03.14-08/22/96-00875

OHM Remediation Services Corp.
A Subsidiary of OHM Corporation

ANALYTICAL DIVISION

Laboratory Analysis

Report(s) #620931

Client: OHM Remediation Services Corp.
Eastern Region (Pittsburgh, PA)

Attn: Rick Wolfson
Larry Stearns

Project: 18221N - Yorktown NWS, Yorktown, VA

Date Samples Received: August 7, 1996 **Date Data Due:** August 14, 1996

Date Order Received: August 7, 1996 **Date Data Reported:** August 15, 1996

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Reviewed and Approved by: Joseph A. Hnatow ***Date:*** *August 22, 1996*
Joseph A. Hnatow, Laboratory Manager

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PROJECT NARRATIVE

The following items relate to the samples and analytical data contained in this report.

- The sample temperature upon receipt by the laboratory was 11°C which is outside the temperature acceptability range of 2°C to 6°C. Authorization to continue with all analyses was provided by the appropriate OHM Representative.

- All solid sample results are reported on a "dry weight" basis, except RCRA Characteristics which are reported on an as received basis.

- Note any comments at the bottom of the tables in Appendices B and C.

The following relate to the timeliness and completeness of the analytical data reported:

- Data was reported to Mr. Ware Warburton on Thursday, August 15, 1996, at OHM Remediation Services Corp., Yorktown Job Site, Yorktown, VA. The following parameters were not reported within the required time frame:

PARAMETERS	REASON FOR DELAY
Total Chloride	QC issues.

SAMPLE INFORMATION SUMMARY

Sample Id	Lab Id	Sample Date	Matrix	Method	QC Batch #	Prep Date	Analysis Date	Hold Met	Dry Wgt	Run #	Analyst
YT-8	JQ1387	08/05/96	Solid	300.0	N2O445	08/14/96	08/14/96	Yes	Yes	^I0370	Smith D.
			Solid	1.7.1.1			08/09/96	Yes	N/A		Biery M.
			Solid	1020			08/14/96	Yes	N/A		Smith D.
			Solid	1311		08/07/96	N/A	Yes	N/A		Biery M.
			Solid	1311-ZHE		08/07/96	N/A	Yes	N/A		Biery M.
			Solid	160.3			08/07/96	N/A	N/A		Crawford M.
			Leachate	6010	N7M8628	08/10/96	08/13/96	Yes	N/A	IM7147	Knapke J.
			Solid	7.3.3.2	N2I5529	08/08/96	08/08/96	Yes	No	I70510	Smith D.
			Solid	7.3.4.2	N2I5530	08/08/96	08/08/96	Yes	No	I70510	Smith D.
			Leachate	7470	N7G8625	08/10/96	08/10/96	Yes	N/A	I70644	Henschen S.
			Leachate	8080	N7P61637	08/08/96	08/09/96	Yes	N/A	ZF5931	Kunselman A.
			Organic	8080	N4P61660	08/09/96	08/09/96	Yes	N/A	UR3187	DeLong W.
			Leachate	8150	N7H61636	08/08/96	08/08/96	Yes	N/A	TR2547	DeLong W.
			Solid	7471	N2G8631	08/10/96	08/10/96	Yes	Yes	I70618	Henschen S.
			Leachate	OLM03.1	N7C61635	08/08/96	08/13/96	Yes	N/A	B02658	Bigelow K.
			Leachate	OLM03.1	N7V5422	08/15/96	08/14/96	Yes	N/A	A09300	DeLong W.

APPENDIX A

DATA SUMMARY REPORT

DATA SUMMARY REPORT

DATE: 08/15/96

Company: OHM-PENNSYLVANIA DIVISION

Sample Point ID: **YT-8**
ASC Sample Number: JQ1387
Sample Date: 960805
Facility Code: 018221N

Parameters	Units	
CV10 Wet Chemistry		
Chloride	mg/kg	.754
Flash Point, Seta Flash	Deg C	>93
Reactive Cyanide	mg/kg	<10.0
Reactive Sulfide	mg/kg	<25.0
Solids, Total	%	85.3
pH (Electrode)	std	6.65

Sample Point ID: **YT-8**
ASC Sample Number: JQ1387
Sample Date: 960805
Facility Code: 018221N

Parameters	Units	
GS13 GC PP PCB's		
Aroclor 1016	mg/kg	<2.48
Aroclor 1221	mg/kg	<2.48
Aroclor 1232	mg/kg	<2.48
Aroclor 1242	mg/kg	<2.48
Aroclor 1248	mg/kg	<2.48
Aroclor 1254	mg/kg	<2.48
Aroclor 1260	mg/kg	<2.48

DATA SUMMARY REPORT

Company: OHM-PENNSYLVANIA DIVISION

Sample Point ID: **YT-8**
ASC Sample Number: JQ1387
Sample Date: 960805
Facility Code: 018221N

Parameters	Units	
GS52 TCLP Leachate Herbicide		
2,4-D	mg/L	<.250
2,4,5-TP (Silvex)	mg/L	<.250

