FINAL REMEDIAL DESIGN

ORGANIC CHEMICALS, INC. SITE

Grandville, MI

September 7, 2001

Compliance INC.
www.complianceinc.com
Environmental Engineering & Regulatory Consulting

FAX TRANSMITTAL

This FAX transmission is addressed to:

NAME: Tom Williams (Superfund) **DATE:** 9/27/02

COMPANY: U.S. EPA **FAX NO:** 312 353 5541

Pages Transmitted: 10 **(Including This Cover Sheet)**

Original to follow in the mail: Yes / No

Notes/Instructions:

Sender: Jim Rossi

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Compliance INC.
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Environmental Engineering & Regulatory Consulting

September 27, 2002

Tom Williams
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

RE: Summary of September 2002 Soil Remediation - Organic Chemicals, Inc. Grandville, Michigan

Dear Tom:

This letter is being submitted to summarize the recent (September 2002) remediation activities at the Organic Chemicals, Inc. Superfund Site (OCI Site). The activities were completed under the direction of Compliance, Inc. on behalf of TPI Petroleum, Inc. as outlined in our August 14, 2002 correspondence.

During the September remediation activities, approximately 1000 yards of soil and/or material comprising a gray layer that was identified at the site were excavated. These excavated materials are currently stockpiled on the south side of the site and will be disposed off-site at appropriate disposal facilities following the receipt of the characterization data and disposal approval. It is anticipated that the off-site disposal will begin in early October and will be completed by the end of the month.

The gray layer was excavated and removed from all, or portions of, the following grids (see the attached figure for a summary of all soil remediation areas):

K10, J10, J12, K12, L15, L16,
L17, O14, P14, AA12, and BB12.

Additionally, surface soils (generally from 0 to 2 feet below ground surface) were removed from the following grids:

I10, J10, K10, I11, I12, G13, H13,
I13, G14, H14, G15, H15, and H16.

The removal of the additional soil from the above listed grids was associated with achieving the risk based cleanup goal for carcinogenic chemicals and was separate from the work to address the gray layer. Six post removal soil verification samples were collected from randomly selected locations in the soil removal grids listed above. The samples were collected per the methodology presented in the Final Design Report. The

samples (labeled SS-334 through SS-339) were collected on September 13, 2002 during U S. EPA's inspection of the site. These samples were submitted to Southwest Labs of Oklahoma for analysis for the eleven chemicals of concern at the site. The analytical results were received electronically on September 26, 2002.

The analytical results of the six soil verification samples have been added to the database of RI/FS, Pre-Design and Verification Soil surface and near surface soils samples This database is presented on the on the attached table. As seen on this table, with the addition of these analytical results, the total worker carcinogenic risk is 1×10^{-4} which meets the SOW specified carcinogenic risk remediation goal. Additionally, with the addition of this data, the calculated sitewide 95% UCL for lead in soils is 695 mg/kg. This concentration is below the 900 mg/kg standard established for lead.

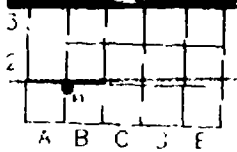
It is notable that all of the carcinogenic chemical concentrations in the soil database presented on Table 1 are below their respective Part 201 industrial site direct contact soil criterion.

All of the activities outlined above will be presented in greater detail in a final summary report that will be prepared following off-site disposal. If you have any questions in the interim, please do not hesitate to call me.

Sincerely yours,
Compliance, Inc,

Jim Rossi
Senior Project Manager

cc: Steve Nichols, TPI Petroleum



LEGEND

- Soil Sample Location
- ##(without prefix) = Surface Soil Sample Location
- SB-## = Subsurface Soil Sample Location
- Grid where soil was removed
- Grid where subsurface grav laye was removed

Note:
Adapted from EPA's Soil Contamination Exceeding Cleanup Goals drawing

Location	Organic Chemicals, Inc Grandville, Michigan
Figure #	Test Pit Investigation Results
Drawing Date: 9-27-02	
Project Number: 1098	
Project Manager: JER	
CAD File: 1098-2-66	
Drawn By: BAP	

0 25 50 75
Approximate scale in feet

Compliance Environmental Engineering & Regulatory Consulting
Traverse City, MI (231) 922-7400 Brighton, MI (248) 437-4100

TABLE 1
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES
AFTER SOIL REMEDIATION
OCI SITE

Sample	Lead (mg/kg)	ln Lead	Benzo(a) anthracene (ug/kg)	ln Benzo(a) anthracene	Benzo(a) pyrene (ug/kg)	ln Benzo(a) pyrene	Benzo(b) fluoranthene (ug/kg)	ln Benzo(b) fluoranthene	Dibenzo (a,h)anthracene (ug/kg)	ln Dibenzo (a,h)anthracene	Indeno(1,2,3-cd)pyrene (ug/kg)	ln (1,2,3-cd) pyrene
SS-1	74.9	4.32	340	5 83	340	5 83	340	5 83	340	5 83	340	5 83
SS-2	93.4	4 54	360	5 89	360	5 89	360	5 89	360	5 89	360	5 89
SS-3	169	5 13	395	5 98	130	4 87	120	4 79	395	5 98	395	5 98
SS-4	63.7	4 15	380	5 94	380	5 94	760	6 63	380	5 94	380	5 94
SS-5	414	0 03	390	5 97	260	5 56	390	5 97	390	5 97	390	5 97
SS-6	1670	7 42	12000	9 39	12000	9 39	12000	9 39	12000	9 39	12000	9 39
SS-7	712	6 57	335	5 81	335	5 81	335	5 81	335	5 81	335	5 81
SS-8	204	5.32	360	5 89	360	5 89	360	5 89	360	5 89	360	5 89
SS-10	316	5 76	355	5 87	355	5 87	355	5 87	355	5 87	355	5 87
SS-11	1160	7 06	360	5.89	360	5.89	360	5 89	360	5 89	360	5 89
SS-12	380	5 89	375	5 93	375	5 93	64	4 16	375	5 93	375	5 93
SS-13	34.8	3 54	345	5 84	345	5 84	345	5.84	345	5 84	345	5 84
SS-16	28.2	3 23	365	5.90	365	5 90	365	5 90	365	5 90	365	5 90
SS-18	462	6 14	3950	8 28	3950	8 28	3950	8 28	3950	8 28	3950	8 28
SS-39	57.6	4 05	1850	7 52	680	6 52	1850	7 52	1850	7 52	1850	7 52
SS-41	16.1	2 78	190	5 25	190	5 25	190	5 25	190	5 25	190	5 25
SS-42	40.9	3 71	33	3.50	22	3 09	39	3 66	200	5 30	200	5 30
SS-43	88.4	4 48	190	5 25	190	5.25	190	5 25	190	5 25	190	5 25
SS-44	462	6.14	4800	8 48	3200	8 07	5600	8 63	1100	7 00	3800	8 24
SS-45	796	6 68	40	3 69	40	3 69	40	3 69	40	3 69	40	3 69
6	980	6 89	5500	8 61	5500	8.61	5500	8 61	5500	8 61	5500	8 61
SS-50	99.2	4.24	5500	8 61	5500	8 61	5500	8 61	5500	8 61	5500	8 6
SS-52	912	6.82	7300	8 90	4300	8 37	4400	8.39	1200	7 09	3000	8 0
SS-57	1228	7 11	5500	8 61	5500	8 61	5500	8.61	5500	8 61	5500	8 61
SS-61	66.5	4 20	8650	9 07	5900	8 69	7300	8 90	1850	7 52	4100	8 32
SS-63	179	5 19	220	5 39	220	5 39	70	4 25	220	5 39	220	5 39
SS-64	186	5 22	6000	8 70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS-65	295	5 69	1600	7 38	1000	6 91	1300	7 17	320	5 77	830	6 72
SS-67	253	5 53	5500	8 61	5500	8 61	5500	8 61	5500	8 61	5500	8 61
SS-68	615	6 42	6000	8 70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS-69	796	6 68	6000	8 70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS-73	385	5 95	6000	8 70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS-74	599	6 40	6000	8 70	6000	8 70	6000	8.70	6000	8 70	6000	8 70
SS-75	112	4 78	290	6 67	480	0.11	950	6.86	950	6 86	820	6 71
SS-77	304	5 72	6000	8 70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS-78	486	6.19	6000	8 70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS-79	64.3	4.16	6000	8 70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS-80	97.7	4 47	5500	8 61	5500	8 61	5500	8 61	5500	8 61	5500	8.61
SS-82	218	5 38	140	4 94	160	5 19	190	5 25	180	5 19	120	4 79
SS-83	200	5.30	5500	8.61	5500	8 61	5500	8 61	5500	8 61	5500	8 61
SS-84	337	5.82	6000	8.70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS	168	5 06	6000	8.70	6000	8 70	6000	8 70	6000	8 70	6000	8 70
SS-[illegible]	216	5 38	10000	9 21	10000	9 21	10000	9.21	10000	9 21	890	6 38
SS-107	401	5 99	4850	8 49	4850	8 49	4850	8 49	4850	8 49	4850	8 49
SS-108	244	5 84	5000	8 52	5000	8 52	5000	8 52	5000	8 52	5000	8 52
SS-109	239	5 46	7400	8 91	9800	9 19	10000	9 21	2300	7 74	6000	8 70
SS-110	88.6	4 48	10000	9 21	2900	7 97	10000	9 21	10000	9.21	10000	9 21
SS-114	23.8	3.17	180	5 19	180	5 19	180	5 19	180	5 19	180	5 19
SS-115	214	5 37	4450	8 40	4450	8 40	4450	8 40	4450	8 40	4450	8 40
SS-116	12	2.48	175	5 16	175	5.16	175	5 16	175	5.16	175	5.16
SS-120	18.46	2 80	185	5 22	185	5 22	185	5 22	185	5 22	185	5.22
SS-121	72.9	4 29	380	5 94	380	5.94	110	4 70	380	5 94	380	5 94
SS-122	8.5	2.14	175	5.16	175	5 16	175	5.16	175	5 16	175	5 16
SS-32E	8	2.06	54	3 99	175	5 16	175	5 16	175	5 16	175	5 16
SS-33A	112	4 72	59	4 08	48	3 87	120	4 79	215	5 37	215	5 37
SS-37A	5.8	1 76	61	4 11	62	3 95	140	4 94	185	5.22	185	5 22
SS-48A	34.1	3 53	600	6.40	600	6 40	600	6 40	600	6 40	600	6 40
SS-48B	3.9	1 36	175	5 16	175	5 16	175	5 16	175	5 16	175	5 16
SS-48C	5.2	1 65	175	5 16	175	5 16	175	5 16	175	5 16	175	5 16
SS-48D	7.6	2 01	175	5.16	175	5 16	64	4 16	175	5 16	175	5 16
SS-84D	317	5 76	4800	8 41	3900	8 10	7900	8 97	460	6 13	2300	7 74
SS-85B	101	4 62	1600	7 38	630	6 27	480	6 17	720	6 58	130	4 87

Bolded values are actual detected concentrations. Non-bolded values are one-half the detection limit for non-detect data

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AFTER SOIL REMEDIATION
OCI SITE

Sample	Lead (mg/kg)	ln Lead	Benzo(a) anthracene (ug/kg)	ln Benzo(a) anthracene	Benzo(a) pyrene (ug/kg)	ln Benzo(a) pyrene	Benzo(b) fluoranthene (ug/kg)	ln Benzo(b) fluoranthene	Dibenzo (a,h)anthracene (ug/kg)	ln Dibenzo (a,h)anthracene	Indeno(1,2,3 cd)pyrene (ug/kg)	ln (1,2,3-cd) pyrene
SB-66C	177	5 18	800	6.21	360	5 89	340	5 83	900	6 80	900	6 80
SB-66D	20.6	3.03	450	6 11	310	5 74	350	5.80	850	6 75	850	6 75
SB-66E	631	6 45	900	6 80	900	6 80	900	6.80	900	6.80	900	6 80
SB-66D	87.8	4 48	180	5.19	180	5 19	41	3 71	180	5 19	180	5 19
SB-67C	196	5 28	410	6 02	600	6.38	1300	7 17	1700	7 44	1700	7 44
SB-68A	211	5 35	120	4 79	110	4 70	260	5.52	170	5.14	71	4 26
SB-68B	279	5 63	330	5 80	250	5 52	630	6.45	63	4 14	100	4 61
SB-68C	62.3	4.13	610	6 41	470	6 15	1100	7.00	59	4 08	260	5 56
SB-68D	6.8	1 92	170	5.14	170	5 14	170	5 14	170	5 14	170	5.14
SB-69A	33.8	3 52	195	5.27	195	5 27	75	4 32	195	5 27	195	5.27
SB-69B	4.8	1 53	170	5 14	170	5 14	170	5 14	170	5 14	170	5 14
SB-69C	3.7	1 31	170	5 14	170	5 14	170	5 14	170	5 14	170	5 14
SB-69D	2.7	0 99	170	5.14	170	5 14	170	5 14	170	5.14	170	5 14
D3-D	15	2 71	185	5 22	185	5 22	185	5 22	185	5 22	185	5 22
D8-E	13.6	2 61	460	6.13	460	6 13	460	6 13	460	6 13	460	6 13
SB-200	968	6.88	34	3 53	36	3 56	335	5 81	335	5 81	335	5 81
SB-205	380	5.94	42	3 74	47	3 85	175	5 16	175	5 16	230	5 44
SB-206	1900	7 60	1750	7 47	1750	7 47	1750	7 47	1750	7 47	1750	7 47
SB-207	736	6 60	660	6 49	840	6.73	1750	7.47	1750	7 47	1750	7 47
SB-208	1010	6 92	62	3.95	60	4.09	170	5.14	170	5 14	170	5 14
SB-209	244	5 50	300	5.70	320	5 77	360	5 89	290	5 67	460	6 11
SB-210	244	5 50	2200	7 70	3000	8 01	3100	8.04	1200	7.09	2700	7 90
SB-211	324	5 78	270	5 60	330	5 80	370	5.91	330	5 80	420	6 04
SB-212	227	5 42	150	5 19	150	5.01	130	4.87	170	5 14	92	4 52
SB-213	190	5 25	49	3.89	47	3 85	170	5.14	170	5 14	210	5 35
SB-217	231	5 44	410	6 02	400	5 99	420	6.04	110	4 70	280	5 63
SB-218												
SB-219												
SB-227	395	5 98	5100	8 54	7600	8 94	8800	9.08	890	6 79	7300	8 90
SB-228	491	6 20	340	5 83	400	5 99	850	6 75	850	6 75	380	5 89
SB-229	219	5 39										
SB-233	12.8	2 55										
SB-234												
SB-243												
SB-244	173	5 15										
SB-246	383	5 95	440	6 09	330	5 80	170	5 14	140	4 94	240	5 48
SB-256	205	5 32	300	5 70	440	6 09	560	6 33	850	6 75	440	6 09
SB-257	37	3 61	620	6 43	790	6.67	930	6 84	1800	7 50	450	6.11
SB-258	81	4 39	240	5 48	340	5 83	490	5 17	850	6 75	850	6 75
SB-259	230	5 44	240	5.48	360	5 89	850	6 75	850	6.75	320	5 77
SB-260	112	4 72	1800	7.50	2400	7 78	2800	7 86	390	5.97	1900	7 55
SB-261	266	5 66	220	5 39	280	5 63	800	6 68	800	6 68	800	6 68
SB-278	184	5.21										
SB-280	1210	7 10										
SB-283	901	6.80										
SB-284	863	6 75										
SB-287												
SB-262B	9.8	2.28	175	5 16	175	5 16	175	5 16	175	5 16	175	5 16
SB-263C	61.1	3 93	170	5 14	170	5 14	170	5 14	170	5 14	170	5 14
SB-264B	1690	7 37	1800	7 50	1800	7 50	1800	7 50	1800	7 50	1800	7 50
SB-265B	228	5 43	185	5.22	28	3 22	185	5.22	185	5 22	185	5 22
SB-266C	32	3.47	180	5.19	180	5.19	180	5 19	180	5 19	180	5.19
SB-268B	457	6 12	185	5.22	185	5.22	185	5 22	185	5 22	185	5.22
SB-269B	128	4 85	185	5.22	185	5.22	185	5 22	185	5 22	185	5.22
SB-270B	78	4 36	310	5.74	290	5 67	240	5 48	97	4 57	190	5 25
SB-271B	118	4 77	390	5 97	1850	7 52	1850	7 52	1850	7 52	1850	7 52
SB-272B	8.2	2.10	180	5 19	180	5.19	180	5 19	180	5.19	180	5 19
SB-273B	4.6	1 53	175	5.16	175	5 16	175	5 16	175	5.16	175	5 16
SB-274B	269	5 59	190	5.25	240	5 48	370	5 91	375	5 93	220	5 39
SB-275B	15.3	2 73	170	5 14	170	5.14	170	5.14	170	5 14	170	5 14

