MARTEL

161780

Certificate of Laboratory Analysis

Martel Laboratory Services, Inc. 1025 Cromwell Bridge Road Baltimore, Maryland 21204 (301) 825-

Invoice Number 15913

Page ____ of ____ pa

Sample W-701I-S 234 Oil, soil, and water from Shaffer Electric Co. site, Minden, West Virginia, supplied by O. H. Materials Co. Project no. 2364-E52. P.O. # 2364-E52-43931

RECEIVE

U. S. Environmental Protection Agency
Region III
Environmental Emergency Branch
Curtis Building
6th and Walnut Sts.
Philadelphia, Pa. 19106

ORIGINAL (Red)

FEB 20 1985

EMERGENCY RESPO SECTION

February 15, 1985

Attn: Robert Caron

PCB Content, ppm (mg/kg) except where otherwise stated:

ID	RESULT	ID	RESULT	ID	RESULT
01	120	32	42	63	52 x
02	6.5	33	440	64	ND
03	6.7	34	500	65	55 x
04	20	35	360	66	22
05	7.0	36	ND	67	22
06	7.3	37	1.8 x	68	ND
07	2.5	38	53 x	69	9.0
08	12	39	48 x	70	ND
09	7.6	40	45 x	71	52 x
10	27	41	20	72	16
11	47	42	4.7	73	28
12	8.8	43	5.2	74	ND
13	11	44	460	75	ND
14	ND	45	ND	76	53 x
15	74	46	54 x	77	ND
16	110	47	61 x	78	55 x
17	51 x	48	2.8	79	2.2
18	57 x	49	ND	80	2.5
19	ND	50	ND	81	ND
20	28	51	ND	82	ND
21	27	52	ND	83	ND
22	50 x	53	ND	84	140
23	170	54	4.9	85	14
24	4.9	55	7.7	86	ND
25	77	56	48 x	87	9.0
26	ND	57	9.4	88	8.3
27	ND	58	ND	89	6.4
28	ND	59	5.2	90	7.4
29	12	60	90	91	ND
30	ND	61	83	92	8.3
31	ND	62	ND	93	4.0

AR100071

MARTEL

U. S. EPA
February 15, 1985
Page 3

ORIGINAL (Red)

ID	RESULT	ID	RESULT	ID	RESULT
226	73	230 F	24 ug/l	234 F	*ND
227	14	231	3.8 mg/l	235	2.3 ug/l
228	17	232	49 ug/l	235 F	*ND
229	6.0	233	16 ug/l	236	ND
230	180 ug/l	234	*ND		

Note: Principal PCB type in all samples was Arochlor 1260 except for sample # 61 (Arochlor 1254).

ND: Not detected (detection limit 2 ppm)
*ND: Not detected (detection limit 0.2 ug/l)
NS: No sample provided.
F: Sample filtered prior to analysis.

Metals content, ppm (mg/kg):

	Al	Ba	Cd	Cr	Pb	Hg	Se	As
200	9	ND	ND	13	51	ND	ND	ND
201	ND	ND	ND	12	65	ND	ND	ND
202	4	ND	ND	6	50	ND	ND	ND
203	9	450	ND	11	42	ND	ND	ND
204	ND	ND	ND	7	40	ND	ND	ND
205	6	ND	ND	7	83	ND	ND	ND
206	ND	1390	ND	8	440	2	ND	ND
207	5	ND	ND	6	420	1	ND	ND
208	5	ND	ND	3	20	ND	ND	ND
209	3	ND	ND	4	28	ND	ND	ND
210	3	170	ND	4	9	ND	ND	ND
211	6	ND	ND	4	6	ND	ND	ND
212	ND	ND	ND	4	65	ND	ND	ND
213	ND	ND	ND	5	86	ND	ND	ND
214	ND	ND	ND	8	25	0.3	ND	ND
215	ND	ND	ND	17	19	0.4	ND	ND
Detection Limit:	1	100	1	2	5	0.1	1	1

AR100072

MARTEL

U. S. EPA
February 15, 1985
Page 2

ORIGINAL (Red)

ID	RESULT	ID	RESULT	ID	RESULT
94	ND	138	ND	182	700
95	24	139	ND	183	45
96	ND	140	59	184	73
97	2.3	141	76	185	460
98	2.0	142	100	186	950
99	4.2	143	150	187	390
100	ND	144	210	188	80
101	ND	145	ND	189	130
102	ND	146	10	190	4.8
103	2.3	147	8.3	191	2800
104	2.3	148	110	192	ND
105	ND	149	800	193	ND
106	2.6	150	5.5	194	16
107	2.3	151	34	195	ND
108	2.1	152	17	196	ND
109	2.3	153	440	197	5.0
110	ND	154	11	198	14
111	3.6	155	5.0	199	ND
112	3.5	156	44	200	16
113	3.6	157	24	201	ND
114	ND	158	2.0	202	1300
115	ND	159	10	203	2000
116	ND	160	ND	204	1300
117	ND	161	ND	205	1000
118	ND	162	840	206	2.9 *
119	2.7	163	ND	207	3.4 *
120	ND	164	ND	208	4.7 *
121	ND	165	ND	209	4.1 *
122	ND	166	ND	210	ND
123	ND	167	ND	211	4.0
124	ND	168	ND	212	3.1
125	ND	169	94	213	3.5
126	9.0	170	200	214	ND
127	7.7	171	290	215	ND
128	14	172	310	216	*ND
129	ND	173	NS	217	*ND
130	12	174	NS	218	15
131	ND	175	150	219	ND
132	ND	176	190	220	15
133	2.0	177	1500	221	11
134	ND	178	900	222	15
135	ND	179	60	223	ND
136	ND	180	800	224	ND
137	ND	181	140	225	25

MARTEL

ORIGINAL (Red)

Miscellaneous analysis results expressed as mg/l as received (except pH).

	pH	Suspended Solids	Oil & Grease
230	6.6	334	9
231	6.4	5550	2300
232	6.8	9	5
234	6.7	30	4
235	6.8	26	3

Quality assurance/quality control report follows.