Sample Point ID: **YT-8**
ASC Sample Number: JQ1387
Sample Date: 960805
Facility Code: 018221N

Parameters	Units	
GS54 TCLP Leachate Pesticide		
Chlordane	mg/L	<.020
Endrin	mg/L	<.002
Heptachlor	mg/L	<.002
Heptachlor epoxide	mg/L	<.002
Gamma-BHC (Lindane)	mg/L	<.002
Methoxychlor	mg/L	<.002
Toxaphene	mg/L	<.040

Sample Point ID: **YT-8**
ASC Sample Number: JQ1387
Sample Date: 960805
Facility Code: 018221N

Parameters	Units	
ME40 Specific Total Metals		
Mercury	mg/kg	<.007

DATA SUMMARY REPORT

Company: OHM-PENNSYLVANIA DIVISION

Sample Point ID: YT-8
ASC Sample Number: JQ1387
Sample Date: 960805
Facility Code: 018221N

Parameters	Units	
ME52 TCLP Leachate Metals		
Arsenic	mg/L	<.032
Barium	mg/L	1.19
Cadmium	mg/L	<.002
Chromium	mg/L	<.004
Lead	mg/L	.036
Mercury	mg/L	<.0001
Selenium	mg/L	<.029
Silver	mg/L	<.005

Sample Point ID: YT-8
ASC Sample Number: JQ1387
Sample Date: 960805
Facility Code: 018221N

Parameters	Units	
MS52 GCMS TCLP Leachate BNA		
2,4-Dinitrotoluene	mg/L	<.100
Hexachlorobenzene	mg/L	<.100
Hexachloroethane	mg/L	<.100
Hexachlorobutadiene	mg/L	<.100
2-Methylphenol	mg/L	<.100
4-Methylphenol	mg/L	<.100
Nitrobenzene	mg/L	<.100
Pentachlorophenol	mg/L	<.100
Pyridine	mg/L	<.100
2,4,5-Trichlorophenol	mg/L	<.100
2,4,6-Trichlorophenol	mg/L	<.100

DATA SUMMARY REPORT

Company: OHM-PENNSYLVANIA DIVISION

Sample Point ID: **YT-8**
ASC Sample Number: JQ1387
Sample Date: 960805
Facility Code: 018221N

Parameters	Units	
MV50 ZHE Leachate Volatiles		
Benzene	mg/L	<.125
2-Butanone	mg/L	<.125
Carbon tetrachloride	mg/L	<.125
Chlorobenzene	mg/L	<.125
Chloroform	mg/L	<.125
1,4-Dichlorobenzene	mg/L	<.125
1,2-Dichloroethane	mg/L	<.125
1,1-Dichloroethene	mg/L	<.125
Tetrachloroethene	mg/L	<.125
Trichloroethene	mg/L	<.125
Vinyl chloride	mg/L	<.125

APPENDIX B

QUANTITATIVE RESULTS

CV10 WET CHEMISTRY

Company Name	Facility	Sample Point	ASC Sample No.
OHM-PENNSYLVANIA DIVISION	018221N	YT-8	JQ1387

Compounds		Sample Results	Detection Limits	Blank Results	Batch Number
Chloride	mg/kg	.754	.575	ND	N2O445
Reactive Cyanide	mg/kg	ND	10.0	ND	N2I5529
Reactive Sulfide	mg/kg	ND	25.0	ND	N2I5530
Solids, Total	%	85.3	.100	-	
pH (Electrode)	std	6.65	-	-	
Flash Point, Seta Flash	Deg C	>93	-	-	

ME40 Specific Total Metals

Company Name	Facility	Sample Point	ASC Sample No.
OHM-PENNSYLVANIA DIVISION	018221N	YT-8	JQ1387

Compounds	**Sample Results** mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Mercury	ND	.007	ND	N2G8631

GS13 GC PP PCB's

Company Name	Facility	Sample Point	ASC Sample No.
OHM-PENNSYLVANIA DIVISION	018221N	YT-8	JQ1387

Compounds	**Sample Results** mg/kg	Detection Limits mg/kg	Blank Results mg/kg	Batch Number
Aroclor 1016	ND	2.48	ND	N4P61660
Aroclor 1221	ND	2.48	ND	N4P61660
Aroclor 1232	ND	2.48	ND	N4P61660
Aroclor 1242	ND	2.48	ND	N4P61660
Aroclor 1248	ND	2.48	ND	N4P61660
Aroclor 1254	ND	2.48	ND	N4P61660
Aroclor 1260	ND	2.48	ND	N4P61660

GS52 TCLP LEACHATE HERBICIDE

Company Name	Facility	Sample Point	ASC Sample No.
OHM-PENNSYLVANIA DIVISION	018221N	YT-8	JQ1387

Compounds	**Sample Results** mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-D	ND	.250	ND	N7H61636
2,4,5-TP (Silvex)	ND	.250	ND	N7H61636