Bolded values are actual detected concentrations. Non-bolded values are one-half the detection limit for non-detect data

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AFTER SOIL REMEDIATION
OCI SITE

Sample	Lead (mg/kg)	In Lead	Benzo(a) anthracene (ug/kg)	In Benzo(a) anthracene	Benzo(a) pyrene (ug/kg)	In Benzo(a) pyrene	Benzo(b) fluoranthene (ug/kg)	In Benzo(b) fluoranthene	Dibenzo (a,h)anthracene (ug/kg)	In Dibenzo (a,h)anthracene	Indeno(1,2,3 cd)pyrene (ug/kg)	In (1,2,3-cd) pyrene
SS-276S	7.3	1.99	175	5.16	175	5.16	175	5.16	175	5.16	175	5.16
SS-277S	1.7	0.53	170	5.14	170	5.14	170	5.14	170	5.14	170	5.14
SS-286S	2.6	0.96										
SS-288S	2.7	0.99										
SS-300	257	5.55	24	3.18	10	2.64	180	5.19	180	5.19	180	5.19
SS-301	13.9	2.63	175	5.16	175	5.16	175	5.16	175	5.16	175	5.16
SS-302	88.9	4.49	170	5.14	170	5.14	170	5.14	170	5.14	170	5.14
SS-303	107	4.67	175	5.16	175	5.16	175	5.16	175	5.16	175	5.16
SS-304	142	4.96	180	5.19	180	5.19	180	5.19	180	5.19	180	5.19
SS-305	109	4.68	170	5.14	170	5.14	170	5.14	170	5.14	170	5.14
SS-306	38.7	3.58	350	5.86	350	5.86	350	5.86	350	5.86	350	5.86
SS-308	9.1	2.21	185	5.22	185	5.22	185	5.22	185	5.22	185	5.22
SS-309	8.3	2.12	175	5.16	175	5.16	175	5.16	175	5.16	175	5.16
SS-310	31.5	3.45	180	5.19	180	5.19	180	5.19	180	5.19	180	5.19
SS-311	84.5	4.44	175	5.16	175	5.16	175	5.16	175	5.16	175	5.16
SS-312	20.3	3.01	175	5.16	175	5.16	175	5.16	175	5.16	175	5.16
SS-313	7.2	1.97	185	5.22	185	5.22	185	5.22	185	5.22	185	5.22
SS-314	120	4.79	180	5.19	180	5.19	180	5.19	180	5.19	180	5.19
SS-315	306	5.72	340	5.83	410	6.02	570	6.35	180	5.19	180	5.19
S [illegible]	204	5.32	24	3.18	36	3.64	185	5.22	185	5.22	185	5.22
SS-318	8.7	2.10	175	5.16	175	5.16	175	5.16	175	5.16	175	5.16
SS-319	1080	6.98	385	5.95	385	5.95	385	5.95	385	5.95	385	5.95
SS-320	851	6.48	375	5.93	375	5.93	375	5.93	375	5.93	375	5.93
SS-321	1990	7.60	91	4.51	87	4.47	385	5.95	385	5.95	385	5.95
SS-322	619	6.43	355	5.87	355	5.87	355	5.87	355	5.87	355	5.87
SS-326	1060	6.96	410	6.02	410	6.02	410	6.02	410	6.02	410	6.02
SS-327	3270	8.09	780	6.66	440	6.09	640	6.73	410	6.02	320	5.77
SS-328	507	6.23	415	6.03	415	6.03	415	6.03	415	6.03	415	6.03
SS-329	2620	7.87	390	5.97	390	5.97	390	5.97	390	5.97	390	5.97
SS-332	173	5.15	335	5.81	44	3.78	335	5.81	335	5.81	335	5.81
SS-333	632	6.45	1700	7.44	1700	7.44	1700	7.44	1700	7.44	1700	7.44
SS-334	68	4.22	160	5.08	160	5.08	160	5.08	160	5.08	160	5.08
SS-335	135	4.91	160	5.08	160	5.08	160	5.08	160	5.08	160	5.08
SS-336	96.2	4.57	170	5.14	170	5.14	170	5.14	170	5.14	170	5.14
SS-337	25	3.22	165	5.11	165	5.11	165	5.11	165	5.11	165	5.11
SS-338	204	5.32	155	5.04	155	5.04	155	5.04	155	5.04	155	5.04
SS-339	11.2	2.42	165	5.11	165	5.11	165	5.11	165	5.11	165	5.11
MEAN		4.7		5.1		5.1		5.3		5.2		5.2
CC		154		145		145		145		145		145
S		1.71		1.51		1.62		1.47		1.33		1.36
Sv		0.1		0.1		0.1		0.1		0.1		0.1
Final 95%UCL		700		1994		1921		2092		1640		1662
Cancer Risk		–		2.7E-07		2.6E-06		3.0E-07		2.0E-06		2.3E-07
RF 95% UCL				9400		9600		10000		7000		7700
RI Risk				1.3E-06		1.1E-06		1.3E-06		9.1E-06		1.1E-06

Bolded values are actual detected concentrations. Non-bolded values are one-half the detection limit for non-detect data

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AFTER SOIL REMEDIATION
OCI SITE

Sample	Beryllium (mg/kg)	ln Beryllium	BEHP (ug/kg)	ln BEHP	Dieldrin (ug/kg)	ln Dieldrin	Aroclor 1248 (ug/kg)	ln Aroclor 1248	TCDD/TCDFs (ug/kg)	ln TCDD/TCDFs
SS-1	**0.33**	-1 11	**340**	5 83	**18 5**	2 80	**85**	4 44	**0.0037**	0 0037
SS-2	**0.28**	-1 27	**230**	5 87	**8 5**	2 14	**560**	6 31		
SS-3	**0.67**	-0 40	**1600**	7 31	**9 5**	2 25	**47 5**	3 86		
SS-4	**0.38**	-0 94	**360**	5 89	9	2 20	**45 5**	3 82		
SS-5	**0.61**	-0 49	**1100**	7 00	19	2 94	95	4 55	**0.0933**	0 0933
SS-6	**0.3**	-1 20	**190000**	12.15	145	4 98	700	6 55		
SS-7	0 05	-3 00	**2900**	7 97	8	2 08	40 5	3 70		
SS-8	**0.38**	-0 97	**9900**	9.20	**8.5**	2 14	**43 5**	3 77		
SS-10	**0.35**	-1 05	**3500**	8.16	**17 5**	2 86	**2700**	7 90	**0.26**	0 26
SS-11	**0.65**	-0.60	**7400**	8.91	**17.5**	2 86	**2700**	7 90	**0.185**	0 185
SS-12	**0.38**	-0 97	**7200**	8.88	**18 5**	2 92	**90**	4 50		
SS-13	**0 24**	-1 43	**1100**	7 00	**17**	2 83	**85**	4 44		
SS-16	**1.2**	0 18	**810**	6 23	**16**	2 89	**90**	4.50	**0 00225**	0 00225
SS-18	0 06	-2 81	**75000**	11 23	**220**	5 39	**95**	4 56	**0.216**	0.216
SS-39	**0.26**	1 35	1850	7 52						
SS-41	**0.22**	-1 51	190	5 25	**3 6**	1 28	**36**	3 58		
SS-42	**0.39**	-0 94	200	5 30	**2**	0 69	**20**	3 00	0 1215	0 1215
SS-43	**0.36**	-1 02	190	5 25	**3 85**	1 35	**38 5**	3 65		
SS-44	**1.8**	0 41	800	6 68	**19 5**	2 97	**195**	5 27		
SS-45	**0.89**	-0 37	40	3 69						
SS-49	**0.22**	-1 51	5500	8 61	**2.1**	0 74	**1300**	7 17		
SS-50	**0.22**	-1 51	**3200**	8 07	**140**	4 94	**290**	5 67		
SS-52	**0 79**	-0 24	**2100**	7 65	**21 5**	3 07	**215**	5 37	0 183	0 183
SS-47	**0.21**	-1 56	5500	8 61	**1 75**	0 56	**200**	5 30		
SS-51	**0.32**	-1 14	5000	8 52	**19**	2 94	**190**	5 25		
SS-53	**0.4**	-0 92	**3500**	8 26	**2 2**	0 79	**275**	5.62		
SS-54	**0.71**	-0 34	**8700**	9 07	**140**	4 94	**1200**	7 09	**0.145**	0 145
SS-55	**0.57**	-0.14	**3900**	8 27	**16 5**	2.80	**185**	5 11		
SS-57	**0.27**	-1 31	**3400**	8 13	**18 5**	2.92	**5200**	6 56		
SS-58	**0.36**	-1 02	**19000**	9 85	**10**	2.30	**690**	6 52		
SS-59	**0.3**	-1 20	**68000**	11 13	**0.53**	-0 19	**4700**	8 46		
SS-73	**0.34**	-1 08	**2900**	7 97	**19**	2 94	**4000**	8 29		
SS-74	**0.27**	-1 31	**6500**	8 79	**62**	4 13	**3900**	8 19	**0.138**	0 138
SS-76	**0 58**	-0 58	950	6 85						
SS-77	0 37	-0 99	2000	7 60	1 95	0 67	2900	7 94	0 163	0 16
SS-78	**0.89**	-0 12	**9500**	9 16	**17**	2 83	**3904**	8 19		
SS-79	**0.23**	-1 47	**5200**	8 67	1 9	0 64	**1500**	7 31		
SS-80	**0.39**	-0 94	**2900**	7 97	**3.7**	1 31	**8500**	9 05		
SS-82	1 1	0.10	**10000**	9 21	**10**	2 30	**3600**	8 16		
SS-83	**0.3**	-1 20	**2400**	7 78	**1.3**	0.26	**1100**	7 00		
SS-84	**0.23**	-1 47	**2900**	7 94	19 5	2 97	**9200**	9 13		
SS-85	**0.23**	-1 47	**2900**	7 94	1 9	0 64	**460**	6 19		
SS-86	**0.65**	-0 43	10000	9 21						
SS-107	**0.79**	-0.24	**29000**	10 28			**2900**	7 60		
SS-108	**0.73**	-0 31	**14000**	9 55			**9200**	9 13		
SS-109	**0.57**	-0 14	**1500**	7 31	19	2 94	950	6.86		
SS-110	**0.67**	-0 40	10000	9 21						
SS-114	**0.22**	-1.51	180	5 19			**43**	3 76		
SS-116	**0.65**	-0 60	**30000**	10 31			**1300**	7 17	**0.303**	0 303
SS-118	**0.49**	-0 71	235	5 46			**2900**	7 97		
SS-120	**0.22**	-1 51	185	5 22						
SS-121	**0.63**	-0 63	**3700**	8 22			**1400**	7 24		
SS-122	**0.22**	-1.51	175	5 16						
SB-32E	**0.11**	-2.21	175	5 16	**0.61**	-0 49	17 5	2 86		
SB-33A	**0.32**	-1 14	215	5 37	1 1	0 10	21 5	3 07		
SB-37A	**0.34**	-1 08	185	5 22	1 75	0 56	17 5	2 86		
SB-49A	**0.66**	-0 42	500	6 40	**0.65**	0 43				
SB-49B	**0.1**	-2 30	175	5 16	1 75	0 56	17 5	2 86		
SB-49C	**0.1**	-2 30	175	5 16	1 75	0 56	17 5	2 86		
SB-49D	**0.37**	-0 99	**90**	4 09	1 75	0 56	17 5	2 86		
SB-64D	1.2	0 18	**14000**	9 55	11	2 40	**5400**	8 59		
SB-66B	**0.34**	-1 08	**3200**	8 07	**24**	3 18	**90**	4 50		

Bolded values are actual detected concentrations Non-bolded values are one-half the detection limit for non-detect data

TABLE 1
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES
AFTER SOIL REMEDIATION
OCI SITE

Sample	beryllium (mg/kg)	ln Beryllium	BEHP (ug/kg)	ln BEHP	Dieldrin (ug/kg)	Dieldrin	Aroclor 1248 (ug/kg)	ln Aroclor 1248	TCDD/TCDFs (ug/kg)	ln TCDD/TCDFs
SB-66C	0.44	-0 82	3000	8 01	4 5	1 50	90	4 50		
SB-66D	0.14	-1 97	2200	7 70	8 5	2 14	85	4 44		
SB-66B	0.36	-1 02	11000	9 31	88	4 06	540	5 29		
SB-66D	0.26	-1 35	330	5 80	1.7	0 53	17 5	2 86		
SB-67C	0.66	-0 42	4200	8.34	8 5	2 14	2200	7 70		
SB-68A	1.2	0 18	2400	7 78	8	2 08	2300	7 74		
SB-68B	1 3	0 26	2400	0 13	8 5	2 14	2700	7 90		
SB-68C	0.64	-0 45	2800	7 86	3 4	1 22	4000	8 50		
SB-68D	0.24	-1 43	170	5 14	1 7	0 53	44	3 78		
SB-69A	0.46	-0 78	360	5 89	1 95	0 67	360	5 86		
SB-69B	0.36	-1 05	78	4 37	1 75	0 56	17 5	2 86		
SB-69C	0.11	-2 21	60	4 09	0.36	-1 02	17	2 83		
SB-69D	0.14	-1 97	46	3 81	1 7	0 53	17	2 83		
D3-D	0.44	-0 82	310	5 74	2.7	0 99				
D3-E	0.46	-0 80	1600	7 38	2.9	1 06	19 5	2 97		
SB-200	0.16	-1 90	3300	8 10			420	6 04		
SB-205	0.3	-1 20	14000	9.55	51	3 93	1100	7 00		
SB-206	0.31	-1 17	38000	10 57			1600	7 38		
SB-207	0.99	-0 12	28000	10.24			4300	8 37		
SB-208	0.16	-1 71	3800	8 24			930	6 84		
SB-209	0.49	-0.76	11000	9 31	43	3 76	810	6.70	0 078	0 078
SB-210	0.69	-0 37	5000	8 52	14	2 64	170	5 14	0 0045	0 0045
SB-211	0.38	-0 97	12000	9.39	29	3 00	820	6 71	0 081	0 081
SB-212	0.27	-1 31	7300	8 90	20	3 00	1200	7.09	0 039	0 039
SB-213	0.36	-0 94	28000	10 13	36	3 58	2200	7 70	0 082	0 082
SB-217	0.76	-0 27	16000	9 68	18	2 89	830	6 72		
SB-218									0 096	0 096
SB-219									0 09	0 09
SB-227	0.75	-0 29	8200	9 01			3700	8 22		
SB-228	3.1	1 13	90000	11 41			3800	8 24		
SB-229										
SB-233										
SB-234							8200	9 01		
SB-243							5200	8 56		
SB-244										
SB-245	3.1	1 13	34000	10 43	13		3400	8 13		
SB-256	1.1	1 36	6400	8 50	12 5	2 53	11000	9 31		
SB-257	0.44	-0 82	1500	7 31	12 5	2 53	320	5 77		
SB-258	0.63	-0.46	1600	7 38	13	2 56	770	6 85		
SB-259	0.44	-0.82	7100	8 87	13	2 56	680	6 33	0 028	0 028
SB-260	1.3	0 26	6500	8 75	13	2 56	3000	8 01		
SB-261	1.7	0 53	17000	9 74	23	4 42	2900	7 97	0 057	0 057
SB-279							510	6 23		
SB-280							8000	9 08		
SB-283							5300	8 56		
SB-284							4300	8 37		
SB-287									0 07	0 07
SB-262B	0 05	-3 00	1600	7 38			17	2 83		
SB-263C	0 12	-2 12	5200	8.56			57	4 04		
SB-264B	0 13	-2 04	28000	10 17			2000	7 60		
SB-265B	0.21	-1.56	2200	7 70	13	2 56	85	4 48		
SB-266C	0.13	-2.04	4100	8 32	13 5	2 60	7500	8 96		
SB-268B	0.13	-2.04	7000	8 85	16	2 77	340	5 83		
SB-269B	0 17	-1.77	37	3 61	1 4	0 34	18	2 89		
SB-270B	0.26	-1 35	1600	7 31	13 5	2 60	360	5 89		
SB-271B	0.24	-1 43	12000	9 39	24	3 18	3700	8 22		
SB-272B	0.17	-1 77	180	5 19	13 5	2 60	110	4 70		
SB-273B	0.13	-2 04	30	3 66	13	2 56	27	3 30		
SB-274B	0.27	1 31	2400	7 78			7100	8 87		
SB-275B	0.12	-2 12	300	5 70			1600	7 31		