Robert G. Edwards, Ph. D.
Vice President

MARTEL

ORIGINAL (Red)

Quality Assurance/Quality Control

PCB's

Method: (a) for transformer oil, waste oil and oil-contaminated soils, EPA-600/4-81-045 (September 1982), "Determination of polychlorinated biphenyls in transformer fluid and waste oils."
(b) for water (for which 2 liter samples were provided) EPA SW-846 Method 8080 (organochlorine pesticides and PCB's).

Extraction: [for soil samples using method (a)]: 2 grams of sample (as received) sonicated for 30 minutes in 100 ml hexane, after drying where necessary.

Clean-up: [for method (a)]: 2 volumes of hexane extract shaken with 1 volume of concentrated sulfuric acid. Procedure repeated where necessary.

GC detector: Electron capture.

GC column: 3% SP-2100 on 100/120 Supelcoport.

GC temperature program: 135 C to 225 C at 8/minute. Final time 15 minutes.

Concentrations: Determined from chromatograms by comparison of sum of areas of six principal peaks of each Arochlor present with those of Arochlor standard.

Blanks: Every tenth sample analyzed was a blank. If one followed a high result, it was repeated.

Carry-over: If a low result followed a much higher result (over 200 ppm), it was repeated.

Replicates: Every tenth sample was analyzed in duplicate. GC analysis of the replicates was performed at the end of the run.

Matrix spikes: Every tenth sample was also spiked with Arochlor 1260 to give a final additional concentration of 50 ppm. Spike recoveries ranged from 82 to 98 %.

MARTEL

ORIGINAL (Red)

Standards: Standards of 0.05, 0.5, and 2.0 ng/ul Arochlor 1260 in hexane, equivalent to sample concentrations of 5, 50, and 200 ppm, were analyzed at the beginning, middle and end of the run, the results averaged, and calibration curves constructed. Samples with results exceeding 200 ppm were appropriately rediluted and rerun. The sample containing Arochlor 1254 was also rerun, along with Arochlor 1254 standards.

The Arochlor 1260 standards were dilutions of Supelco #4-4809, lot #LA 12761.

Metals

Methods:

Acid Digestion performed in accordance with Method 3010 for eventual flame atomic absorption analysis or Method 3020 for eventual graphite furnace atomic absorption analysis, SW-946, 2nd Edition.

Final analysis performed in accordance with the following methods found in SW-946.

Arsenic	7060:	Graphite Furnace
Cadmium	7130:	Flame
Chromium	7190:	Flame
Lead	7421:	Graphite Furnace
Mercury	7470:	Cold-Vapor (Prep : 3010)
Selenium	7740:	Graphite Furnace
Silver	7760:	Flame
Barium	7080:	Flame

Analysis performed in accordance with the following methods found in Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1979

pH	150.1:	Electrometric
Suspended Solids	160.2:	Gravimetric
Oil & Grease	413.1:	Gravimetric

MARTEL

Unit ... (Red)

Digestion: Representative aliquots of all solid samples were oven-dried at 104 C, total solids content was calculated, and dried sample was homogenized. Approximately one gram of dried material was acid digested, filtered, and then diluted to volume. Final results were calculated back to represent the samples as received. Blanks, replicates, and spikes are shown as the raw data.

Blanks: Two method blanks were performed and analyzed for metals and one for suspended solids and oil and grease.

Replicates: Two dried samples were performed in duplicate for metals and one sample each for pH, suspended solids, and oil & grease.

Spikes: Two dried samples were spiked after weighing but before acid addition with known amounts of metals. They were subsequently analyzed.

Results: Expressed as ug/l of digestate.

	As	Ba	Cd	Cr	Pb	Hg	Se	Ag
205	80	<1000	<10	90	1080	<1	<10	<10
205 Rep	80	<1000	<10	90	1020	<1	<10	<10
208	80	<1000	<10	50	320	<1	<10	<10
208 Spike	130	2000	1020	1020	1280	10	50	950
212	<10	<1000	<10	90	1350	<1	<10	<10
212 Rep	<10	<1000	<10	90	1310	<1	<10	<10
212 Spike	50	2000	1000	1090	2280	10	50	900
Blank 1	<10	<1000	<10	<10	<20	<1	<10	<10
Blank 2	<10	<1000	<10	<10	<20	<1	<10	<10
Spike	50	2000	1000	1000	1000	10	50	1000

pH Replicate:
230 6.60 6.60

Suspended Solid Replicate:
230 334 336

Oil & Grease Replicate:
235 3 3

All blanks were below detection limit.

AR100077

47702083

BALTIMORE MD 21204

Purolator courier

CONSIGNEE COPY

AR100078