GS54 TCLP LEACHATE PESTICIDE

Company Name	Facility	Sample Point	ASC Sample No.
OHM-PENNSYLVANIA DIVISION	018221N	YT-8	JQ1387

Compounds	**Sample Results** mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Chlordane	ND	.020	ND	N7P61637
Endrin	ND	.002	ND	N7P61637
Heptachlor	ND	.002	ND	N7P61637
Heptachlor epoxide	ND	.002	ND	N7P61637
Gamma-BHC (Lindane)	ND	.002	ND	N7P61637
Methoxychlor	ND	.002	ND	N7P61637
Toxaphene	ND	.040	ND	N7P61637

ME52 TCLP LEACHATE METALS

Company Name	Facility	Sample Point	ASC Sample No.
OHM-PENNSYLVANIA DIVISION	018221N	YT-8	JQ1387

Compounds	**Sample Results** mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Arsenic	ND	.032	ND	N7M8628
Barium	1.19	.002	ND	N7M8628
Cadmium	ND	.002	ND	N7M8628
Chromium	ND	.004	ND	N7M8628
Lead	.036	.014	ND	N7M8628
Mercury	ND	.0001	ND	N7G8625
Selenium	ND	.029	ND	N7M8628
Silver	ND	.005	ND	N7M8628

MS52 GCMS TCLP LEACHATE BNA

Company Name	Facility	Sample Point	ASC Sample No.
OHM-PENNSYLVANIA DIVISION	018221N	YT-8	JQ1387

Compounds	**Sample Results** mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
2,4-Dinitrotoluene	ND	.100	ND	N7C61635
Hexachlorobenzene	ND	.100	ND	N7C61635
Hexachloroethane	ND	.100	ND	N7C61635
Hexachlorobutadiene	ND	.100	ND	N7C61635
2-Methylphenol	ND	.100	ND	N7C61635
4-Methylphenol	ND	.100	ND	N7C61635
Nitrobenzene	ND	.100	ND	N7C61635
Pentachlorophenol	ND	.100	ND	N7C61635
Pyridine	ND	.100	ND	N7C61635
2,4,5-Trichlorophenol	ND	.100	ND	N7C61635
2,4,6-Trichlorophenol	ND	.100	ND	N7C61635

3-Methyl- and 4-Methylphenol coelute and are reported as the total

MV50 ZHE LEACHATE VOLATILES

Company Name	Facility	Sample Point	ASC Sample No.
OHM-PENNSYLVANIA DIVISION	018221N	YT-8	JQ1387

Compounds	**Sample Results** mg/L	Detection Limits mg/L	Blank Results mg/L	Batch Number
Benzene	ND	.125	ND	N7V5422
2-Butanone	ND	.125	ND	N7V5422
Carbon tetrachloride	ND	.125	ND	N7V5422
Chlorobenzene	ND	.125	ND	N7V5422
Chloroform	ND	.125	ND	N7V5422
1,4-Dichlorobenzene	ND	.125	ND	N7V5422
1,2-Dichloroethane	ND	.125	ND	N7V5422
1,1-Dichloroethene	ND	.125	ND	N7V5422
Tetrachloroethene	ND	.125	ND	N7V5422
Trichloroethene	ND	.125	ND	N7V5422
Vinyl chloride	ND	.125	ND	N7V5422