Bolded values are actual detected concentrations Non-bolded values are one-half the detection limit for non-detect data

TABLE 1
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES
AFTER SOIL REMEDIATION
OCI SITE

Sample	beryllium (mg/kg)	ln Beryllium	BEHP (ug/kg)	ln BEHP	Dieldrin (ug/kg)	Dieldrin	Aroclor 1248 (ug/kg)	ln Aroclor 1248	TCDD/TCDFs (ug/kg)	ln TCDD/TCDFs
SB-276B	**0.12**	-2.12	**120**	4 79	13	2 56	**72**	4.28		
SB-277B	**0 09**	-2 41	170	5 14	13	2 56	16 5	2 80		
SB-288B							17	2 83		
SB-289B							17 5	2 86		
SS-300	**0.29**	-1 24	**17000**	9 74	**36**	3 58	**6100**	8 72		
SS-301	**0.24**	-1 43	**350**	5 86	1 4	0 34	**260**	5 56		
SS-302	**0.1**	-2 30	**3600**	8 19	**6.6**	1 89	**2000**	7 60		
SS-303	**0.13**	-2 04	**7500**	8 92	**7 5**	2 01	**3000**	8 0[illegible]		
SS-304	**0.39**	-0 94	**2100**	7 65	**4.4**	1 48	**830**	6 72		
SS-305	**0.05**	-3 00	**3300**	8 10	**43**	3 76	16 5	2 80		
SS-306	**0.13**	-2 04	**1600**	7.38	**11**	2 40	**3400**	8 13		
SS-308	**0.48**	-0 73	**65**	4 17	1 4	0 34	**380**	5.94		
SS-309	**0 39**	-0 94	**100**	4 61	1 3	0 26	**190**	5.25		
SS-310	**0.31**	-1 17	**570**	6 35	**7.4**	2 00	**1900**	7 55		
SS-311	**0 13**	-2 04	**3600**	8 19	**77**	4 34	**1000**	6.91		
SS-312	**0.22**	-1 51	**1100**	7 00	**2.1**	0.74	**54**	3 99		
SS-313	**0.19**	-1 66	**120**	4 79	**2.6**	0.92	**28**	3 33		
SS-314	**0.39**	-0 94	**3100**	8 04	**41**	3 71	**6800**	8 82		
SS-315	**0.16**	-1 83	**25000**	10.13	**19**	2 94	**2700**	7 90		
SS-316	**0.29**	-1 24	**9500**	9.16	**49**	3 89	**1600**	7 38		
SS-318	**0.28**	-1 27	**430**	6.06	1 3	0 26	**410**	6 02		
SS-319	**0.32**	-1 14	**63000**	11.05	**160**	5 08	**4400**	8 39		
SS-320	**0 3**	-1 20	**25000**	10 13	**140**	4 94	**3200**	8.07		
SS-321	**0.24**	-1 43	**74000**	11 21	**49**	3 89	**3200**	8 07		
SS-322	**0.17**	-1 77	**17000**	9 74	**57**	4 04	**5100**	8 54		
SS-326	**0.22**	-1 51	**130000**	11 78	**75**	4 32	**9900**	9 20		
SS-327	**0.21**	-1 56	**67000**	11 11	**81**	4 39	**6200**	8 73		
SS-328	**0.34**	-1 08	**22000**	10.00	**31**	3 43	**2000**	7 60		
SS-329	**0.18**	-1 71	**62000**	11 03	**110**	4 70	**6400**	8 76		
SS-332	**0.4**	-0 92	**20000**	9.90	12 5	2 53	**1600**	7 38		
SS-333	**0.28**	-1 27	**46000**	10 74	12 5	2 53	**12000**	9 39		
SS-334	**0.18**	-1 71	**3000**	8 01	**7**	1 95	**2000**	7 60		
SS-335	**0.18**	-1 71	**8200**	9 01	**11**	2 40	**2000**	7 60		
SS-336	**0.12**	-2.12	**3600**	8 19	**2.4**	0 88	**2000**	7 60		
SS-337	**0.14**	1 97	**810**	6 70	1 25	0 22	**160**	5 09		
SS-338	0.045	-3 10	**1500**	7 31	**4.2**	1 44	**330**	5 80		
SS-339	**0.17**	-1 77	**200**	5 30	1 25	0 22	**1100**	7 00		
MEAN		-1 2		7 8		2 2		6 3		0 11
COUNT		146		145		120		144		22
S		0 77		1 97		1 42		2 03		0 06
Sx		0 1		0 16		0 1		0.17		0 018
Final 95%UCL		**0.48**		**28458**		**36**		**7122**		**0.1386**
Cancer Risk		**4.9E-08**		**8.8E-06**		**1.2E-05**		**4.3E-05**		**3.0E-05**
RI 95% UCL		**0.898**		**43600**		**88**		**23200**		**0.298**
RI Risk		**7.1E-08**		**1.3E-05**		**2.0E-05**		**1.4E-04**		**[illegible]**

Total Carcinogenic Risk

Before Remediation	**2.6E-04**
After Remediation	**1.0E-04**

Bolded values are actual detected concentrations Non-bolded values are one-half the detection limit for non-detect data

FINAL REMEDIAL DESIGN
ORGANIC CHEMICALS, INC. SITE

Grandville, MI

September 7, 2001

Prepared for:

TPI Petroleum, Inc.
San Antonio, Texas

Prepared by:

Compliance, Inc.
223 Lake Avenue
Traverse City, Michigan

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FINAL REMEDIAL DESIGN

Organic Chemicals, Inc. Site
Grandville, MI

On behalf of TPI Petroleum, Inc. (TPI), Compliance, Inc. has prepared this final design for soil remediation at the Organic Chemicals, Inc. (OCI)) Site in Grandville, Michigan. This report presents the rationale and protocols for soil remediation tasks for this site. The soil remediation that is the subject of this report is being completed as a part of the CERCLA response actions for this site. The work is being completed in accordance with the Consent Decree dated September 28, 2000 and its associated Statement of Work (SOW) between TPI and the United States Environmental Protection Agency (U.S. EPA).

The OCI site is located at 3291 Chicago Drive, S.W. in Grandville, Michigan. During its period of operation, OCI manufactured specialty industrial chemicals and pharmaceutical intermediates. OCI also operated a solvent recovery operation. The company operated from the late 1960s to the early-1990s, prior to which the site was used as a bulk petroleum terminal and as a crude oil refinery beginning in the late-1930s.

The OCI site has been the subject of various environmental investigations beginning first by the Michigan Department of Natural Resources (MDNR) in the mid-1970s and later under the direction of U.S. EPA in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). The U.S. EPA investigation documented soil impact at the OCI site that could pose a health threat to a future worker at this site.

This report is divided into two separate major parts. Part I presents an evaluation of the soil data collected by U.S. EPA during their Remedial Investigations of the site and soil data collected during the Pre-Design soil investigations completed by Compliance, Inc. in May and August 2001. The evaluation presented in Part I assesses potential risks associated with soil impact within the facility. That evaluation identifies, from this risk assessment, the areas of the site where soil remediation activities are required to meet the project goal.

Part II of this work plan presents the scope of work for addressing those soils identified for remediation. This part describes site preparation, soil excavation, and off-site disposal activities. Part 2 also describes the remediation activity monitoring and site health and safety procedures. The methodology for final soil verification sampling after the removal of soils is also outlined in Part 2.

PART I

SUMMARY OF INDICATOR CHEMICAL CONCENTRATIONS FOR THE PURPOSE OF DEFINING AREAS REQUIRING SOIL REMEDIATION

1.0 BACKGROUND INFORMATION

1.1 U.S. EPA RI Soils Investigations

The past investigations of the OCI site are generally summarized and presented in U.S. EPA's Phase II Remedial Investigation (RI) report dated June 17, 1994. With regards, to surface and near surface soils, the RI investigations collected over one hundred soil samples and subjected them to analysis for full scan VOCs, SVOCs, pesticides/PCBs and inorganics. A subset of these samples were also subjected to analysis for dioxins/furans.

Specific reasoning for the U.S. EPA's selection of each soil sampling location was not provided in the RI or in the Final RI/FS Work Plan. General discussion presented in the RI indicates that sampling was completed to determine the aerial extent of surficial soil contamination. Additional discussion in the RI also indicates that a bias towards visual or suspected areas of impact was used for some of the collected samples. Surface soil sampling was also more concentrated in and around the tank farms, storage areas, and site chemical handling buildings.

Given the bias used to select many of the sample locations and the greater frequency of sampling in areas known or suspected to be the location of past releases, it is believed that the database generated by the RI sampling was not likely to underestimate the typical site chemical concentrations to which a future worker could be potentially exposed. This database was used by TPI as the initial basis for assessing site risks and for determining where to focus the Pre-Design sampling completed in May 2001.

As specified in Section 2.2.1 of the U.S. EPA RI, surface soil samples collected by U.S. EPA's contractor at the site were collected from the two to six inch depth interval. This depth interval was generally characterized as a sandy gravel. The samples were collected by hand tools or directly by hand. Approximately 84% of the site soil data used in U.S. EPA's risk evaluation of on-site soils was collected from these depths. A smaller subset of the data used by U.S. EPA to assess risks to soils exposures was collected from depths below the surface (two to ten feet below ground surface (BGS). The subsurface soil samples were reported as being collected using a three-inch diameter ring lined sampler. **The inclusion of a limited number of soil samples from the two to ten foot depth interval recognizes that a portion of a future worker's soil exposure would likely come from soils below the site surface. The number of soil samples collected from subsurface depths and used in the site risk evaluation was small relative to the total number of site soil samples used to assess future worker exposures (approximately 20 samples out of a total of over 150 samples).**

1.2 U.S. EPA RI Risk Assessment

The chemicals detected in the surface soils during the U.S. EPA RI were subjected to a risk assessment completed according to U.S. EPA's Risk Assessment Guidance for Superfund (RAGS). The Phase II RI risk assessment identified twelve chemicals of concern that represented a majority of the calculated site health risks. Eleven of the chemicals of concern are known or suspected human carcinogens and these chemicals accounted for over 95% of the total site carcinogenic risk. The twelve chemicals of concern are listed below:

Beryllium
Chromium (VI)
Lead
Bis(2-ethylhexyl)phthalate
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Dibenzo(a,h)anthracene
Indeno(1,2,3-cd)pyrene
Aroclor-1248
Dieldrin
Dioxins/Furans (2,3,7,8-TCDD Equivalents)

The Phase II RI identified the carcinogenic risks to future site workers associated with these chemicals in soils to be 2.8×10^{-4}. Because the carcinogenic risks were determined to be outside of U.S. EPA's target carcinogenic risk range (1×10^{-6} to 1×10^{-4}) and because elevated lead concentrations were present, an evaluation of potential soil remedies was undertaken.

1.3 Soil Cleanup Goal

As specified in the SOW and Consent Decree for this site, the goal for the soil remediation is to excavate and dispose off-site, or treat and retain on-site, contaminated soil and debris until the site wide soils meet the 1×10^{-4} excess cancer risk required by the ROD. The stated remediation goal also includes a demonstration that a cleanup standard for lead in soils of 900,000 ug/kg is achieved at this site in accordance with the MDEQ Guidance Document "Verification of Soil Remediation" April 1994, Revision 1.

The risk assessment methodology used to determine that the soil remediation goal for carcinogenic chemicals is achieved is the methodology used by U.S.EPA in the Phase II RI. This method is in accordance with U.S. EPA's Risk Assessment Guidance for Superfund (RAGS). As evidenced in the Phase II RI and in accordance with RAGS, the calculated carcinogenic risk attributable to any individual chemical in soils at the OCI Site is directly proportionate to the calculated exposure concentration for that chemical. The carcinogenic risk for an individual chemical after soil remediation (CR_{AR}), can be determined by the following formula:

$CR_{AR} = CR_{BR} * (EC_{AR}/EC_{BR})$

where:

CR_{BR} = Carcinogenic risk before remediation (unitless)
EC_{AR} = Exposure concentration after soil remediation (ug/kg or mg/kg)
EC_{BR} = Exposure concentration before soil remediation (ug/kg or mg/kg)

Per the Phase II RI and RAGs, the exposure concentration is the 95% upper confidence limit of the mean (95% UCL) concentration.

The total carcinogenic risks attributable to the eleven chemicals of concern following soil remediation is the sum of the individual risks for each chemical (the sum of the CR_{AR}'s) determined as above. The estimated individual and chemical risks and risk reduction presented later in this report are determined from this methodology.

It is noted that the U.S.EPA RAGS-based risk assessment process used for this site differs from that used by MDEQ to determine Part 201 generic industrial site soil criterion. The process used by U.S. EPA applies exposure factors that result in more conservative (lower) cleanup criteria for carcinogenic chemicals than would be determined using Part 201 generic industrial site soil criterion. Further discussion of the greater protectiveness of the approach being used for this site versus the use of MDEQ soil criteria is presented in Section 3.5 of this Part.

1.4 Elimination of One or More Chemicals of Concern

As specified in the SOW, during the Pre-Design investigation, the chemicals of concern were evaluated for potential elimination from the risk assessment for this site if they met any of the following criteria: 1) if it could be determined that the chemical no longer exhibits intrinsic toxicological properties, 2) if it could be determined that the chemical is no longer present in large quantities, or 3) if it could be determined that the chemical is not presently in or potentially going to move into critical exposure pathways (e.g. direct human contact or ingestion). The pre-design soil sampling was used to generate data sufficient to support a conclusion that chromium, which, for risk assessment purposes, was assumed to be present as chromium VI, was not present in this more toxic valence state. Therefore, chromium VI was eliminated from the risk assessment based on its relative absence. A specific discussion of the sampling completed to make this demonstration is presented in Section 2.4 of this Part.

2.0 SCOPE AND RESULTS OF PRE-DESIGN SOIL INVESTIGATION

The pre-design soil investigation was completed to provide both additional data needed to define the lateral extent of soils requiring remediation and to determine whether the U.S. EPA Feasibility Study (FS) assumed two foot depth of soil removal would be adequate to reduce site soil exposure risks. To accomplish this, both lateral and vertical definition soil samples were collected during the pre-design investigation. A discussion of the pre-design sampling locations and results is presented in the remainder of this section.

