>0900 @</u>

SAMPLE STATUS REPORT FOR E 4908. E-BLANK 91-029-2 TIME: 4/18/91 13: 0  
 DISPATCHED: 4/17/91 13:23 SAMPLE HAS NOT BEEN SLURPED  
 RECEIVED: 4/18/91 0:15

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD RANGE?	CHARGE ANS?	CODE
***	*****	*****	***	**	*****
4271	TOT-ACT	< 5.00000E 01 PIC1/6	N	Y	W4A5B

END OF REPORT

**AIR OVERNIGHT SECURITY SIGNATURE SERVICE**

Contractor <b>Battelle/PNL</b>	<b>OFF-SITE PROPERTY CONTROL</b>	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT) <b>W91-0306</b>
-----------------------------------	--------------------------------------	--

**PART I - TO BE COMPLETED BY ORIGINATOR**

Department <b>Laboratory Safety</b>	Section <b>Waste Management and Environmental Compliance</b>
The following items are to be shipped from <input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor	
Routing <b>Emery Air Express</b> <input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor	
Shipped to <b>c/o Martin Marietta Energy Systems Blair Road. Highway 58 Oakridge, TN 37831-7440 K-1004A Drop Point A20</b>	Off-site Custodian <b>C. R. Kirkpatrick</b>  Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
<b>1</b> <b>#44LBS</b>	<b>Polycooler. Liquid from drill cuttings, packed in wet ice.</b> <b>Ice chest #RM#5</b>	

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 at this site.**

Bill of Lading **248155928<sup>e</sup>**

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

RM Clearance for Public Release <i>[Signature]</i>	RM Survey No	Date <b>4-18-91</b>
Location of Property (Area & Bldg.) <b>222-S/ 200-W AREA</b>	Contact <b>GORDON BLEWETT</b>	Phone <b>373-3467</b>
Date Ready for Shipment <b>4-18-91</b>	Cost Code to be Charged <b>B79300 ORG. CODE 28450</b>	Approximate Date This Property will be Returned <b>N/A</b>
Originated By <b>GORDON BLEWETT</b>	Date <b>4-18-91</b>	Authorized By <b>R. MEZNARICH</b> <i>[Signature]</i>
Signature and Name of Property Control	Custodian Date	Property Management Approval <i>[Signature]</i>
		Date <b>4/18/91</b>

**PART II - TO BE COMPLETED BY SHIPPING**

Signature of Recipient	Return Order No	Date Issued	Purchase Order No.	Date Issued
Date				

**DISTRIBUTION**

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

PRECISION PRINTING SYSTEMS ■ (503) 239-0018

**EMERY**  
**WORLDWIDE**



DATE: 04-18-91 SHIPMENT NO.: PSC 248155128-9  
SHIPPER WESTINGHOUSE SHIPPING FOR BATTTELLE  
REFERENCE NO.: OSPC# W91-0306

### SIGNATURE AND TALLY RECORD

80029-46 (8/89) Litho USA

#### SHIPPER NAME AND ADDRESS

WESTINGHOUSE SHIPPING DEPT (509) 376-6666  
US DEPARTMENT OF ENERGY C/O  
BATTELLE NORTHWEST LABORATORIES  
2355 STEVENS DRIVE 1163 BLDG PO BOX 990  
RICHLAND WA 99352

#### CONSIGNEE NAME AND ADDRESS

US DEPARTMENT OF ENERGY  
C/O MARTIN MARIETTA ENERGY SYSTEMS  
ATTENTION CR KIRKPATRICK  
BLAIR ROAD HIGHWAY 58  
OAKRIDGE TN 37831-7740  
K-1004A DROP P

Pieces	Weight	Description/Marks	Emery Authorization No.
1	44 LB	POLYCOOLER DRILL CUTTING (CHEST #RMS)	

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. JOYCE DEMAREST 1167/1100 WESTINGHOUSE SHIPPING	RICHLAND WA	<i>[Signature]</i>	15:00 4-1
2. L. D. R. T. / AIR DOWNING HAWK /	PASCO WA	<i>[Signature]</i>	15:00 4-1
3. Ted Vukic EML	PSC	<i>[Signature]</i>	15:30 4/1
4. Kelley Rowden Horizon A/C	PASCO	<i>[Signature]</i>	15:40 4/1
5. RICH CHRISTENSEN HORIZON	SEATTLE	<i>[Signature]</i>	18:15 4-
6. L. STRECK EMERY	SEA	<i>[Signature]</i>	18:16 4-1
7. R. DOLLARD	SEA	<i>[Signature]</i>	03:26 4/1
8. M. H. H. W. FEW EML	175	<i>[Signature]</i>	10:00 4/1