APPENDIX C

QUALITY ASSURANCE DATA

QUALITY ASSURANCE REPORT

Joblink: 620931

Compound(s)		METHOD SPIKE					MATRIX SPIKE						SPIKE DUPLICATE					% COMPLETE	
		Blank Conc.	Added Conc.	Spiked Conc.	% Rec.	Rec. Limits	Spiked Sample Id.	Unspk Conc.	Added Conc.	Spiked Conc.	% Rec.	Rec. Limits	Added Conc.	Spiked Conc.	% Rec.	RPD	RPD Limit	Batch #	%
Aroclor 1260	mg/kg	0	19.0	18.0	95	30-130L	YT-8	.920	19.0	18.0	90	30-130L	19.0	20.0	100	11	0-20L	N4P61660	100L
2,4,5-Trichlorophenol	mg/l	0	.280	.260	93	47-122L	YT-8	0	.280	.280	100	41-129L	.280	.290	104	4	0-20L	N7C61635	100L 100M
2,4,6-Trichlorophenol	mg/l	0	.280	.240	86	52-123L	YT-8	0	.280	.260	93	42-134L	.280	.260	93	0	0-22L		
2,4-Dinitrotoluene	mg/l	0	.280	.230	82	25-126L 24-96 M	YT-8	0	.280	.260	93	28-126L 24-96 M	.280	.250	89	4	0-28L 0-38M		
2-Methylphenol	mg/l	0	.250	.230	92	37-127L	YT-8	0	.250	.240	96	34-126L	.250	.230	92	4	0-23L		
4-Methylphenol	mg/l	0	.520	.450	87	40-119L	YT-8	0	.520	.480	92	34-119L	.520	.470	90	2	0-24L		
Hexachlorobenzene	mg/l	0	.270	.270	100	49-138L	YT-8	0	.270	.270	100	29-135L	.270	.270	100	0	0-32L		
Hexachlorobutadiene	mg/l	0	.250	.190	76	10-112L	YT-8	0	.250	.210	84	10-110L	.250	.220	88	5	0-43L		
Hexachloroethane	mg/l	0	.290	.210	72	10-110L	YT-8	0	.290	.220	76	10-110L	.290	.220	76	0	0-38L		
Nitrobenzene	mg/l	0	.250	.230	92	48-121L	YT-8	0	.250	.240	96	40-120L	.250	.240	96	0	0-26L		
Pentachlorophenol	mg/l	0	.270	.0980	36	20-150L 9-103M	YT-8	0	.270	.160	59	27-150L 9-103M	.270	.150	56	5	0-27L 0-50M		
Pyridine	mg/l	0	.250	.130	52	23-110L	YT-8	0	.250	.150	60	27-110L	.250	.130	52	14	0-38L		
2,4,5-TP (Silvex)	mg/l	0	2.00	1.90	95	30-130L	YT-8	0	2.00	1.70	85	30-130L	2.00	1.70	85	0	0-20L	N7H61636	100L
2,4-D	mg/l	0	10.0	6.90	69	30-130L	YT-8	0	10.0	6.50	65	30-130L	10.0	5.90	59	10	0-20L		
Chlordane	mg/l	0	.0400	.0400	100	62-145L	YT-8	0	.0400	.0420	105	47-150L	.0400	.0420	105	0	0-23L	N7P61637	100L 100M
Endrin	mg/l	0	.0200	.0190	95	49-150L 56-121M	YT-8	0	.0200	.0200	100	47-150L 56-121M	.0200	.0200	100	0	0-24L 0-21M		
Gamma-BHC (Lindane)	mg/l	0	.200	.200	100	30-130L 56-120M	YT-8	0	.200	.220	110	30-130L 56-120M	.200	.210	105	5	0-20L 0-15M		
Heptachlor	mg/l	0	.0100	.00880	88	45-150L 40-131M	YT-8	0	.0100	.00980	98	36-150L 40-131M	.0100	.00980	98	0	0-23L 0-20M		
Heptachlor epoxide	mg/l	0	.0100	.00980	98	45-150L	YT-8	0	.0100	.0100	100	48-146L	.0100	.0100	100	0	0-27L		
Methoxychlor	mg/l	0	.200	.190	95	48-150L	YT-8	0	.200	.200	100	47-150L	.200	.190	95	5	0-22L		
alpha-Chlordane	mg/l	0	.0200	.0210	105	56-150L	YT-8	0	.0200	.0220	110	46-150L	.0200	.0220	110	0	0-21L		
gamma-Chlordane	mg/l	0	.0200	.0190	95	60-143L	YT-8	0	.0200	.0200	100	41-148L	.0200	.0200	100	0	0-23L		
1,1-Dichloroethene	mg/l	0	2.50	1.80	72	30-130L 61-145M	YT-8	0	2.50	1.80	72	30-130L 61-145M	2.50	1.80	72	0	0-20L 0-14M	N7V5422	100L 100M
1,2-Dichloroethane	mg/l	0	2.50	2.30	92	83-115L	YT-8	0	2.50	2.20	88	80-117L	2.50	2.30	92	4	0-20L		
1,4-Dichlorobenzene	mg/l	0	2.50	2.10	84	71-110L	YT-8	0	2.50	2.00	80	72-110L	2.50	2.20	88	10	0-12L		
2-Butanone	mg/l	0	5.00	3.60	72	30-130L	YT-8	0	5.00	3.70	74	30-130L	5.00	4.00	80	8	0-20L		

QUALITY ASSURANCE REPORT

Joblink: 620931

Compound(s)		METHOD SPIKE					MATRIX SPIKE						SPIKE DUPLICATE					% COMPLETE	
		Blank Conc.	Added Conc.	Spiked Conc.	% Rec.	Rec. Limits	Spiked Sample Id.	Unspk Conc.	Added Conc.	Spiked Conc.	% Rec.	Rec. Limits	Added Conc.	Spiked Conc.	% Rec.	RPD	RPD Limit	Batch #	%
Benzene	mg/l	0	2.50	2.20	88	71-121L 76-127M	YT-8	0	2.50	2.20	88	75-115L 76-127M	2.50	2.10	84	5	0-26L 0-11M		
Carbon tetrachloride	mg/l	0	2.50	2.30	92	68-119L	YT-8	0	2.50	2.30	92	72-116L	2.50	2.10	84	9	0-28L		
Chlorobenzene	mg/l	0	2.50	2.30	92	85-110L 75-130M	YT-8	0	2.50	2.20	88	83-110L 75-130M	2.50	2.20	88	0	0-13L 0-13M		
Chloroform	mg/l	0	2.50	2.30	92	82-112L	YT-8	0	2.50	2.20	88	81-113L	2.50	2.20	88	0	0-15L		
Tetrachloroethene	mg/l	0	2.50	2.20	88	30-130L	YT-8	0	2.50	2.20	88	30-130L	2.50	2.20	88	0	0-20L		
Trichloroethene	mg/l	0	2.50	2.30	92	30-130L 71-120M	YT-8	0	2.50	2.30	92	30-130L 71-120M	2.50	2.20	88	4	0-20L 0-14M		
Vinyl chloride	mg/l	0	2.50	2.00	80	47-143L	YT-8	0	2.50	1.80	72	47-141L	2.50	1.80	72	0	0-18L		