2.1 Pre-Design Lateral Definition Sample Locations

The lateral definition soil samples were collected from the locations numbered SS-200 to SS-261 **and SS-278 to SS-287** as presented on Figure 1. The lateral definition sample locations included samples from locations that adjoin areas initially identified for potential remediation using the U.S. EPA RI data. Additional lateral definition samples were also collected from several locations identified by the MDEQ as areas of the site requiring additional sampling to supplement the site database.

Soil samples were collected according to the soil sampling procedure specified in the QAPP for this site, which also, per U.S. EPA Region 5 guidance, is serving as the Sampling and Analysis Plan for this project. Specific sample collection methodologies are discussed in section B.2 of the QAPP and in the Standard Operating Procedures (SOPs) presented in Appendix C of the QAPP. One duplicate sample was included for every group of ten or less soil samples collected.

All of the lateral definition samples were collected as non-composited surface soil samples from the 0 to 6 inch depth interval. In general, the samples were collected using a stainless steel hand trowel from an area of lateral dimensions sufficient to provide enough soil to fill all sampling jars (including any requested MDEQ/U.S. EPA split samples). The samples were first collected into stainless steel bowls, mixed and then placed into sampling jars following exclusion of stones and vegetative material. In a few instances, sampling was limited to less than six inches by subsurface obstructions. In those cases, the soils were collected over the sampling interval that could be achieved generally no less than zero to four inches.

As seen on Figure 1, the combination of all RI and pre-design soil sample points provides lateral coverage of the entire site. The sampling locations were generally spatially distributed throughout all areas of the site. A greater frequency of sampling is observed in and around areas earmarked for remediation. As with the original U.S. EPA soil sampling, this greater sampling frequency in and around suspected/known areas of greater impact is believed to bias the site average chemical concentrations upward. The subsequent risk evaluations completed using this data are believed to produce conservative estimates of potential human health risks.

2.2 Pre-Design Vertical Definition Sampling Locations

The pre-design vertical definition samples were collected from **eighteen** locations at the site. All sixteen of the locations were within areas initially identified for soil remediation based on the U.S. EPA RI data. These sample locations, labeled SB262 to SB-277 **and SB-288 and SB-289**, are shown on Figure 1. The samples locations included at least one from each discrete area initially identified for remediation (two from the larger area between the north tank farm and the drum storage area).

The subsurface soil sample locations were selected because they are in the areas initially identified for soil remediation (where the depth of removal must be determined) and because they

represent the areas of the site identified in the RI sampling as having the greatest surficial soil impact. These areas were believed to be areas with the greatest potential for vertical migration of contaminants. As a part of the investigation design, the 2.0 to 2.5 foot sample was selected to test the FS assumption that the impacted areas of the site will require remediation to the two foot depth. The second sample collected in each boring (nominally from 4.0 to 4.5 foot) was collected to provide additional data, should the shallower sample show the presence of chemicals that require remediation.

The vertical definition sampling was designed to collected non-composited grab samples from the 2.0 to 2.5 foot and the 4.0 to 4.5 foot depth intervals. The sampling was generally accomplished using a GeoProbe. Hand auger techniques were initially attempted but proved unsuccessful due to the gravel content of the surface soils. However, in a few locations, the GeoProbe sampling was supplemented by hand auguring. Prior to GeoProbing through the surface soils, an approximately two foot by two foot wide hole, about 1.5 feet deep was hand dug in the sampling locations. This initial hole was completed to remove surface materials that might pose a carry down threat using the prescribed subsurface sampling equipment. Soil samples were then generally collected using a five feet long, two-inch ID macrocore sampler. The sampler was driven down to five foot bgs. Multiple samplers (up to three) were driven at each location to produce enough soil sample for the required laboratory analysis from the selected depth intervals at each location.

Samples were collected from the recovered core and segregated into an approximate 2 to 2.5 interval sample (labeled with the suffix "B") and an approximate 4 to 4.5 foot sample (labeled with the suffix "C"). The actual sampling interval is considered approximate because, due to the nature of the subsurface soils, 100% recovery was not achieved in each sample core. Table 5 lists the sample methods, sampler recovery and depth intervals used for the B and C samples. As noted on Table 5, at four locations, sample recovery was limited such that only a single interval was subjected to laboratory analysis. At these locations, the sample was given the B suffix but can not be more specifically characterized than as being a likely composite over the 2.0 to 4.5 foot depth interval. Likewise, in sample locations where recovery was less than 100%, the B and C samples should be considered to represent approximations of the nominal depth intervals (2.0 to 2.5 and 4.0 to 4.5). Those samples collected by hand auger, were collected from the prescribed depth intervals.

2.3 Surface and Subsurface Soil Sample Analyses

A majority of the soil samples were analyzed for ten of the twelve indicator chemicals including the five PNAs, lead, beryllium, BEHP, dieldrin and Aroclor 1248. A smaller subset of the samples were analyzed for chromium VI and dioxins/furans. Several samples were also selected for either lead or Aroclor 1248 sampling alone.

The analytical methodologies used are listed below.

Laboratory Parameter	Matrix	Method Number	Laboratory
Beryllium	Soil	SW846 6010B	SWLO
Chromium (VI)	Soil	SW846 6010B	SWLO
Lead	Soil	SW846 6010B	SWLO
Bis(2-ethylhexyl)phthalate	Soil	SW846 8270C	SWLO
Benzo(a)anthracene	Soil	SW846 8270C	SWLO
Benzo(a)pyrene	Soil	SW846 8270C	SWLO
Benzo(b)fluoranthene	Soil	SW846 8270C	SWLO
Dibenzo(a,h)anthracene	Soil	SW846 8270C	SWLO
Indeno(1,2,3-cd)pyrene	Soil	SW846 8270C	SWLO
Aroclor-1248	Soil	SW846 8082	SWLO
Dieldrin	Soil	SW8468081A	SWLO
Dioxins/Furans (2,3,7,8-TCDD Equivalents)	Soil	SW846/8290, High Resolution Method	SWLO

Detailed SOPs for each of the analytical methods were presented in Appendix A of the QAPP.

2.4 Summary of Pre-Design Sampling Analytical Results

The sample result data sheets for all pre-design samples are presented in Appendix A. The data validation report for these samples is included as Appendix B. The results of the sampling are evaluated in detail for risk assessment purposes in Section 3.0 of this Part.

Notable aspects of the sampling analytical results include:

- Chromium VI was either not detected or detected at concentrations below 1 mg/kg in all of the soil samples collected in the pre-design sampling. These concentrations were over 1,000 times lower than the highest concentrations of total chromium and over 100 times lower than the 95% UCL concentrations for total chromium presented in the RI. As such, any potential risks associated with the presence of Chromium VI at the site are 2 to 3 orders of magnitude lower than the presumed 1.4×10^{-5} risk level presented in the RI risk assessment. This would correspond to less than or equal to 1×10^{-7} cancer risk. For this reason, chromium is not included further in the site risk evaluations.

- With the exception of lead in one location, the subsurface B samples (nominally from the 2.0 to 2.5 foot interval) were as a whole significantly lower in indicator chemical concentrations than the corresponding surface soil samples collected in the RI sampling. These data support the conclusion that a 2.0 feet excavation depth is sufficient to produce the desired risk reduction over most of the site.

- The above conclusion is further supported by the fact that the subsurface C samples (nominally from the 4.0 to 4.5 foot interval) also had substantially lower indicator chemical concentrations. In only one instance, was a target analyte found in a C labeled sample at a concentration that would require soil remediation.

The two noted exceptions to the above findings concerning subsurface depths were:

1) The presence of lead in the SB-263B sample at 12,500 mg/kg. The C sample at this location showed a substantially lower lead concentration of 51 mg/kg. That data suggests that any soil removal in this location would need to extend to approximately 3 to 3.5 feet.

2) The presence of Aroclor 1248 in the SB267C sample at 60,000 ug/kg. At this location, the surface soil and the B depth interval samples showed substantially lower levels of Aroclor impact. At the four foot depth interval, the soils had an organic chemical odor (this was the only location out of the sixteen subsurface soil sample locations where visual/olfactory evidence of impact below 2.0 feet was observed). This location is near/in the former seepage lagoon area. The impact identified is believed to be residual from that site feature.

Noting that additional characterization is necessary in the areas surrounding SB-267C, the Pre-Design data is considered sufficient to conclude that the two foot depth interval for remediation will adequately reduce site risks. The only location where the B/C samples suggest potential for higher impact at depth is in the sample collected from an area of the site where subsurface impact was the result of a previously known site feature which by design would cause subsurface impact (the former seepage lagoon). The pre-design investigation did not suggest that other subsurface areas of the site show a similar potential for increasing chemical concentrations with depth. Based on these findings, no additional deeper investigation (with the exception of the seepage lagoon) is considered necessary.

3.0 EVALUATION OF ALL SOIL SAMPLING DATA FOR THE IDENTIFICATION OF SOILS REQUIRING REMEDIATION

3.1 Combined RI and Pre-Design Soil Database

Table 2 lists the entire site surface soil database which is a combination of the 106 surface and near surface soil samples used by U.S.EPA in the initial site Risk Assessment (as presented on Table 6-2 of the Phase II RI Report) and the **71** pre-design surface soil samples collected by Compliance, Inc. Data presented in this data base is for the ten remaining chemicals of concern identified in the RI except dioxins/furans. Data for dioxins/furans, used to determine the 2,3,7,8-TCDD equivalency for each dioxin/furan sample is summarized in detail on Table 3. The locations from which the samples were collected are presented on Figure 1.

The concentration entered into the database presented as Table 1 is the actual detected concentration when the chemical was identified as present. If the chemical was not detected, a concentration equal to one-half the reported detection limit for that sample was entered. This interpretation of the data follows that used by U.S. EPA in the RI and that recommended in RAGS.

It is notable that for several of the target analytes (primarily PNAs), a substantial number of sample points from the RI and some from the pre-design sampling were reported as non-detect but had elevated detection limits. Elevated detection limits introduce uncertainty into an assessment of site risks and the identification of locations of the site requiring remediation. The convention used by U.S. EPA and the convention followed in this Work Plan (to assume that a chemical reported as non-detect was present at a concentration equal to one half the detection limit) is a conservative means of accounting for this uncertainty. This convention may overestimate the risks posed by several chemicals at the OCI Site. As an example, as seen on Table 1, for several of the PNAs, a majority of the highest chemical concentrations assumed to be present are actually from non-detect samples where half of the reported elevated detection limit is used.

The uncertainty associated with elevated detection limits is lessened by the fact that the chemicals primarily affected by elevated detection limits contribute a relatively small percentage to the overall site risks. Specifically, PNAs and BEHP were the chemicals most often reported with elevated detection limits but these chemicals contributed only about 12% to U.S. EPA's calculated overall carcinogenic risks for the worker scenario. Chemicals contributing higher percentages to the site risks (e.g., Aroclor 1248, dieldrin and TCDDs/TCDFs) have data sets that were generally not affected by non-detect data with elevated detection limits. Additionally, the data set for lead, handled as a non-carcinogen, was not affected by elevated detection limits.

3.2 Subsurface Soil Sampling Data

Data for the **32** subsurface soil samples collected during the pre-design investigation are also presented on Tables 2 and 3. This data is used to determine the appropriate depth of remediation for the proposed remedy. As seen on Table 2, with relatively few exceptions, the subsurface data is substantially lower in maximum and average indicator chemical concentrations than the surface soil data base.

With the exception of lead at the SB-263B, the B labeled samples for all of the analytes are generally significantly lower in chemical concentration than the surface soil samples. This includes the Aroclor 1248 concentration in SB-266B, which while higher, 40,000 mg/kg, is significantly lower than the surface soil concentrations in this location, 74,000 identified in SS-81). With the exception of the sample at SB-263B and SB-266B, the data supports the conclusion that remediation to no deeper than the two foot depth interval is required at this site (in the SB-263 and SB-266 locations, the C sample interval suggests that a removal of approximately 3 feet may be warranted).

The deepest samples collected (those labeled C) were also seen to have generally lower concentrations than the B labeled samples. With the exception of the SB-267C sample, the data does not suggest that soil removal below 2.0/3.0 feet is warranted. It also did not produce data that would suggest that depths greater than 4.5 feet require further characterization. The exception to this finding, the Aroclor 1248 concentration in the SB-267-C sample, will require additional soil characterization prior to remedy implementation in the area of that sample.

Excluding the lead concentration in SB-263B and the Aroclor 1248 concentration in SB-266B, the average concentration of all of the target analytes in the B labeled samples **collected in May 2001 (SB-262 to SB-277)** presented on Table 2 is used as the assumed post-remediation soil concentration in the statistical evaluations presented in Section 3.3 below. While using this data as the assumed post remediation sample concentration for design purposes, it is reiterated that this subsurface data will be supplemented with actual post removal verification sample collection and analysis. A discussion of that sampling is presented in Section 2.5 of Part 2 of this report.

3.3 Calculated Carcinogenic Risks and Carcinogenic Risk Reduction Evaluation

In the Phase II RI, the total carcinogenic risks to on-site workers associated with exposure to chemicals in soil was determined to be 2.8×10^{-4}. This risk level exceeds the acceptable carcinogenic risk goal of 1×10^{-4} by approximately a factor of three. In order to meet the 1×10^{-4} carcinogenic risk remediation goal for this site, a sufficient quantity of the more highly impacted soils must be remediated until the remaining soils exhibit a carcinogenic risk of 1×10^{-4} or less. The methodology for identifying which soils require remediation to meet this goal is presented below.

In accordance with the SOW, risks from potential future chemical exposures are calculated on a site wide basis assuming future industrial use of the site. To support the use of the site wide assessment, the deed restriction to be emplaced on the site will prevent future uses other than industrial, and will prevent any subdivision of the site. The latter restriction eliminates the possibility that a smaller parcel may be separated from the entire site and any subsequent need to predict and evaluate potential exposures based on possible smaller site subdivisions.

Consistent with the Feasibility Study/ROD approach, Figure 2 presents a gridded layout of the OCI site. On Figure 2, the site has been divided into approximately 500, 25 foot by 25 foot grids. This grid system was set up to identify locations of soil for which the analytical data indicates remediation is or is not necessary. The 25 by 25 foot grid system was established for efficient remedial design and is not correlated with grid systems that would be set for verification of soil remediation (VSR). It is noted that, after site remediation is completed, soil sampling in the remediated areas will be completed according to the work plan (see Section 2.5 of Part 2 of this Final Remedial Design).

Also consistent with the FS approach, as depicted on Figure 2, a number of the grids are shaded to indicate grids where removal/remediation of soils will reduce the cumulative carcinogenic risk for the on-site soils to below 1×10^{-4} for the future worker exposure scenario. The locations identified for removal generally correspond with grids containing soil samples with the highest concentrations of the carcinogenic indicator chemicals (as presented on Table 2 and 3).

In order to assess the reduction in risks that will be achieved by remediating a particular grid, as shown on Table 4 the RI and pre-design determined chemical concentrations for the sample from that grid were replaced with concentrations that are assumed to be present in the remediated area after soil removal. The concentrations assumed to be present are the average concentrations found in the selected subsurface B samples as discussed in Section 3.2. For instance, sample SS-

93 has a higher Aroclor 1248 concentration (32,000 ug/kg) and, therefore, contributes relatively more to site risks. This area of the site (Grid V16) was, therefore, selected to be remediated to help achieve the risk reduction goal. Assuming that this grid is remediated, a concentration of 1,500 ug/kg for Aroclor 1248 (the average of all subsurface B samples, excluding SB-266B) is used as a presumed post remediation concentration. This concentration is then entered in natural log-transformed form into Table 4. (The natural log transformed data was used to calculate site wide 95% UCL concentrations for ten of the remaining eleven chemicals of concern in the Phase II RI. Consistent with the RI, normal (untransformed) data was used to calculate the 95% UCL concentration for dioxins/furans).