SPECIAL HANDLING INSTRUCTIONS

CONTINUATION TERMINAL COPY

## **AnaLis Reports**

AnalIS ID: 910425-006  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >11360  
 Instrument ID: 5970-3  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-01  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## BNA Base/Neutral/Acid Organic Compounds (TCL)

Date Extracted/Prepared: 30-APR-1991  
 Preparation Procedure Number: EPA-3550  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910430-073  
 ☐ : Result has been Corrected for Spike

Date Analyzed: 1-MAY-1991  
 Analysis Procedure Number: ACD 2470  
 Dilution Factor: 1.0  
 Analyst: C MEEHAN  
 QA File Number: 910501CM-0119

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	10U J	106-47-8	4-Chloroaniline	10U J
111-44-4	bis(2-Chloroethyl)ether	10U	87-68-3	Hexachlorobutadiene	10U
95-57-8	2-Chlorophenol	10U	59-50-7	4-Chloro-3-methylphenol	10U
541-73-1	1,3-Dichlorobenzene	10U	91-57-6	2-Methylnaphthalene	10U
106-46-7	1,4-Dichlorobenzene	10U	77-47-4	Hexachlorocyclopentadiene	10U
100-51-6	Benzyl Alcohol	10U	88-06-2	2,4,6-Trichlorophenol	10U
95-50-1	1,2-Dichlorobenzene	10U	95-95-4	2,4,5-Trichlorophenol	50U
95-48-7	2-Methylphenol	10U	91-58-7	2-Chloronaphthalene	10U
108-60-1	bis(2-Chloroisopropyl)ether	10U	88-74-4	2-Nitroaniline	50U
106-44-5	4-Methylphenol	10U	131-11-3	Dimethylphthalate	10U
621-64-7	N-Nitroso-di-n-propylamine	10U	208-96-8	Acenaphthylene	10U
67-72-1	Hexachloroethane	10U	99-09-2	3-Nitroaniline	50U
98-95-3	Nitrobenzene	10U	83-32-9	Acenaphthene	10U
78-59-1	Isophorone	10U	51-28-5	2,4-Dinitrophenol	50U
88-75-5	2-Nitrophenol	10U	100-02-7	4-Nitrophenol	50U
105-67-9	2,4-Dimethylphenol	10U	132-64-9	Dibenzofuran	10U
65-85-0	Benzoic Acid	50U	121-14-2	2,4-Dinitrotoluene	10U
111-91-1	bis(2-Chloroethoxy)methane	10U	606-20-2	2,6-Dinitrotoluene	10U
120-83-2	2,4-Dichlorophenol	10U	84-66-2	Diethylphthalate	10U
120-82-1	1,2,4-Trichlorobenzene	10U	7005-72-3	4-Chlorophenyl-phenylether	10U
91-20-3	Naphthalene	10U J	86-73-7	Fluorene	10U J

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

*JT*  
 9/14/91

ANALIS ID: 910425-006  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >11360  
 Instrument ID: 5970-3  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-01  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## BNA Base/Neutral/Acid Organic Compounds (TCL)

Date Extracted/Prepared: 30-APR-1991  
 Preparation Procedure Number: EPA-3550  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910430-073  
 [] : Result has been Corrected for Spike

Date Analyzed: 1-MAY-1991  
 Analysis Procedure Number: ACD 2470  
 Dilution Factor: 1.0  
 Analyst: C. MEEHAN  
 QA File Number: 910501CM-0119

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	50U J	53-70-3	Dibenz(a,h)anthracene	10U J
534-52-1	4,6-Dinitro-2-methylphenol	50U	191-24-2	Benzo(g,h,i)perylene	10U J
86-30-6	N-Nitrosodiphenylamine	10U			
101-55-3	4-Bromophenyl-phenylether	10U			
118-74-1	Hexachlorobenzene	10U			
87-86-5	Pentachlorophenol	50U			
85-01-8	Phenanthrene	10U			
120-12-7	Anthracene	10U			
84-74-2	Di-n-butylphthalate	10U			
206-44-0	Fluoranthene	10U			
129-00-0	Pyrene	10U			
85-68-7	Butylbenzylphthalate	10U			
91-94-1	3,3'-Dichlorobenzidine	20U			
56-55-3	Benzo(a)anthracene	10U			
117-81-7	bis(2-Ethylhexyl)phthalate	10U			
218-01-9	Chrysene	10U			
117-84-0	Di-n-octylphthalate	10U			
205-99-2	Benzo(b)fluoranthene	10U			
207-08-9	Benzo(k)fluoranthene	10U			
50-32-8	Benzo(a)pyrene	10U			
193-39-5	Indeno(1,2,3-cd)pyrene	10U J			