QUALITY ASSURANCE REPORT

Joblink: 620931

Compound(s)		METHOD SPIKE					MATRIX SPIKE						SPIKE DUPLICATE					% COMPLETE	
		Blank Conc.	Added Conc.	Spiked Conc.	% Rec.	Rec. Limits	Spiked Sample Id.	Unspk Conc.	Added Conc.	Spiked Conc.	% Rec.	Rec. Limits	Added Conc.	Spiked Conc.	% Rec.	RPD	RPD Limit	Batch #	%
Mercury	mg/kg	0	.250	.281	112	76-119L	YT-6	.0561	.267	.356	112	38-141L 75-125M	.285	.381	114	7	0-34C	N2G8631	100L 100M
Reactive Cyanide	mg/kg	0	1020	69.0	7	1-50 L												N2I5529	100L
Reactive Sulfide	mg/kg	0	1060	512	48	10-100L												N2I5530	100L
Chloride	mg/kg	0	3.00	3.28	109	60-140L	YT-8	.754	3.45	4.22	100	60-140L	3.45	4.17	99	1	0-20L	N2O445	100L
Mercury	mg/l	0	.00200	.00229	115	76-124L	LW13	3.-04	.00200	.00229	100	69-130L 75-125M	.00200	.00232	102	1	0-15C	N7G8625	100L 100M
Arsenic	mg/l	0	5.09	4.84	95	82-110L 80-120M	LW13	0	5.09	4.92	97	81-113L 75-125M	5.09	4.91	96	.2	0-14C	N7M8628	100L 100M
Barium	mg/l	0	9.92	9.64	97	82-110L 80-120M	LW13	.496	9.92	9.81	94	75-112L 75-125M	9.92	9.88	95	.7	0-13C		
Cadmium	mg/l	0	1.08	.993	92	78-112L 80-120M	LW13	0	1.08	.988	91	74-114L 75-125M	1.08	.980	91	.8	0-14C		
Chromium	mg/l	0	5.09	4.81	94	82-110L 80-120M	LW13	.00798	5.09	4.72	93	76-110L 75-125M	5.09	4.72	93	0	0-13C		
Lead	mg/l	0	5.50	5.05	92	79-110L 80-120M	LW13	.0360	5.50	5.00	90	76-112L 75-125M	5.50	4.98	90	.4	0-15C		
Selenium	mg/l	0	.938	.887	95	71-114L 80-120M	LW13	0	.938	.898	96	69-120L 75-125M	.938	.890	95	.9	0-13C		
Silver	mg/l	0	.108	.0970	90	65-131L 80-120M	LW13	0	.108	.0971	90	51-131L 75-125M	.108	.0968	90	.3	0-19C		

QUALITY ASSURANCE REPORT

Joblink: 620931

Compound(s)		SAMPLE DUPLICATE					POST SPIKE						ICP SERIAL DILUTION					
		Sample Id.	Sample Conc.	Dup. Conc.	RPD	RPD Limit	Spiked Sample Id.	Unspk Conc. mg/l	Added Conc. mg/l	Spiked Conc. mg/l	% Rec.	Rec. Limits	Sample Id.	Sample Conc. mg/l	Dil. Conc. mg/l	% Diff	Limit	Batch #
Mercury	mg/kg	YT-6	.0561	.0476	.009	.011M												N2G8631
Mercury	mg/l	LW13	3.-04	2.-04	NVR*	####M												N7G8625
Arsenic	mg/l	LW13	5.-04	.0107									LW13	5.-04	-.0310			N7M8628
Barium	mg/l	LW13	.496	.485	.011	.20M							LW13	.496	.520	5	0-10M	N7M8628
Cadmium	mg/l	LW13	8.-04	.00157	.002								LW13	8.-04	-4.-03			N7M8628
Chromium	mg/l	LW13	.00798	.00948	.001								LW13	.00798	.00940	100		N7M8628
Lead	mg/l	LW13	.0360	.0336	.002	.014M							LW13	.0360	-1.-02	100		N7M8628
Selenium	mg/l	LW13	.00207	.00123									LW13	.00207	.0555			N7M8628
Silver	mg/l	LW13	-2.-03	-1.-03									LW13	-2.-03	-.0137			N7M8628