It is noted that the actual chemical concentrations following remediation will be supplemented with VSR sampling to be completed after the remediation. The following table lists the average concentration of each chemical of concern in the B subsurface samples. This Final Design assumes that these concentrations are in the remediated locations following removal (the log transformation of that concentration is entered in Table 4 as the concentrations in these locations following remediation):

Soil Analyte	**Average Concentration in Subsurface "B" Samples (ug/kg)**	**Ln of Assumed Concentration**
Beryllium (mg/kg)	0.21	-1.56
Lead (mg/kg)	213*	5.36
Bis(2-ethylhexyl)phthalate (ug/kg)	6780	8.82
Benzo(a)anthracene (ug/kg)	397	6.00
Benzo(a)pyrene (ug/kg)	471	6.15
Benzo(b)fluoranthene (ug/kg)	488	6.19
Dibenzo(a,h)anthracene (ug/kg)	486	6.19
Indeno(1,2,3-cd)pyrene (ug/kg)	482	6.18
Aroclor-1248 (ug/kg)	1480**	7.30
Dieldrin (ug/kg)	13.4	2.60
Dioxins/Furans (2,3,7,8-TCDD Equivalents) (ug/kg)	0.04	Not applicable, normal data used for 95% UCL

* Average for lead does not include SB-263B sample.

** Average for Aroclor 1248 does not include SB-266B sample.

Table 4 shows the database used to re-calculate the carcinogenic risks following the planned remediation of soils in the grids marked on Figure 2. Those samples that are shaded on Table 4 are the samples from locations to be remediated. Using the data presented on Table 4, it is determined that remediation of the indicated locations on the site will reduce the carcinogenic risks for each of the indicator chemicals and for the site as a whole as follows.

Soil Analyte	U.S. EPA Determined Carcinogenic Risk Prior to Remediation	Calculated Carcinogenic Risk After Proposed Remediation
Beryllium	7.1×10^{-6}	5.2×10^{-6}
Bis(2-ethylhexyl)phthalate	1.3×10^{-5}	5.8×10^{-6}
Benzo(a)anthracene	1.3×10^{-6}	3.3×10^{-7}
Benzo(a)pyrene	1.1×10^{-5}	2.8×10^{-6}
Benzo(b)fluoranthene	1.5×10^{-6}	3.8×10^{-7}
Dibenzo(a,h)anthracene	9.1×10^{-6}	2.3×10^{-6}
Indeno(1,2,3-cd)pyrene	1.1×10^{-6}	2.7×10^{-7}
Aroclor-1248	1.4×10^{-4}	3.0×10^{-5}
Dieldrin	2.0×10^{-5}	8.6×10^{-6}
Dioxins/Furans	5.5×10^{-5}	2.5×10^{-5}
Total Carcinogenic Risk	**2.8×10^{-4}**	**8.2×10^{-5}**

It is noted that because there are ten carcinogenic chemicals of concern and because of their varying locations of greatest concentration, there are a number of ways to remove/remediate soils to achieve the carcinogenic risk reduction goal. In general, the locations selected for remediation that are shown on Figure 2 were: 1) selected to address the soils with the highest concentrations of the chemicals contributing most to the overall site carcinogenic risk (e.g., Aroclor 1248); and 2) selected for remediation from grids that are proximate to each other, to focus the remediation to specific areas, as best possible.

3.4 Lead

As shown on Table 4, the removal/remediation required to achieve the carcinogenic risk goal of 1×10^{-4} leads to a calculated site wide 95% UCL concentration for lead of approximately 580 mg/kg. This is well below the 900 mg/kg remediation goal established in the Consent Decree/SOW for this site. Therefore, no additional remediation of the site soils for lead (above and beyond that required for the carcinogenic chemicals) is warranted.

3.5 Comparison to Part 201 Industrial Site Soil Criterion

As mentioned above, the U.S. EPA RI risk assessment process differs from the process used to determine Michigan Part 201 generic industrial site soil criterion. The differences, mainly in the exposure assumptions used in the assessment of risks, are such that the U.S. EPA-based approach results in more conservative cleanup goals than that would be required to comply with Michigan Part 201 alone. A comparison of the Part 201 criterion to the calculated 95% UCL concentrations and maximum concentrations after the remediation proposed above is completed is presented below.

Soil Analyte	95% UCL Concentration After Remediation (ug/kg)	Maximum Remaining Concentration (ug/kg)	Part 201 Industrial Site DHC Soil Criterion (ug/kg)
Beryllium	500	3,100	3,100,000
Lead	609,000	2,320,000	900,000
Bis(2-ethylhexyl)phthalate	22,700	190,000	10,000,000
Benzo(a)anthracene	2380	8,650	100,000
Benzo(a)pyrene	2220	9,800	10,000
Benzo(b)fluoranthene	2690	10,000	100,000
Dibenzo(a,h)anthracene	1780	2,300	10,000
Indeno(1,2,3-cd)pyrene	1970	7,300	100,000
Aroclor-1248	4890	11,000	20,000
Dieldrin	25	220	6,400
Dioxins, Furans	0.118	0.30	0.99

As seen on the above table, all of the calculated 95% UCL concentrations after the proposed remediation would be well below their respective Part 201 industrial site soil criterion.

Furthermore, in only one case (for lead) is the maximum remaining concentration of any target analyte in any sample above the Part 201 industrial site soil criterion. The excursions above the lead criterion (mainly in samples from the northwest corner of the site), while the 95% UCL remains well below the criterion, are not significant because:

- **The extent of the exceedences are small. The maximum remaining lead concentration exceeds its Part 201 soil criterion by less than a factor of three, and**
- **The 95% UCL concentration for lead in a smaller (2-acre) exposure unit that would include the entire northwest portion of the site with the higher lead concentrations is 818,000 ug/kg. This concentration is below the MDEQ's 900,000 ug/kg industrial site lead criterion (see Appendix D).**

5.0 Summary of Remediation Area

Figure 2 outlines the areas of the site that contain samples that have been identified for soil remediation. Areas marked for remediation are those outlined in red. These areas contain one or more of the samples selected for remediation in Section 4.0 (Table 4). Some areas proximate or between grids with the selected samples are also selected for remediation.

The remediation areas include most of the soil between the main building complex in the center of the site, soils south of the North and South Chemical Buildings between the buildings and the site fence, and an area of the site north of the Administration building/Aeration Tank.

The outlined area of remediation includes approximately 53 of the 25 x 25 foot grids. The estimated in place volume of soil in each grid at a two foot removal depth (the depth of removal across most of the site) would be approximately 46.3 yards. The estimated total in place volume of soil requiring remediation, accounting for an excavation slightly deeper than two feet in a few locations is about 2,500 yards.

PART II

SOIL REMEDIATION FINAL DESIGN

1.0 INTRODUCTION

As presented in Part 1, the amount of soil currently identified for remediation at the OCI Site is approximately **2,500** yards. Per the SOW for this work, TPI has determined that this represents a volume where off-site disposal will be the predominant means of soil remediation. At this volume of soil, off-site disposal has been determined by TPI to be as cost effective as other means of remediating site soils. Off-site removal has also been determined to have equal or greater long term effectiveness and permanence as other remedies that could be employed. Because soils are not treated on-site prior to disposal, off-site disposal does not reduce the toxicity or mobility of the soil materials. However, the mobility of contaminants from the soils is limited given the nature of the chemicals of concern. Mobility would be effectively controlled by disposal in a secure, regulated off-site disposal facility.

In comparison to other potential remedies (e.g., solidification and on-site disposal of materials), the off-site disposal remedy has several significant advantages for promoting future industrial re-use of the site. One such advantage is that it does not leave material on-site that would require ongoing post remediation monitoring and cover maintenance. More importantly, it also does not create an area of the site that would be of potential limited future use for the construction of buildings.

Based on the above conclusions, this part of the design report presents those methodologies to be used for excavating, staging and off-site transport and disposal of the soil identified for remediation in Part 1. In presenting this plan, it is noted that certain aspects of the soil removal activities will require coordination with, and the approval of, the selected off-site disposal facility. Such coordination may require alterations/additions to the activities described herein. Such adjustments are not expected to significantly affect the general scope of work, however, if substantial alterations are warranted they will be noted as addenda to this Remedial Design. Any Remedial Design addenda will be submitted to the U.S. EPA for their approval prior to implementation.

2.0 PROPOSED REMOVAL ACTIVITIES

2.1 Phase I Tasks – Site Preparation

During Phase I, the site will be prepared for the soil removal activities. Specific steps to be completed during this phase of work include the following.

2.1.1 Construction of Decon/Access Area

A decontamination/access area will be constructed inside the site fence north of the site gate (see Figure 1). All personnel and equipment entering and exiting the site will be required to pass through this area for decontamination and/or inspection. Site workers will be required to park personal vehicles outside the site fenced area or within a defined parking area south of the Decon/Access area. Site workers and oversight personnel will be required to verify current health and safety training prior to entering the Decon/Access area or the active work areas of the site. The Decon/Access area will be marked by a perimeter orange plastic snow fence (3 feet in height).

All contaminated site materials being stored for off-site disposal will be drummed and maintained within the Decon/Access area.

It is noted that vehicle inspection and any necessary vehicle cleaning/decontamination prior to site exit will be completed in the northern portion of the Decon/Access area. This area is the southern most area of the site currently identified for remediation (Grids AA 13 and BB13 as seen on Figure 1). These grids will be the last site grids that will be subject to soil removal.

2.1.2 Silt Fence Installation

To prevent potential transport via precipitation runoff of materials disturbed by the soil excavation, silt fencing will be placed in the area indicated in Figure 1. These areas represent the topographic lows in the designated work area. These areas include the western and northern boundaries of the proposed excavation areas. This will require approximately 800 linear feet of silt fencing. Silt fencing will be in place prior to any earth movement at the site and will remain in place until all site remediation activities are determined to be complete.

2.1.3 Debris Staging

Currently, building and equipment debris is present in several of the proposed remediation areas. This debris will be removed from the areas of the site requiring soil removal and along access routes as necessary to provide a working area to complete the tasks outlined in this remediation plan. This debris will not be removed or disposed off-site. Debris from excavation areas surrounding the demolished site buildings (e.g., the South and North Chemical Buildings) will be placed back on the foundation area of those buildings. Miscellaneous debris not necessarily associated with the demolition of former buildings will be collected in one or more staging areas to be established at the site (e.g., within the covered sludge handling area and the paved adjacent drum storage area).

2.1.4 Brush Removal

Brush will be removed from the surface of the site and along access routes as necessary to provide a working area to complete the tasks outlined in this removal plan. Cleared brush

will be stored on-site and chipped for use as a surface cover after all soil removal has been completed.

2.1.5 Establishment of Perimeter Air Monitoring Locations

Four perimeter air monitoring stations will be established around active work areas of the site for the purpose of monitoring airborne dust levels. The proposed location of these stations is shown on Figure 1. The specific airborne dust monitoring to be completed at these stations is summarized in Appendix E.

2.2 Phase II Tasks -- Soil Excavation and Staging

Currently, the soil removal is scoped as a phased process which will include excavation, final characterization, and off-site transport and disposal. That process is outlined below. It is noted that it may be possible to directly excavate and dispose of some soils (without staging/pre-disposal sampling). Direct disposal of any soils based on existing data would be in part at the approval of the disposal facilities (as yet to be determined). Should such an alteration be approved by the disposal facilities, an amendment to this plan will be submitted and prepared.

2.2.1 Soil Excavation

Soils will be excavated to a depth of approximately two feet in all areas of the site indicated on Figure 1. The exception to this excavation depth are the areas of K11, R16, and R12 where deeper excavations will be completed to address the higher concentration of either lead or Aroclor 1248 found in these locations beneath the two foot level. The actual depth of the excavations in the K11 and R16 areas is expected to be 3 feet while the depth of excavation in the R12 area requires further definition which will be completed prior and during the excavation work.

The soil excavation will be completed by a smooth bladed excavator, with excavated soils placed in temporary stockpiles within the excavation area. Soils will be stockpiled in approximately 200 yard increments, which will be approximately the equivalent of four 25 x 25 foot remediation areas over most of the site. The stockpiles will be constructed in areas designated for removal (on top of soil earmarked for removal). Stockpiles will be no greater than ten feet in height. Following excavation, the excavated soils will be covered with polyethylene in such a way as to prevent precipitation contact or airborne dust generation from the excavated materials. Soil will be temporarily stored until characterized and approved for off-site disposal.

To aid in gauging the two foot removal depth, the elevations of each grid corner within the proposed remediation area were measured by a certified land surveying firm. This work was completed as a part of the pre-design investigation. The elevations of each grid corner are presented in Appendix C. Where the surface topography varies significantly within a 25 by 25 foot grid, additional surface elevations within each grid will be measured prior to the soil removal activities. Following all soil removal within a grid location, final elevations will be surveyed to record the depth of native soils and verify the depth of removal at that location.

Given the nature of the site, it is possible that subsurface piping or other obstructions may be present in one or more of the excavation areas. If subsurface piping is encountered during the shallow excavations, the piping will not be disturbed and excavations will continue around the piping. Soils around the piping will be hand dug and transported to the appropriate stockpile. Should subsurface piping be inadvertently broken during soil excavation, this piping will be segregated in a separate polyethylene lined staging areas. Should a minor release of liquid or solid materials from an underground pipe occur, the affected soils will be excavated and placed separately on polyethylene and covered for additional characterization prior to off-site disposal. Any significant release would be handled as release incident. At such a time, all site work will cease and the incident will be handled according to appropriate immediate response activities listed in the HASP.

Other large subsurface features (such as former foundations) will be left in place. Soils from around these features will be removed by hand digging.

An exception to the soil excavation and staging methodology will be implemented in the location of grids Q16, Q15, R16 and R15. In this location, surface soil PCB impact was seen to be near or in excess of 50 ppm. Because the 50 ppm concentration is a trigger level requiring segregation of such material and disposal by an alternate means, in these grids, two stockpiles will be created. The first will be from the 0 to 1 foot depth and the second will be from the 1 to 2 foot depth. Each pile will be separately characterized for possible disposal at two different off-site facilities. A similar segregation of soils may also be completed in other areas of the site (e.g., around Grid R12) where Aroclor concentrations may be at or near 50 ppm.

The surface soil excavation/staging will proceed first with the areas on the northern side of the site, then proceed to the area west of the North and South Chemical Buildings, and finally will proceed to the soils at the center of the site. The final soils to excavated and removed from the site will be in the AA13 and BB13 grids which mark the northern extent of the decon/access area.

Lastly, based on the permeability of the surface and near surface soils and Compliance, Inc.'s past observations of the site during significant rain events, significant lateral precipitation flow during the excavation work is unlikely. Nonetheless, the temporary soil piles will be placed in locations designed to limit the potential for the lateral conveyance of precipitation across the site. The placement of the temporary piles will also be supplemented, if necessary, with the construction of temporary one foot soil berms within the excavation areas to accomplish this goal.

2.2.2 Staging of Drummed Soils

Numerous drums, potentially soil containing, are located in the staging area of the site. According to U.S. EPA, any soils remaining in these drums likely originated from subsurface borings (e.g., on and off-site monitoring well installations). According to U.S.

EPA., the drummed soils would not contain materials that would be inconsistent with the off-site disposal strategy outlined herein.

The tops of each drum will be opened and any drums determined to contain soils will be transported to the staging area established in the K16 remediation area. The soils will be consolidated with the surface soil stockpile in this location.

Any drums containing liquids will be immediately resealed and labeled with marking paint as "Liquid". Handling and disposal of liquid containing drums is outside of the scope of this soil remediation design.

2.2.3 Provisions for Dust Control

A water filled tank truck will be maintained on-site during all work periods for the purpose of providing dust control. Dust control will be implemented at the direction of the Compliance, Inc. Project Manager. Any decision to implement dust control will be made based on either visual observations of dust from the active work areas and/or dust monitoring results above established action levels. Should a decision to undertake dust control measures be made, all removal/disposal activities will cease until dust suppression is appropriately completed. Decisions to resume work following stoppage for dust suppression will be made by the Compliance, Inc. Project Manager.