*JJ 9/14/91*

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 910425-006  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >00253  
 Instrument ID: 5970-2  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-01  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:  
 Preparation Procedure Number:  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910618-070  
 [ ] : Result has been Corrected for Spike

Date Analyzed: 18-JUN-1991  
 Analysis Procedure Number: ACD 2440  
 Dilution Factor: 1.0  
 Analyst: RW ANDERSON  
 QA File Number: 910618JWS-0216

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

*JF*  
9/14/91

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 910425-007  
Laboratory: Organic Mass Spectroscopy Laboratory  
File ID: >11361  
Instrument ID: 5970-3  
Authorized By: D. C. Canada

Customer Sample ID: 91-029-02  
Customer: KESSNER/KLAGES  
Sample Matrix: WATER  
Requisition Number:  
Date Sample Received: 22-APR-1991

BNA Base/Neutral/Acid Organic Compounds (TCL)

Date Extracted/Prepared: 30-APR-1991  
Preparation Procedure Number: EPA-3550  
Percent Moisture:  
Percent Moisture (decanted):  
Associated Blank: 910430-073  
[] : Result has been Corrected for Spike

Date Analyzed: 1-MAY-1991  
Analysis Procedure Number: ACD 2470  
Dilution Factor: 1.0  
Analyst: C MEEHAN  
QA File Number: 910501CM-0119

CAS		ug/Kg	CAS		ug/Kg
108-95-2	Phenol	10U J	106-47-8	4-Chloroaniline	10U J
111-44-4	bis(2-Chloroethyl)ether	10U	87-68-3	Hexachlorobutadiene	10U
95-57-8	2-Chlorophenol	10U	59-50-7	4-Chloro-3-methylphenol	10U
541-73-1	1,3-Dichlorobenzene	10U	91-57-6	2-Methylnaphthalene	10U
106-46-7	1,4-Dichlorobenzene	10U	77-47-4	Hexachlorocyclopentadiene	10U
100-51-6	Benzyl Alcohol	10U	88-06-2	2,4,6-Trichlorophenol	10U
95-50-1	1,2-Dichlorobenzene	10U	95-95-4	2,4,5-Trichlorophenol	50U
95-48-7	2-Methylphenol	10U	91-58-7	2-Chloronaphthalene	10U
108-60-1	bis(2-Chloroisopropyl)ether	10U	88-74-4	2-Nitroaniline	50U
106-44-5	4-Methylphenol	10U	131-11-3	Dimethylphthalate	10U
621-64-7	N-Nitroso-di-n-propylamine	10U	208-96-8	Acenaphthylene	10U
67-72-1	Hexachloroethane	10U	99-09-2	3-Nitroaniline	50U
98-95-3	Nitrobenzene	10U	83-32-9	Acenaphthene	10U
78-59-1	Isophorone	10U	51-28-5	2,4-Dinitrophenol	50U
88-75-5	2-Nitrophenol	10U	100-02-7	4-Nitrophenol	50U
105-67-9	2,4-Dimethylphenol	10U	132-64-9	Dibenzofuran	10U
65-85-0	Benzoic Acid	50U	121-14-2	2,4-Dinitrotoluene	10U
111-91-1	bis(2-Chloroethoxy)methane	10U	606-20-2	2,6-Dinitrotoluene	10U
120-83-2	2,4-Dichlorophenol	10U	84-66-2	Diethylphthalate	10U
120-82-1	1,2,4-Trichlorobenzene	10U	7005-72-3	4-Chlorophenyl-phenylether	10U
91-20-3	Naphthalene	10U J	86-73-7	Fluorene	10U J

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

*J*  
9/14/91

## ANALYSIS DATA REPORT

Date Printed:  
10-JUL-1991 07:32

AnalIS ID: 910425-007  
 Laboratory: Organic Mass Spectroscopy Laboratory  
 File ID: >11361  
 Instrument ID: 5970-3  
 Authorized By: D. C. Canada

Customer Sample ID: 91-029-02  
 Customer: KESSNER/KLAGES  
 Sample Matrix: WATER  
 Requisition Number:  
 Date Sample Received: 22-APR-1991

## BNA Base/Neutral/Acid Organic Compounds (TCL)

Date Extracted/Prepared: 30-APR-1991  
 Preparation Procedure Number: EPA-3550  
 Percent Moisture:  
 Percent Moisture (decanted):  
 Associated Blank: 910430-073  
 [] : Result has been Corrected for Spike