QUALITY ASSURANCE DATA
SURROGATE SUMMARY REPORT

SURROGATE ID	A159	F107	A121	F110	A158	F120	B449	F076
QC BATCH: N7C61635 **Leachate (Semi-Volatile organics by MS)**								
SAMPLE ID								
METHOD BLK	81	72	77	87	86	88	87	83
METHOD SPK	80	73	86	84	83	88	85	80
YT-8	82	73	88	88	91	92	88	87
YT-8 MD	81	72	89	91	89	97	87	87
YT-8 MS	84	73	90	90	88	94	88	85
QC LIMITS	(21-110)	(10-110)	(10-123)	(35-114)	(43-116)	(33-141)	(33-110)	(16-110)

SURROGATE ID	F047	# OUT
QC BATCH: N7H61636 **Leachate (Herbicide compounds by GC)**		
SAMPLE ID		
METHOD BLK	85	0
METHOD SPK	91	0
YT-8	92	0
YT-8 MD	63	0
YT-8 MS	83	0
QC LIMITS	(10-150)	

SURROGATE ID	F048	F096	# OUT
QC BATCH: N4P61660 **Organic Liquid (Pesticide compounds by GC)**			
SAMPLE ID			
METHOD BLK	76	69	0
METHOD SPK	78	70	0
YT-8	98	98	0
YT-8 MD	85	85	0
YT-8 MS	81	78	0
QC LIMITS	(30-150)	(30-150)	

SURROGATE ID	B816	A500	# OUT
QC BATCH: N7P61637 **Leachate (Pesticide compounds by GC)**			
SAMPLE ID			
METHOD BLK	86	98	0
METHOD SPK	85	101	0
YT-8	62	98	0
YT-8 MD	102	96	0
YT-8 MS	98	102	0

SURROGATE ID

A047 = 1,2-Dichloroethane-D4
B185 = Toluene-D8
B668 = Bromofluorobenzene
A159 = 2-Fluorophenol
F107 = Phenol-d5
A121 = 2,4,6-Tribromophenol
F110 = Nitrobenzene-d5
A158 = 2-Fluorobiphenyl
F120 = Terphenyl-d14
B816 = 2,4,5,6-Tetrachloro-m-xylene

A500 = Decachlorobiphenyl
F048 = Decachlorobiphenyl (PCB)
F047 = 2,4-Dichlorophenylacetic-acid
F096 = 2,4,5,6-TCMX (PCB)
B449 = 2-Chlorophenol-D4
F076 = 1,2-Dichlorobenzene-D4

* Values outside of method quality control limits
D Sample was diluted, however, some surrogates may be reported if results were observed.

It is laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

QUALITY ASSURANCE DATA
SURROGATE SUMMARY REPORT

SURROGATE ID	B816	A500	# OUT
QC BATCH: N7P61637 **Leachate (Pesticide compounds by GC)**			
SAMPLE ID			
QC LIMITS	(61-132)	(39-144)	

SURROGATE ID	A047	B185	B668	# OUT
QC BATCH: N7V5422 **Leachate (Volatile organics by MS)**				
SAMPLE ID				
METHOD BLK	89	95	94	0
METHOD SPK	92	98	97	0
YT-8	87	95	94	0
YT-8 MD	90	97	93	0
YT-8 MS	86	95	94	0
QC LIMITS	(76-114)	(88-110)	(86-115)	

SURROGATE ID

A047 = 1,2-Dichloroethane-D4
B185 = Toluene-D8
B668 = Bromofluorobenzene
A159 = 2-Fluorophenol
F107 = Phenol-d5
A121 = 2,4,6-Tribromophenol
F110 = Nitrobenzene-d5
A158 = 2-Fluorobiphenyl
F120 = Terphenyl-d14
B816 = 2,4,5,6-Tetrachloro-m-xylene

A500 = Decachlorobiphenyl
F048 = Decachlorobiphenyl (PCB)
F047 = 2,4-Dichlorophenylacetic-acid
F096 = 2,4,5,6-TCMX (PCB)
B449 = 2-Chlorophenol-D4
F076 = 1,2-Dichlorobenzene-D4

* Values outside of method quality control limits
D Sample was diluted, however, some surrogates may be reported if results were observed.

It is laboratory policy to allow one surrogate per sample fraction (acid, base-neutral or pesticide) to exceed the stated QC limits. This policy is based upon the USEPA SOW for the Contract Laboratory Program (CLP).