Additionally, while the RI and the pre-design investigations did not reveal likely ambient air VOC or odor issues, if significant chemical odors are observed in the work area, work will be stopped and both characterization sampling and odor control activities will be implemented. Characterization sampling will initially include field screening of ambient air using a photoionization detector. Should readings greater than 5 ppm above background be observed in the work area, work will be halted until ambient readings return below 5 ppm or until characterization sampling is completed to ensure that higher level PPE is not warranted. Any work completed while ambient air VOC concentrations persist above 5 ppm will require Level C or higher PPE.

2.3 Stockpiled Soils Characterization

In addition to the previously collected data, soil characterization for off-site disposal approval purposes, will require the collection and analysis of additional soils samples of the excavated material. The scope of all sampling will be determined in part by the off-site disposal facility. For the purposes of this design, it is assumed that one composite soil sample from each 200 yard stockpile will be collected. Soil samples will be collected as a composite of four pile surface and four pile subsurface areas. The subsurface samples will be collected by hand auger from two to three feet beneath the pile surface. The composited soil sample will be placed in appropriate sample containers and analyzed according to QAPP approved methods by the QAPP selected analytical laboratory. Alternatively, if directed by the off-site disposal facility, other laboratories/analytical methods for characterization prior to off-site disposal may be used.

It is anticipated that the soil characterization step will require an approximate 10 day time period for analytical turn-around and final disposal facility approval. During this time period, daily checks of the site will be completed to verify that all stockpiled materials remain appropriately covered and dust generation is prevented. These checks will be made seven days a week.

2.4 Off-site Transport of Soils

After analytical data and disposal approval for each pile is received, the soils will be loaded onto DOT approved hazardous waste hauling vehicles for off-site for final disposal. Each shipment will be covered and inspected prior to exiting the site. Each load will be properly manifested and copies of each manifest will be maintained by the Compliance, Inc. project manager. Each shipment will be weighed upon exit at a local truck scale.

Entrance and egress for all waste hauling vehicles will be made via Viaduct Street traveling to and from the west, connecting to/from Sanford Avenue and then to/from 28th Street west of the site. Vehicles will make access/egress via I-196 and travel to the selected soil disposal facility. This vehicle route has been selected to limit travel near residential neighborhoods.

It is anticipated that six to ten waste hauling vehicles will be utilized in the off-site disposal of these wastes. At a maximum rate of 1.5 round trips to the selected disposal facility per day, a maximum of 15 vehicle passages through this route would be expected to occur per day. At this rate of transport, complete off-site shipment will require approximately three weeks to accomplish.

Depending on final characterization results, materials may be disposed at more than one regulated disposal facility. The disposal facility will be selected and approved jointly by both TPI and the selected removal contractor. The U.S. EPA and the MDEQ will be notified of the selected disposal facility at least 21-days prior to the first off-site shipment of soil.

2.5 Verification Sampling

The soils from the bottom of each excavation area will be sampled after soil removal in accordance with the MDEQ Guidance Document "Verification of Soil Remediation" April 1994, Revision 1. The specific number of samples to be collected will be based on the Medium and Large Site Soil Cleanup methodologies presented in that guidance. This will include the establishment of a soil verification sampling grid system at the site calculated according to the VSR recommended formula. At an estimated 50 grid remediation, the total remediation surface area would be approximately 31,250 square feet (50 x 25 feet by 25 feet). According to the VSR, this would be a medium sized site and the verification sampling grid interval would be calculated according to the following formula:

$$(A/\pi)^{0.5}/4$$

Where A = the surface area of the remediation area.

At 31,250 square feet, the grid size would be approximately 25 feet (which is, coincidentally, equivalent to the 25 foot grid size selected for this remediation design). A gridding system of this size would be superimposed over the remediation area. Per the VSR guidance, once the appropriate grid is established over the remediation area, a phased subset of all sampling locations may be chosen. This phasing acknowledges that a subset of the 50 sampling points (e.g., 25) may be sufficient to conclude that the soil removal has been appropriately completed. Per the VSR guidance, any subset of the sampling grid used initially would include at least 25% of the sampling grid total.

Approximately two thirds of the verification samples will be collected immediately following the initial stockpiling of soils. These initial samples will be collected from those parts of the remediation area not covered by the temporary stockpiles and not located in vehicle traffic areas. The remaining approximately one third of the verification samples will be collected after the stockpiles are removed and on-site vehicle traffic is completed.

2.6 Initial Evaluation of Verification Sampling Data

The soil verification sampling data will be initially input in the database of all remaining site soils to provide an initial evaluation of whether sufficient soils have been removed to achieve the site remedial goals. This initial calculation will be completed to determine if final site backfilling and grading can proceed or whether additional soil removal in one or more areas of the site are necessary.

A letter report summarizing this initial data evaluation will be submitted to U.S.EPA and the MDEQ prior to use of the initial evaluation for guiding this decision.

2.7 Final Site Grading

After all soils have been removed from the site, the site surface will be graded. Where depressions are left from the removal activities, clean fill material will be brought on-site to complete the site to a workable grade. As economically available and at the request of the OCI PRPs, fill material of the same or lower hydraulic conductivity as the soils removed will be used for fill.

It is noted, that it is not the goal of the grading/backfilling activities to replace all excavated soils. For instance, along the western property boundary, the removal will be completed along the slope adjoining the Holnum Inc. property. Any filling at this location will be completed with the primary goal of maintaining a stable bank on that part of the property noting the existing slope down to the property boundary. To maintain the slope on the western side of the site, it is estimated that the final site grading will be supplemented with the placement of approximately 150 yards of topsoil and reseeding to promote vegetative growth. Given the flatter grade and the nature of existing surface soil in other areas of the site the placement of topsoil will not be completed in other areas of the site.

3.0 EQUIPMENT DECONTAMINATION

All equipment working in the excavation areas including excavators, backhoes and trucks will be dry-deconned prior to off-site transport. Dry-decontamination will include the physical removal of soils adhering to vehicle tires, tracks and excavation blades and buckets. This will be accomplished with brushes/shovels that will remain in the decon area and be dedicated for this purpose. The Compliance, Inc. Project Manager will be responsible for verifying appropriate decontamination of all equipment leaving the site and for determining if an upgrade (e.g., to wet deconning/power washing) is required for any field equipment.

If wet deconning/power washing is determined necessary, a plastic lined, bermed temporary decontamination pad will be constructed in the decon/access area. This will be in the AA-13 and BB13 grid locations. Power washing will be completed on this temporary pad with all decontamination water collected and drummed for off-site disposal.

Smaller removal equipment (e.g., hand tools and shovels) will be stored in the decontamination/access area and will be washed prior to transport off-site.

4.0 HEALTH AND SAFETY

All excavation and removal work will be completed according to the site-specific health and safety plan prepared by Compliance, Inc. The health and safety plan identifies potential safety and health related issues, presents steps necessary to reduce and mitigate potential health and safety risks, and present procedures to verify that the precautions presented in the health and safety plan are utilized during the field activities. Verification that on-site workers under TPI's direction have received and reviewed copies of the health and safety plan will be documented.

Additionally, transporters of sludge materials determined to be a RCRA or TSCA regulated hazardous material will be required to complete this work according to applicable DOT regulations regarding transportation safety. Transporters will be required to have in place a contingency plan for transportation related accidents and emergencies prior to initiation of work.

5.0 PRELIMINARY IMPLEMENTATION SCHEDULE

The activities presented in this Final Design report are scheduled to begin on September 13, 2001.

TABLES

(PART 1)

TABLE 1
SUBSURFACE SOIL SAMPLE COLLECTION DATA

Boring	Sample Collection Method	Number of GeoProbe Borings	Sleeve Recovery	Depth Intervals Sampled
SB-262	Surface soil cleared by shovel to 1.5 feet. GeoProbe interval 1.5 to 5.0 feet.	2	3 feet 2.5 feet	Discarded top six inches of soil from sleeves and used next six inches for B sample. Discarded bottom six inches of soil from sleeves and collected soil from 6 to 12 inches from bottom for C sample
SB-263	Surface soil cleared by shovel to 1.0 feet. GeoProbe interval 1.0 to 5.0 feet.	2	3.2 feet 2.0 feet	Discarded top six inches of soil from sleeves and used next six inches for B sample. Discarded bottom six inches of soil from sleeves and collected soil from 6 to 12 inches from bottom for C sample
SB-264	Surface soil cleared by shovel to 1.0 feet. GeoProbe interval 1.0 to 5.0 feet.	2	2.5 feet 2.5 feet	Discarded top six inches of soil from sleeves and used next six inches for B sample. Discarded bottom six inches of soil from sleeves and collected soil from 6 to 12 inches from bottom for C sample
SB-265	Surface soil cleared by shovel to 1.5 feet. GeoProbe interval 1.5 to 5.0 feet.	2	2.5 feet 1.6 feet	Discarded top six inches of soil from sleeve 1 and top four inches of soil from sleeve 2 and used next six inches for B sample. Discarded bottom six inches of soil from sleeve 1 and bottom 4 inches of soil from sleeve 2 and collected soil from six inches above for C sample
SB-266	Surface soil cleared by shovel to 1.5 feet. Collected B sample by hand auger from 2 to 2.5 feet bgs. GeoProbed interval 1.5 to 5.0 feet to collect C sample.	2	Not recorded	B sample collected by hand auger from 2.0 to 2.5 feet bgs. Discarded bottom six inches of soil from sleeves and collected soil from 6 to 12 inches from bottom for C sample
SB-267	Surface soil cleared by shovel to 1.5 feet. Collected B sample by hand auger from 2 to 2.5 feet bgs. Collected C sample by hand auger from 4.0 to 4.5 feet	0		B (2 to 2.5 foot) and C (4 to 4.5 foot) samples collected by hand auger.
SB-268	Surface soil cleared by shovel to 1.0 feet. GeoProbe interval 1.0 to 5.0 feet.	3	2.6 feet 1.2 feet 2.2 feet	B (2.0 to 2.5 foot) sample collected by hand auger. Discarded bottom four inches of soil from sleeves and collected soil from four to 10 inches from bottom as C sample

TABLE 1
SUBSURFACE SOIL SAMPLE COLLECTION DATA

SB-269	Surface soil cleared by shovel to 1 5 feet GeoProbe interval 1 5 to 5 0 feet	2	2 3 feet 2 0 feet	Discarded top four inches of soil from sleeves and used next six inches for B sample Discarded bottom four inches of soil from sleeves and collected soil from 4 to 10 inches from bottom for C sample
SB-270	Surface soil cleared by shovel to 1 0 feet GeoProbe interval 1 0 to 5 0 feet	2	1 8 feet 2 2 feet	Discarded top 8 inches inches of soil from sleeves and used next six inches for B sample Discarded bottom four inches of soil from sleeves and collected soil from 4 to 10 inches from bottom for C sample
SB-271	Surface soil cleared by shovel to 1 5 feet GeoProbe interval 1 5 to 5 0 feet	3	1.6 feet 0 6 feet 1.2 feet	Collected B sample only after discarding top six inches of soil from sleeves and using next six inches of recovered soil from sleeves one and three
SB-272	Surface soil cleared by shovel to 1 5 feet GeoProbe interval 1 5 to 5 0 feet	3	1 7 feet 2 3 feet 1 8 feet	Discarded top six inches of soil from sleeves and used next six inches for B sample Discarded bottom six inches of soil from sleeves and collected soil from 6 to 12 inches from bottom for C sample
SB-273	Surface soil cleared by shovel to 1 5 feet GeoProbe interval 1 5 to 5 0 feet	2	2 0 feet 2 0 feet	Discarded top six inches of soil from sleeves and used next six inches for B sample Discarded bottom six inches of soil from sleeves and collected soil from 6 to 12 inches from bottom for C sample
SB-274	Surface soil cleared by shovel to 1 5 feet Collected B sample by hand auger from 2 to 2 5 feet bgs GeoProbe inaccessible, no C sample collected	0		B (2 to 2 5) foot sample collected by hand auger
SB-275	Surface soil cleared by shovel to 1 5 feet GeoProbe interval 1 5 to 5 0 feet	3	2 0 feet 1 8 feet 1 0 feet	B sample only collected after discarding top 6 inches of recovered soil from each sleeve and collecting soils from next six inches
SB-276	Surface soil cleared by shovel to 1 75 feet GeoProbe interval 1 75 to 5 0 feet	3	1 5 feet 1.0 feet 1 5 feet	B sample only collected after discarding top 6 inches of recovered soil from each sleeve and collecting soils from next six inches
SB-277	Surface Soil cleared by shovel to 1 5 feet GeoProbe interval 1 5 to 5 0 feet	3	0.9 feet 0 7 feet 0 6 feet	B sample only collected after discarding top 6 inches of recovered soil from each sleeve and collecting soils from next six inches

TABLE 1
SUBSURFACE SOIL SAMPLE COLLECTION DATA

SB-278	Surface soil cleared by shovel to 1 5 feet Collected B sample by hand auger from 2 to 2 5 feet bgs Collected C sample by hand auger from 4 0 to 4 5 feet Collected D sample by hand auger from 5 8 to 6 3 feet	0		B (2 to 2 5 foot) C (4 to 4 5 foot) and D 5 8 to 6 3 foot samples collected by hand auger
SB-279	Surface soil cleared by shovel to 1 5 feet Collected B sample by hand auger from 2 to 2 5 feet bgs Collected C sample by hand auger from 4 0 to 4 5 feet	0		B (2 to 2 5 foot) and C (4 to 4 5 foot) samples collected by hand auger