Date Analyzed: 1-MAY-1991  
 Analysis Procedure Number: ACD 2470  
 Dilution Factor: 1.0  
 Analyst: C. MEEHAN  
 QA File Number: 910501CM-0119

CAS		ug/Kg	CAS		ug/Kg
100-01-6	4-Nitroaniline	50UJ	53-70-3	Dibenz(a,h)anthracene	10UJ
534-52-1	4,6-Dinitro-2-methylphenol	50U	191-24-2	Benzo(g,h,i)perylene	10UJ
86-30-6	N-Nitrosodiphenylamine	10U			
101-55-3	4-Bromophenyl-phenylether	10U			
118-74-1	Hexachlorobenzene	10U			
87-86-5	Pentachlorophenol	50U			
85-01-8	Phenanthrene	10U			
120-12-7	Anthracene	10U			
84-74-2	Di-n-butylphthalate	10U			
206-44-0	Fluoranthene	10U			
129-00-0	Pyrene	10U			
85-68-7	Butylbenzylphthalate	10U			
91-94-1	3,3'-Dichlorobenzidine	20U			
56-55-3	Benzo(a)anthracene	10U			
117-81-7	bis(2-Ethylhexyl)phthalate	10U			
218-01-9	Chrysene	10U			
117-84-0	Di-n-octylphthalate	10U			
205-99-2	Benzo(b)fluoranthene	10U			
207-08-9	Benzo(k)fluoranthene	10U			
50-32-8	Benzo(a)pyrene	10U			
193-39-5	Indeno(1,2,3-cd)pyrene	10UJ			

*J J*  
 9/14/91

## Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.

AnalIS ID: 910425-007  
Laboratory: Organic Mass Spectroscopy Laboratory  
File ID: >00252  
Instrument ID: 5970-2  
Authorized By: D. C. Canada

Customer Sample ID: 91-029-02  
Customer: KESSNER/KLAGES  
Sample Matrix: WATER  
Requisition Number:  
Date Sample Received: 22-APR-1991

VOA - Volatile Organic Compounds (TCL)

Date Extracted/Prepared:  
Preparation Procedure Number:  
Percent Moisture:  
Percent Moisture (decanted):

Date Analyzed: 18-JUN-1991  
Analysis Procedure Number: ACD 2440  
Dilution Factor: 1.0  
Analyst: JW SAUNDERS  
QA File Number: 910618JWS-0216

Associated Blank: 910618-070  
[] : Result has been Corrected for Spike

CAS	ug/Kg	CAS	ug/Kg
74-87-3 Chloromethane	10UJ	79-00-5 1,1,2-Trichloroethane	5U J
74-83-9 Bromomethane	10U	71-43-2 Benzene	5U
75-01-4 Vinyl Chloride	10U	10061-02-6 trans-1,3-Dichloropropene	5U
75-00-3 Chloroethane	10UJ	75-25-2 Bromoform	5U
75-09-2 Methylene Chloride	5 2-18 UJ	108-10-1 4-Methyl-2-pentanone	10U
67-64-1 Acetone	19 B UJ	591-78-6 2-Hexanone	10U
75-15-0 Carbon Disulfide	5UJ	127-18-4 Tetrachloroethene	5U
75-35-4 1,1-Dichloroethene	5U	79-34-5 1,1,2,2-Tetrachloroethane	5U
75-34-3 1,1-Dichloroethane	5U	108-88-3 Toluene	5U
540-59-0 1,2-Dichloroethene (total)	5U	108-90-7 Chlorobenzene	5U
67-66-3 Chloroform	5U	100-41-4 Ethylbenzene	5U
107-06-2 1,2-Dichloroethane	5U	100-42-5 Styrene	5U
78-93-3 2-Butanone	10U	1330-20-7 Xylene (total)	5U J
71-55-6 1,1,1-Trichloroethane	5U		
56-23-5 Carbon Tetrachloride	5U		
108-05-4 Vinyl Acetate	10U		
75-27-4 Bromodichloromethane	5U		
78-87-5 1,2-Dichloropropane	5U		
10061-01-5 cis-1,3-Dichloropropene	5U		
79-01-6 Trichloroethene	5U		
124-48-1 Dibromochloromethane	5U J		

*JJ*  
9/14/91

Data Reporting Qualifiers:

- U - Compound was analyzed for but not detected. The number is the attainable detection limit for the sample.
- B - Analyte was found in the reagent blank as well as the sample.
- J - Indicates an estimated value.
- ND - Not detected.
- A - Aldol condensation product.
- D - Secondary dilution.
- E - Exceeds initial calibration range.