SUMMARY OF ANALYTICAL METHODOLOGY

Parameter	Reference	Method
Conventionals		
pH Electrometric Measurement	CLP	1.7.1.1
Flash Point, Setaflash	SW-846	1020
Test Method to Determine HCN Released from Wastes	SW-846	7.3.3.2
Test Method to Determine HS Released form Wastes	SW-846	7.3.4.2
Ion Chromatography Method	SW-846	9056
Metals		
Mercury in Solid Waste	SW-846	7471
Organics		
Organochlorine Pesticides and/or PCBs	SW-846	8080
USEPA SOW for Organic Analysis #OLM03.1 8/94	CLP SOW	OLM03.1
Toxicity Characteristic Leaching Procedure	SW-846	1311
TCLP, Zero Headspace Extraction	SW-846	1311-ZHE
Inductively coupled Plasma Atomic Emission Spectroscopy	SW-846	6010
Mercury in Liquid Waste (Manual Cold-Vapor Technique)	SW-846	7470
Chlorinated Herbicides	SW-846	8150
Organochlorine Pesticides and/or PCBs	SW-846	8080

METHODOLOGY REFERENCES

ASTM	*American Society for Testing and Materials*, 1985, edition.
MCAWW	*Methods for Chemical Analysis of Water and Wastes*, April 1979 and Update #1 March 1983.
CLP	USEPA Contract Laboratory Program, Document #OLMO3.0, update August 1994 #OLMO3.1 and Document #ILMO4.0.
EPA-500	*USEPA Methods for the Determination of Organic Compounds in Drinking Water*, EPA-600/4-88/039 July 1991 and Supplement II (EPA/600/R-92-129) August 1992.
EPA-600	*USEPA Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater*, 40CFR, 136, APP.A. July 1992.
NIOSH	*National Institute for Occupational Safety and Health*, 3rd edition, 1984.
SMEWW	*Standard Methods for the Examination of Water and Wastewater*, 18th edition, 1992.
STOA	*Spot Tests In Organic Analysis*, 7th edition, 1966.
SW-846	*Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods*, 3rd edition, Updates I and II, September 1986 to January 1995.
(1)	This method was modified to incorporate the use of Boron Trifluoride (BF3) as the derivatizing reagent according to Method 6640 in *SMEWW*, 18th edition, 1992.
Title 22	*Waste Extraction Test*, Title 22, Section 66261.126 Appendix 2 of the California Administrative Code, May 1991.
LUFT	*California Leaking Underground Fuel Tank Field Manual*, October 1989.

LABORATORY CERTIFICATIONS

STATE	AGENCY	NUMBER
Alabama	ADEM	40830
Arizona	AZDOHS	AZ0533
California	CADOH	1178
Colorado	CODOH	OH113
Connecticut	CTDPH & AS	PH-0154
Florida	FLHRS	E87537
Delaware	DEHSS	OH113
Iowa	IADNR	129
Kansas	KSDHE	E-202 & E-1173
Louisiana	LADOHH	92-10
Maryland	MDDHMH	210
Massachusetts	MADEP	M-OH113
New Hampshire	NHDES	2490
New Jersey	NJDEP	74603
New York	NYDOH	10712
North Carolina	NCDEM	392
Ohio	OHEPA	OH113
Oklahoma	OKDEQ	9216
Pennsylvania	PADER	68-450
Rhode Island	RIDOH	214/142
South Carolina	SCDEHNR	92002
Tennessee	TNDOH/TNDEC	2978
Utah	UTDOH	E-288
Virginia	VADGS	00011
Washington	WADOE	C154
Wisconsin	WIDNR	999037160

Validated by:

- US Army Corps of Engineers . . . . . Chemical Analysis in Various Matrices

Approvals:

- USDA . . . . . Permit for Importing Soils
- Florida DEP . . . . . Quality Assurance Plan #930034
- Naval Facilities Engineering Service Center . . . . . Chemical Analysis in Various Matrices

REPORT KEY

mg/kg	=	milligram per kilogram (ppm)
Mg/m^3	=	milligram per cubic meter
ug/kg	=	microgram per kilogram (ppb)
mg/L	=	milligram per liter (ppm)
ug/L	=	microgram per liter (ppb)
mg/W	=	milligram per wipe
ug/W	=	microgram per wipe
mg/SMP	=	milligram per sample
ug/SMP	=	microgram per sample (Tedlar Bag)
ug/smp	=	microgram per sample
um/cm	=	microMho per centimeter
pCi/l	=	picocurie per liter
gm/cc	=	grams per cubic centimeter
ppm	=	parts per million
ppb	=	parts per billion
ND	=	Not detected at or above stated detection limit
<	=	less than
>	=	greater than
%	=	percent
BTU/lb	=	British Thermal Units per pound
Deg. C	=	Degrees Celsius
n/a	=	not applicable
Unk	=	unknown
std	=	result is relative to standard pH units
CV	=	Conventionals
IR	=	Infrared Spectrophotometric
GC	=	Gas Chromatography Instrument
GC/MS	=	Gas Chromatography/Mass Spectrometer Instrument
GRO	=	Gasoline Range Organics
DRO	=	Diesel Range Organics
PCB	=	Polychlorinated Biphenyls (PCBs)
EP TOX	=	Extraction Procedure Toxicity
TCLP	=	Toxicity Characteristic Leaching Procedure
RCRA	=	Resource Conservation and Recovery Act
SOW	=	Statement of Work

APPENDIX D

SAMPLE RECEIPT DOCUMENTATION

OHM Remediation Services Corp.