TABLE 2

SUMMARY OF ANALYTICAL DATA FOR RI/FS AND PRE-DESIGN SURFACE AND NEAR SURFACE SOIL SAMPLES

OCI SUPERFUND SITE

Sample	Lead (mg/kg)	Benzo(a) anthacene (ug/kg)	Benzo(a) pyrene (ug/kg)	Benzo(b) fluoranthene (ug/kg)	Dibenzo (a,h)anthacene (ug/kg)	Indeno (1,2,3-cd) pyrene (ug/kg)	Beryllium (mg/kg)	BEHP (ug/kg)	Dieldrin (ug/kg)	Aroclor 124 (ug/kg)
U.S. EPA RI SOIL DATA										
SS-1	**74.9**	340	340	340	340	340	**0.33**	340	16 5	85
SS-2	**93.4**	360	360	360	360	360	**0.28**	**290**	8 5	**550**
SS-3	**169**	395	**130**	**120**	395	395	**0.67**	**1500**	9 5	47 5
SS-4	**63.7**	380	380	**760**	380	380	**0.39**	180	9	45 5
SS-5	**414**	390	**260**	390	390	390	**0.61**	**1100**	19	95
SS-6	**1670**	12000	12000	12000	12000	12000	**0.3**	**190000**	145	700
SS-7	**712**	335	335	335	335	335	0 05	**2900**	8	40 5
SS-8	**204**	360	360	360	360	360	**0.38**	**9900**	8 5	43 5
SS-10	**316**	355	355	355	355	355	**0.35**	**3500**	17 5	**2700**
SS-11	**1160**	360	360	360	360	360	**0.55**	**7400**	17 5	**2700**
SS-12	**360**	375	375	**64**	375	375	**0.38**	**7200**	18 5	90
SS-13	**34.6**	345	345	345	345	345	**0.24**	**1100**	17	85
SS-16	**25.2**	365	365	365	365	365	**1.2**	510	18	90
SS-18	**462**	3950	3950	3950	3950	3950	0 06	**75000**	**220**	95
SS-19	**386**	**2500**	**3600**	**3900**	900	**1900**	**1.8**	**12000**	17 5	**14000**
SS-20	**572**	**5400**	**7600**	**5900**	1750	**4900**	**2.5**	**15000**	17 5	**15000**
SS-31	**13100**	10	10	10	10	10	**1.3**	**160**		
SS-32	**10600**	10	10	10	10	10	**0.29**	**140**		
SS-33	**5180**	10	10	10	10	10	**0.26**	**71**		
SS-39	**57.5**	1850	**680**	1850	1850	1850	**0.26**	1850		
SS-40	**3350**	10	10	10	10	10	**0.27**	**120**		
SS-41	**16.1**	190	190	190	190	190	**0.22**	190	3 6	36
SS-42	**40.9**	**33**	**22**	**39**	200	200	**0.39**	200	2	20
SS-43	**88.4**	190	190	190	190	190	**0.36**	190	3 85	38 5
SS-44	**462**	**4800**	**3200**	**5600**	**1100**	**3800**	**1.5**	800	19 5	195
SS-45	**798**	40	40	40	40	40	**0.69**	40		
SS-49	**980**	5500	5500	5500	5500	5500	**0.22**	5500	**2.1**	**1300**
SS-50	**69.2**	5500	5500	5500	5500	5500	**0.22**	**3200**	**140**	**290**
SS-51	**1470**	**2100**	**2000**	**3700**	7000	7000	**0.42**	**66000**	**34**	**7400**
SS-52	**912**	**7300**	**4300**	**4400**	**1200**	**3000**	**0.79**	**2100**	21 5	215
SS-57	**1220**	5500	5500	5500	5500	5500	**0.21**	5500	1 75	**200**
SS-58	**1850**	6000	6000	6000	6000	6000	**0.25**	**15000**	10 5	**4500**
SS-59	**1040**	6000	6000	6000	6000	6000	**0.31**	**18000**	2 05	**1700**
SS-60	**2080**	7000	7000	7000	7000	7000	**0.6**	**47000**	**62**	**17000**
SS-61	**66.5**	**8650**	**5900**	**7300**	**1850**	**4100**	**0.32**	5000	19	190
SS-63	**179**	220	220	**70**	220	220	**0.4**	**3850**	2 2	**275**
SS-64	**185**	6000	6000	6000	6000	6000	**0.71**	**8700**	**140**	**1200**
SS-65	**295**	**1600**	**1000**	**1300**	**320**	**830**	**0.87**	**3900**	16 5	165
SS-67	**253**	5500	5500	5500	5500	5500	**0.27**	**3400**	18 5	**5200**
SS-68	**616**	6000	6000	6000	6000	6000	**0.36**	**19000**	**10**	**680**
SS-69	**798**	6000	6000	6000	6000	6000	**0.3**	**68000**	**0.83**	**4700**
SS-73	**385**	6000	6000	6000	6000	6000	**0.34**	**2900**	19	**4000**
SS-74	**599**	6000	6000	6000	6000	6000	**0.27**	**6600**	**62**	**3600**
SS-75	**119**	**290**	**450**	950	950	**820**	**0.56**	950		
SS-77	**304**	6000	6000	6000	6000	6000	**0.37**	**2000**	1 95	**2800**
SS-78	**486**	6000	6000	6000	6000	6000	**0.89**	**9500**	**17**	**3600**

Bolded concentrations are the detected concentration of each chemical.

Nonbolded concentrations are equal to one half the detection limit for non-detect data

TABLE 2
SUMMARY OF ANALYTICAL DATA FOR RI/FS AND PRE-DESIGN SURFACE AND NEAR SURFACE SOIL SAMPLES
OCI SUPERFUND SITE

Sample	Lead (mg/kg)	Benzo(a) anthacene (ug/kg)	Benzo(a) pyrene (ug/kg)	Benzo(b) fluoranthene (ug/kg)	Dibenzo (a,h)anthacene (ug/kg)	Indeno (1,2,3-cd) pyrene (ug/kg)	Beryllium (mg/kg)	BEHP (ug/kg)	Dieldrin (ug/kg)	Aroclor 124 (ug/kg)
SS-79	**64.3**	6000	6000	6000	6000	6000	**0.23**	**5800**	1.9	**1500**
SS-80	**87.7**	5500	5500	5500	5500	5500	**0.39**	**2900**	**3.7**	**8500**
SS-81	**1100**	6000	6000	6000	6000	6000	**0.88**	**28000**	**390**	**74000**
SS-82	**218**	**140**	180	**190**	180	**120**	**1.1**	**10000**	**10**	**3500**
SS-83	**200**	5500	5500	5500	5500	5500	**0.3**	**2400**	**1.3**	**1100**
SS-84	**337**	6000	6000	6000	6000	6000	**0.23**	**2800**	19.5	**9200**
SS-85	**158**	6000	6000	6000	6000	6000	**0.23**	**2800**	1.9	**490**
SS-86	**329**	5500	5500	5500	5500	5500	**1.5**	**35000**		**14000**
SS-87	**215**	**6500**	**4800**	**5400**	**1400**	**4000**	**0.46**	**6100**	19.5	195
SS-89	**469**	6000	6000	6000	6000	6000	**0.63**	**7000**		**9100**
SS-93	**393**	**940**	6500	**840**	6500	6500	**0.69**	**3700**	210	**32000**
SS-94	**941**	5500	5500	5500	5500	5500	**1.7**	**29000**	**83**	**9500**
SS-95	**4650**	6000	6000	**740**	6000	6000	**1**	**220000**	**180**	**2000**
SS-96	**1160**	4650	4650	4650	4650	4650	**0.68**	**27000**	**310**	**9**
SS-97	**560**	**1300**	**1200**	**1700**	5500	1400	**0.97**	**19000**	190	**90**
SS-98	**216**	10000	10000	10000	10000	**590**	**0.65**	10000		
SS-103	**369**	5500	5500	5500	5500	5500	**0.88**	**27000**	**61**	**45000**
SS-104	**140**	4200	4200	4200	4200	4200	**0.56**	**20000**		**13000**
SS-105	**8460**	12000	12000	12000	12000	12000	**0.9**	**150000**	23.5	**1400**
SS-106	**323**	6000	6000	6000	6000	6000	**4**	**30000**		**9200**
SS-107	**401**	4850	4850	4850	4850	4850	**0.79**	**29000**		**2000**
SS-108	**344**	5000	5000	5000	5000	5000	**0.73**	**14000**		**9200**
SS-109	**239**	**7400**	**9800**	**10000**	**2300**	**6000**	**0.87**	**1500**	19	950
SS-110	**88.6**	10000	**2900**	10000	10000	10000	**0.67**	10000		
SS-114	**23.8**	180	180	180	180	180	**0.22**	180		**43**
SS-115	**214**	4450	4450	4450	4450	4450	**0.55**	**30000**		**1300**
SS116	**12**	175	175	175	175	175	**0.49**	235		**2900**
SS-120	**16.45**	185	185	185	185	185	**0.22**	185		
SS-121	**72.9**	380	380	**110**	380	380	**0.53**	**3700**		**1400**
SS-122	**8.5**	175	175	175	175	175	**0.22**	175		
SB-32E	**8**	**54**	175	175	175	175	**0.11**	175	**0.61**	17
SB-33A	**112**	**59**	**48**	**120**	215	215	**0.32**	215	1.1	21.5
SB-37A	**5.8**	**61**	**52**	**140**	185	185	**0.34**	185	1.75	17.5
SB-49A	**34.1**	600	600	600	600	600	**0.66**	600	**0.65**	
SB-49B	**3.9**	175	175	175	175	175	**0.1**	175	1.75	17.5
SB-49C	**5.2**	175	175	175	175	175	**0.1**	175	1.75	17.5
SB-49D	**7.5**	175	175	**64**	175	175	**0.37**	**60**	1.75	17.5
SB-54A	**73.5**	**1900**	**1600**	**3200**	**250**	**890**	**0.33**	**5300**	10	**600**
SB-54C		**3200**	**2700**	**7300**	**330**	**1100**	--	**13000**		
SB-54B	**305**	**7200**	**5200**	**9400**	**1200**	**4500**	**1.1**	**7200**	10	**5600**
SB-54D	**317**	**4500**	**3300**	**7900**	**460**	**2300**	**1.2**	**14000**	11	**5400**
SB-55A	**640**	1800	1800	1800	1800	1800	**1.8**	**13000**	9	**4400**
SB-55B	**101**	**1600**	**530**	**480**	**720**	**130**	**0.34**	**3200**	**24**	90
SB-55C	**177**	**500**	**360**	**340**	900	900	**0.44**	**3000**	4.5	90
SB-55D	**20.6**	**450**	**310**	**330**	850	850	**0.14**	**2200**	8.5	85
SB-56A	**313**	350	350	**110**	350	350	**0.63**	**14000**	**46**	**520**
SB-56B	**631**	900	900	900	900	900	**0.36**	**11000**	**58**	**540**
SB-56D	**87.8**	180	180	**41**	180	180	**0.26**	**330**	**1.7**	17.5

Bolded concentrations are the detected concentration of each chemical.
Nonbolded concentrations are equal to one half the detection limit for non-detect data.

TABLE 2

SUMMARY OF ANALYTICAL DATA FOR RI/FS AND PRE-DESIGN SURFACE AND NEAR SURFACE SOIL SAMPLES

OCI SUPERFUND SITE

Sample	Lead (mg/kg)	Benzo(a) anthacene (ug/kg)	Benzo(a) pyrene (ug/kg)	Benzo(b) fluoranthene (ug/kg)	Dibenzo (a,h)anthacene (ug/kg)	Indeno (1,2,3-cd) pyrene (ug/kg)	Beryllium (mg/kg)	BEHP (ug/kg)	Dieldrin (ug/kg)	Aroclor 124 (ug/kg)
SB-57C	**196**	**410**	**590**	**1300**	1700	1700	**0.66**	**4200**	8 5	**2200**
SB-58A	**211**	**120**	**110**	**250**	170	**71**	**1.2**	**2400**	8	**2300**
SB-58B	**279**	**330**	**250**	**630**	**63**	**100**	**1.3**	**3400**	8 5	**2700**
SB-58C	**62.3**	**610**	**470**	**1100**	**59**	**260**	**0.64**	**2600**	3 4	**4900**
SB-58D	**6.8**	170	170	170	170	170	**0.24**	170	1 7	**44**
SB-59A	**33.8**	195	195	**75**	195	195	**0.46**	**360**	1 95	**350**
SB-59B	**4.6**	170	170	170	170	170	**0.35**	**79**	1 75	17 5
SB-59C	**3.7**	170	170	170	170	170	**0.11**	**60**	**0.36**	17
SB-59D	**2.7**	170	170	170	170	170	**0.14**	**45**	1 7	17
MW-22	**959**	360	360	360	360	360	**0.37**	**16000**	8 5	**3300**
D3-D	**15**	185	185	185	185	185	**0.44**	**310**	**2.7**	
D3-E	**13.6**	460	460	460	460	460	**0.45**	**1600**	**2.9**	19 5
PRE-DESIGN SOIL INVESTIGATION -- SURFACE SOIL DATA										
SS-200	**968**	**34**	**35**	335	335	335	**0.15**	**3300**		**420**
SS-201	**2560**	1800	1800	1800	1800	1800	**0.24**	**230000**		**2100**
SS-202	**4200**	2100	2100	2100	2100	2100	**0.18**	**200000**		**24000**
SS-203	**2890**	1750	1750	1750	1750	1750	**0.32**	**130000**	13	**48000**
SS-204	**2120**	1750	**190**	1750	1750	1750	**0.35**	**44000**	13	**19000**
SS-205	**380**	**42**	**47**	175	175	**230**	**0.3**	**14000**	**51**	**1100**
SS-206	**1990**	1750	1750	1750	1750	1750	**0.31**	**39000**		**1600**
SS-207	**736**	**660**	**840**	1750	1750	1750	**0.89**	**28000**		**4300**
SS-208	**1010**	**52**	**60**	170	170	**210**	**0.18**	**3800**		**930**
SS-209	**244**	**300**	**300**	**360**	**290**	**450**	**0.46**	**11000**	**43**	**810**
SS-210	**244**	**2200**	**3000**	**3100**	**1200**	**2700**	**0.69**	**5000**	**14**	**170**
SS-211	**324**	**270**	**300**	**370**	**330**	**420**	**0.38**	**12000**	**20**	**820**
SS-212	**227**	**180**	**150**	**130**	170	**92**	**0.27**	**7300**	**20**	**1200**
SS-213	**190**	**49**	**47**	170	170	170	**0.39**	**25000**	**36**	**2200**
SS-214	**1850**	**190**	1700	1700	1700	1700	**1.9**	**51000**	**740**	**92000**
SS-215	**545**	**200**	1750	1750	1750	1750	**0.69**	**30000**	13	**42000**
SS-216	**878**	**330**	**410**	1750	1750	1750	**1**	**45000**	**61**	**7000**
SS-217	**231**	**440**	**400**	**420**	**110**	**280**	**0.76**	**16000**	**18**	**830**
SS-218										
SS-219										
SS-220	**2400**	**270**	**140**	900	900	900	**1.4**	**93000**	**710**	**12000**
SS-221	**4050**	800	**140**	800	800	800	**1.1**	**120000**	**120**	**41000**
SS-222	**813**	**120**	**160**	850	850	850	**1.7**	**46000**	**46**	**3200**
SS-223	**6420**	**120**	**120**	850	850	850	**0.66**	**130000**	**30**	**6000**
SS-224	**806**	**390**	**500**	**580**	800	**430**	**2.9**	**59000**	12 5	**34000**
SS-225	**2600**	**100**	**110**	850	850	850	**3.3**	**69000**	**48**	**2400**
SS-226	**138**	**120**	850	850	850	850	**0.18**	850	11 5	**11000**
SS-227	**395**	**5100**	**7600**	**8800**	**890**	**7300**	**0.75**	**8200**		**3700**
SS-228	**491**	**340**	**400**	850	850	**360**	**3.1**	**90000**		**3800**
SS-229	**219**									
SS-230	**2320**									
SS-231	**1040**									
SS-232	**4300**									
SS-233	**12.8**									

Bolded concentrations are the detected concentration of each chemical.