CHAIN-OF-CUSTODY RECORD

LAB COPY

Form 0019
Field Technical Services
Rev. 08/89

166320

O.H. MATERIALS CORP. • P.O. BOX 551 • FINDLAY, OH 45839-0551 • 419-423-3526

PROJECT NAME	PROJECT LOCATION
Yorktown	Yorktown NWS, VA

PROJ. NO.	PROJECT CONTACT	PROJECT TELEPHONE NO.
18221	Ware Warburton	804-888-6732

CLIENT'S REPRESENTATIVE	PROJECT MANAGER/SUPERVISOR
NAVY WAL LANTDIV	Rick Wolfson / Ware Warburton

ANALYSIS DESIRED (INDICATE SEPARATE CONTAINERS)

ITEM NO.	SAMPLE NUMBER	DATE	TIME	COMP	GRAB	SAMPLE DESCRIPTION (INCLUDE MATRIX AND POINT OF SAMPLE)	NUMBER OF CONTAINERS	PCB (8080)	Total mercury	total chlorides	Full TCLP	PH	Flash point	Reactivity	TCL organics	TAL inorganics	REMARKS
1	YT-1	8-5-96	1832		X	Surface samples "	1-1000mL 1-8oz								X	X	
2	YT-2	8-5-96	1844		X	" "	1-1000mL 1-8oz								X	X	
3	YT-3	8-5-96	1854		X	" "	1-1000mL 1-8oz								X	X	
4	YT-4	8-5-96	1755		X	Drum spill area	1-1000mL 1-8oz								X	X	
5	YT-5	8-5-96			X	Excavation Bottom	1-1000mL 1-8oz								X	X	
6	YT-6	8-5-96	1625		X	Excavation Bottom	1-1000mL 1-8oz								X	X	
7	YT-6B	8-5-96	1710		X	Excavation side wall	1-1000mL 1-8oz								X	X	
8	YT-7	8-5-96	1738		X	Excavation Bottom	1-1000mL 1-8oz								X	X	
9	YT-7B	8-5-96	1745		X	Excavation side wall	1-1000mL 1-8oz								X	X	
10	YT-8	8-5-96	1948		X	Parrafin	1-1000mL	X	X	X	X	X	X	X			

TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	1-10	[signature]			
2	1-10	Fed-Ex 9943993511, 994399500	Christina Blakley	8-7-96	1103
3					
4					

REMARKS 24 Hr. T.A.T.
fax results to ware warburton
(804) 888-6752

11°C CKB

SAMPLER'S SIGNATURE [signature]

Yorktown Navy **"SAMPLE RECEIPT FORM"**

Project: 18221N

Tote____ Box____ Bucket____

Cooler #: ✓

Cooler #: _____

Cooler #: _____

COC #: 166320

COC #: 166326

COC #: _____

COC #: _____

Use other side of this form to note further details concerning check-in problems and to specify and describe any action(s) regarding the resolution(s) of problem(s).

1) Have designated person initial here to acknowledge receipt of sample(s): DY (date) 8-7-96

2) Were sample custody seals on outside of cooler? If Yes, how many & where? ____ yes ✓ no

[____] front [____] back [____] right side [____] left side ___ of ___ intact

seal date: _____ name: _____

3) Were custody papers sealed in a plastic bag & taped inside to the lid? ✓ yes ____ no

4) Were custody papers filled out properly (ink, signed, etc.)? ____ yes ____ no

5) Samples came via: [____] A/B [X] FED EXP [____] UPS [____] H/D [____] other

Attach & enter air bill or invoice number here: 9943993511, 994399500

6) Describe packing: [✓] sorbent [____] bubble pk [____] paper [____] cardboard [____] rags
[____] vermiculite [____] foam [✓] peanuts [____] tyvek [____] other: _____

7) Temperature = 11°C - Cooler 511 (Acceptance Range =2 to 6°C) ____ yes ✓ no

8) Were all bottles sealed in separate plastic bags? ✓ yes ____ no

9) Did all bottles arrive unbroken & in good condition? ✓ yes ____ no

10) Were Custody Seals on sample jar lids? If YES, were they intact upon arrival?
Seal Date: _____ Name: _____ ____ yes ✓ no

11) Labels complete? ✓ yes ____ no

12) Labels agree with custody papers? If NO, list on other side. ✓ yes ____ no

[__] Matrix on COC and Jar don't agree

13) Correct containers? ✓ yes ____ no

14) Were preservatives used when required? ~~____ yes ____ no~~ N/A

15) Was a sufficient amount of sample sent for tests indicated? ✓ yes ____ no

16) Bubbles in VOA vials? If YES, list samples on other side. ✓ yes ____ no

pH Range:

[__] Metals 0 to 2	[__] Sulfide >9	[__]COD <2
[__] Oil & Grease 0 to 2	[__] Hardness <2	[__] TOC <2
[__] Cyanide >12	[__] Phenols <2	[__] _____

[__] Health Warnings Listed