Nonbolded concentrations are equal to one half the detection limit for non-detect data

TABLE 2

SUMMARY OF ANALYTICAL DATA FOR RI/FS AND PRE-DESIGN SURFACE AND NEAR SURFACE SOIL SAMPLES

OCI SUPERFUND SITE

Sample	Lead (mg/kg)	Benzo(a) anthacene (ug/kg)	Benzo(a) pyrene (ug/kg)	Benzo(b) fluoranthene (ug/kg)	Dibenzo (a,h)anthacene (ug/kg)	Indeno (1,2,3-cd) pyrene (ug/kg)	Beryllium (mg/kg)	BEHP (ug/kg)	Dieldrin (ug/kg)	Aroclor 124 (ug/kg)
SS-234										**8200**
SS-235										**8600**
SS-243										**5200**
SS-244	**173**									
SS-248	**383**	**440**	**330**	170	**140**	**240**	**3.1**	**34000**	13	**3400**
SS-249	**374**	**2200**	**1700**	**2200**	**600**	**1000**	**1.3**	**5500**	13 5	**9500**
SS-256	**205**	**300**	**440**	**560**	850	440	**1.1**	**6400**	12 5	**9100**
SS-257	**37**	**620**	**790**	**930**	**1800**	**450**	**0.44**	**1500**	12 5	**400**
SS-258	**81**	**240**	**340**	**480**	850	850	**0.63**	**1600**	13	**870**
SS-259	**230**	**240**	**360**	850	850	**320**	**0.44**	**7100**	13	**1200**
SS-260	**112**	**1800**	**2400**	**2600**	**390**	**1900**	**1.3**	**6300**	13	**1200**
SS-261	**288**	**220**	**280**	800	800	800	**1.7**	**17000**	**83**	**2600**
SS-278	**184**									
SS-279	**5650**									
SS-280	**1210**									
SS-281	**4670**									
SS-282	**1630**									
SS-283	**901**									
SS-284	**852**									
SS-285	**1350**									
SS-286	**466**									
SS-287										
PRE-DESIGN SOIL INVESTIGATION -- SUBSURFACE SOIL DATA										
SB-262B	**9.8**	175	175	175	175	175	0 05	**1600**		17
SB-262C	**13.8**	170	170	170	170	170	0 05	**1600**		16 5
SB-263B	**12700**	1700	1700	1700	1700	1700	**0.11**	**23000**		**1900**
SB-263C	**51.1**	170	170	170	170	170	**0.12**	**5200**		**57**
SB-264B	**1590**	1800	1800	1800	1800	1800	**0.13**	**26000**		**2000**
SB-264C	**54.1**	175	175	175	175	175	**0.13**	**2700**		**3?**
SB-265B	**228**	185	**25**	185	185	185	**0.21**	**2200**	13	**8b**
SB-265C	**229**	170	170	170	170	170	**0.11**	**8400**	13	**160**
SB-266B	**243**	170	170	170	170	170	**0.93**	**19000**	12 5	**40000**
SB-266C	**32.1**	180	180	180	180	180	**0.13**	**4100**	13 5	**7800**
SB-267B	**39.3**	185	**50**	185	185	185	**0.21**	**13000**	14 5	**5000**
SB-267C	**309**	1650	1650	1650	1650	1650	**0.13**	**93000**	**18**	**60000**
SB-268B	**457**	185	185	185	185	185	**0.13**	**7000**	16	**340**
SB-268C	**5.9**	180	180	180	180	180	**0.13**	**170**	1 35	18
SB-269B	**129**	185	185	185	185	185	**0.17**	**37**	1 4	18
SB-269C	**2.8**	175	175	175	175	175	**0.1**	**95**	1 35	17 5
SB-270B	**78**	**310**	**290**	**240**	**97**	**190**	**0.26**	**1500**	13 5	**360**
SB-270C	**5.9**	175	175	175	175	175	**0.11**	175	1 3	**12**
SB-271B	**118**	**390**	1850	1850	1850	1850	**0.24**	**12000**	**24**	**3700**
SB-272B	**8.2**	180	180	180	180	180	**0.17**	180	13 5	**110**
SB-272C	**2.2**	**19**	175	175	175	175	**0.07**	**36**	1 3	17 5
SB-273B	**4.6**	175	175	175	175	175	**0.13**	**39**	13	**27**
SB-273C	**2.6**	175	175	175	175	175	**0.12**	175	1 3	17
SB-274B	**268**	**190**	**240**	**270**	375	**220**	**0.27**	**2400**		**7100**

Bolded concentrations are the detected concentration of each chemical.

Nonbolded concentrations are equal to one half the detection limit for non-detect data

TABLE 2

SUMMARY OF ANALYTICAL DATA FOR RI/FS AND PRE-DESIGN SURFACE AND NEAR SURFACE SOIL SAMPLES

OCI SUPERFUND SITE

Sample	Lead (mg/kg)	Benzo(a) anthacene (ug/kg)	Benzo(a) pyrene (ug/kg)	Benzo(b) fluoranthene (ug/kg)	Dibenzo (a,h)anthacene (ug/kg)	Indeno (1,2,3-cd) pyrene (ug/kg)	Beryllium (mg/kg)	BEHP (ug/kg)	Dieldrin (ug/kg)	Aroclor 124 (ug/kg)
SB-275B	**15.3**	170	170	170	170	170	**0.12**	**300**		**1500**
SB-276B	**7.3**	175	175	175	175	175	**0.12**	**120**	13	**72**
SB-277B	**1.7**	170	170	170	170	170	**0.09**	170	13	16.5
SB-288B	**2.6**									
SB-288C	**6**									
SB-288D	**5.8**									
SB-289B	**2.7**									
SB-289C	**4.4**									
Average of "B" Samples	**213**	**412**	**491**	**510**	**507**	**503**	**0.22**	**7225**	**13.44**	**1588**

Average for lead does not include SB-263B. Average for Aroclor 1248 does not include SB-266B.
ıples collected in August (SB-288 and SB289) not included in B sample average.

Bolded concentrations are the detected concentration of each chemical.
Nonbolded concentrations are equal to one half the detection limit for non-detect data.

TABLE 3
SUMMARY OF ON-SITE DIOXIN DATA

ANALYTE	TEF	SS42			SS1			SS5			SS16			SS52		
		concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency
2378-TCDD	1	0 036	U	0 018	0	nd	0	0 0072		0 0072	0	nd	0	0 048	U	0 024
12378-PeCDD	0 5	0 12	U	0 03	0	nd	0	0 021		0 0105	0 0004		0 0002	0 2	U	0 05
123478-HxCDD	0 1	0 15	U	0 0075	0	nd	0	0 024		0 0024	0 0004		0 00004	0 21	U	0 0105
123678-HxCDD	0 1	0 14	U	0 007	0 003		0 0003	0 12		0 012	0 0038		0 00038	0 22	U	0 011
123789-HxCDD	0 1	0 14	U	0 007	0 004		0 0004	0 12		0 012	0 0028		0 00028	0 22	U	0 011
1234678-HpCDD	0 01	0 097	U	0 000485	0 074		0 00074	2 3		0 023	0 058		0 00058	0 16	U	0 0008
OCDD	0 001	0 88	U	0 00044	0 51		0 00051	14		0 014	0 28		0 00028	0 89	U	0 000445
2378-TCDF	0 1	0 035	U	0 00175	0 0021		0 00021	0 0071		0 00071	0 0011		0 00011	0 063	U	0 00315
12378-PeCDF	0 05	0 088	U	0 0022	0	nd	0	0 003		0 00015	0	nd	0	0 14	U	0 0035
23478-PeCDF	0 5	0 091	U	0 02275	0 0013		0 00065	0 0082		0 0041	0 0005		0 00025	0 14	U	0 035
123478-HxCDF	0 1	0 11	U	0 0055	0 0031		0 00031	0 011		0 0011	0	nd	0	0 15	U	0 0075
123678-HxCDF	0 1	0 1	U	0 005	0 0024		0 00024	0 021		0 0021	0	nd	0	0 14	U	0 007
234678-HxCDF	0 1	0 11	U	0 0055	0	nd	0	0	nd	0	0	nd	0	0 16	U	0 008
123789-HxCDF	0 1	0 13	U	0 0065	0 003		0 0003	0 015		0 0015	0 0008		0 00008	0 17	U	0 0085
1234678-HpCDF	0 01	0 15	U	0 00075	0 0023		0 000023	0 14		0 0014	0 0042		0 000042	0 18	U	0 0009
1234789-HpCDF	0 01	0 2	U	0 001	0	nd	0	0 1		0 001	0	nd	0	0 21	U	0 00105
OCDF	0 001	0 28	U	0 00014	0 025		0 000025	0 14		0 00014	0 0061		0 0000061	0 33	U	0 000165
Sum of TEFs				0 121515			0 003708			0 0933			0 0022481			0 18251

U = Compound analyzed for but not detected
J = Value is estimated
B = Analyte detected in blank
E = Concentration exceeds calibration range
X = Estimated maximum possible concentration
I* = Ether interference

TABLE 3
SUMMARY OF ON-SITE DIOXIN DATA

ANALYTE	TEF	SS11			SS10			SS64			SS74			SS18		
		concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency
2378-TCDD	1	0.11		0.11	0.12		0.12	0.042	U	0.021	0.044	U	0.022	0.033		0.033
12378-PeCDD	0 5	0.017		0.0085	0.027		0.0135	0.083	U	0.02075	0.1	U	0.025	0.088		0.044
123478-HxCDD	0.1	0.013		0.0013	0.024		0.0024	0.16	U	0.008	0 18	U	0 009	0.065		0.0065
123678-HxCDD	0.1	0.1		0.01	0.21		0.021	0.416	U	0.0208	0.18	U	0.009	0.43		0.043
123789-HxCDD	0.1	0.055		0.0055	0.11		0.011	0.16	U	0.008	0.18	U	0.009	0.2		0.02
1234678-HpCDD	0.01	2.4		0.024	4.4		0.044	0.98	J	0.0098	0.98	J	0.0098	3.1		0.031
OCDD	0 001	19		0.019	0.29		0.00029	10		0.01	8.4		0.84	25		0.025
2378-TCDF	0.1	0.012		0.0012	0.031		0.0031	0.034	U	0.0017	0.039	U	0.00195	0.019		0.0019
12378-PeCDF	0.05	0.0013		0 000065	0 0027		0 000135	0.074	U	0.00185	0 087	U	0 002175	0.0017		0.000085
23478-PeCDF	0.5	0.0032		0.0016	0.0089		0.00445	0.078	U	0.0195	0.089	U	0.02225	0.0056		0.0028
123478-HxCDF	0.1	0.0091		0.00091	0.018		0.0018	0.098	U	0.0049	0.088	U	0.0044	0.0097		0.00097
123678-HxCDF	0.1	0.0064		0.00064	0.012		0.0012	0.09	U	0.0045	0.082	U	0.0041	0.018		0.0018
234678-HxCDF	0.1	0	nd	0	0	nd	0	0.1	U	0.005	0.092	U	0.0046	0	nd	0
123789-HxCDF	0.1	0.0036		0.00036	0.0081		0.00081	0.11	U	0.0055	0.1	U	0.005	0.01		0.001
1234678-HpCDF	0.01	0.15		0.0015	0.25		0.0025	0.28	U	0.0014	0.13	U	0.00065	0.41		0.0041
1234789-HpCDF	0.01	0.014		0.00014	0.018		0.00018	0.35	U	0.00175	0.16	U	0.0008	0.019		0.00019
OCDF	0.001	0.27		0.00027	34		0.034	0.24	U	0.00012	0.39	U	0.000195	1		0.001
Sum of TEFs				0.184985			0.260365			0.14457			0.96992			0.216345

U = Compound analyzed for but not detected
J = Value is estimated
B = Analyte detected in blank
E = Concentration exceeds calibration range
X = Estimated maximum possible concentration
I* = Ether interference

TABLE 3
SUMMARY OF ON-SITE DIOXIN DATA

ANALYTE	TEF	SS77			SS81			SS87			SS96			SS97		
		concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency
2378-TCDD	1	0 052	U	0 026	0 036	U	0 018	0 22	UJ	0 11	0 04	U	0 02	0 064	U	0 032
12378-PeCDD	0 5	0 12	U	0 03	0 092	U	0 023	0 9	UJ	0 225	0 14	U	0 035	0 11	U	0 0275
123478-HxCDD	0 1	0 21	U	0 0105	0 22	U	0 011	0 54	UJ	0 027	0 6	U	0 03	0 25	U	0 0125
123678-HxCDD	0 1	0 22	U	0 011	0 16	JS	0 016	0 55	UJ	0 0275	0 63	U	0 0315	0 28	U	0 014
123789-HxCDD	0 1	0 21	U	0 0105	0 23	U	0 0115	0 55	UJ	0 0275	0 62	U	0 031	0 25	U	0 0125
1234678-HpCDD	0 01	0 95	J	0 0095	2 2	J	0 022	0 86	J	0 0086	4		0 04	1 2	J	0 012
OCDD	0 001	13		0 013	28		0 028	5 6		0 0056	39	J	0 039	14		0 014
2378-TCDF	0 1	0 043	U	0 00215	0 18	J	0 018	0 54	UJ	0 027	0 047	U	0 00235	0 058	U	0 0029
12378-PeCDF	0 05	0 095	U	0 002375	0 1	U	0 0025	1	UJ	0 025	0 1	U	0 0025	0 081	U	0 002025
23478-PeCDF	0 5	0 087	U	0 02175	0 11	U	0 0275	1	UJ	0 25	0 11	U	0 0275	0 087	U	0 02175
123478-HxCDF	0 1	0 11	U	0 0055	0 13	U	0 0065	0 26	UJ	0 013	0 12	U	0 006	0 12	U	0 006
123678-HxCDF	0 1	0 1	U	0 005	0 12	U	0 006	0 25	UJ	0 0125	0 12	U	0 006	0 11	U	0 0055
234678-HxCDF	0 1	0 12	U	0 006	0 14	U	0 007	0 27	UJ	0 0135	0 13	U	0 0065	0 12	U	0 006
123789-HxCDF	0 1	0 13	U	0 0065	0 15	U	0 0075	0 3	UJ	0 015	0 15	U	0 0075	0 14	U	0 007
1234678-HpCDF	0 01	0 38	U	0 0019	0 6	U	0 003	0 44	UJ	0 0022	0 18	J	0 0018	0 28	J	0 0028
1234789-HpCDF	0 01	0 15	U	0 00075	0 15	U	0 00075	0 55	UJ	0 00275	0 2	U	0 001	0 17	U	0 00085
OCDF	0 001	0 35	J	0 00035	0 29	JS	0 00029	0 83	UJ	0 000415	0 4	J	0 0004	0 34	J	0 00034
Sum of TEFs				0 162775			0 20854			0 792565			0 28805			0 179665

U = Compound analyzed for but not detected
J = Value is estimated
B = Analyte detected in blank
E = Concentration exceeds calibration range
X = Estimated maximum possible concentration
I* = Ether interference

TABLE 3
SUMMARY OF ON-SITE DIOXIN DATA

ANALYTE	TEF	SS115			SS209			SS210			SS211			SS212		
		concen-tration (ug/kg)		2,3,7,8-TCDD Equivalenc y	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency
2378-TCDD	1	0.041	U	0 0205	0 01674	U	0.00837	0.00133	U	0.000665	0.009264	U	0.004632	0.005904	U	0 002952
12378-PeCDD	0 5	0 14	U	0.035	0.02018	U	0.005045	0.001475	U	0.000369	0.01053	U	0.002633	0.007888	U	0 001972
123478-HxCDD	0.1	0.41	U	0.0205	0.01905	U	0.000953	0.001343	U	6.72E-05	0 02723		0.002723	0.00692	U	0 000346
123678-HxCDD	0.1	0.25	JS	0.025	0.07239	X	0.007239	0.003061		0.000306	0.07936		0.007936	0.03899		0.003899
123789-HxCDD	0.1	0.4	U	0.02	0.08045		0.008045	0.003923	X	0.000392	0.08505		0.008505	0.02628		0.002628
1234678-HpCDD	0.01	5.3		0.053	1.29		0.0129	0.06254		0.000625	1 632		0.01632	0.854		0 00854
OCDD	0.001	62		0.062	8.56	B	0.00856	0.4054	B	0.000405	10.97	B	0.01097	5.784	B	0.005784
2378-TCDF	0.1	0.051	U	0.00255	0.01612	U	0.000806	0.001211	U	6.06E-05	0.01074	U	0.000537	0.005833	U	0.000292
12378-PeCDF	0.05	0.11	U	0.00275	0.01935	U	0.000484	0.001318	U	3.3E-05	0.009958	U	0.000249	0.007748	U	0.000194
23478-PeCDF	0.5	0.11	U	0.0275	0.01856	U	0.00464	0.001264	U	0.000316	0.009554	U	0.002389	0.007433	U	0.001858
123478-HxCDF	0.1	0.14	U	0.007	0.01183	U	0.000592	0.000886	U	4.43E-05	0.006395	U	0.00032	0.003304	U	0.000165
123678-HxCDF	0.1	0.13	U	0.0065	0.03555	I	0.003555	0.002013	I	0.000201	0.04482	I	0.004482	0.01752		0.001752
234678-HxCDF	0.1	0.14	U	0.007	0.1393	I	0.01393	0.008967	I	0.000897	0.1763	I	0.01763	0.08262	I	0.008262
123789-HxCDF	0.1	0.16	U	0.008	0.01585	U	0.000793	0.001188	U	5.94E-05	0.008569	U	0.000428	0.004427	U	0.000221
1234678-HpCDF	0.01	0.34	JS	0.0034	0.1393		0.001393	0.008326		8.33E-05	0.1497		0.001497	0.03522		0.000352
1234789-HpCDF	0.01	0.24	U	0.0012	0.01771	U	8.86E-05	0.001178	U	5.89E-06	0.008095	U	4.05E-05	0.003817	U	1.91E-05
OCDF	0.001	0.6	JS	0.0006	0.2611		0.000261	0.01178		1.18E-05	0.1854		0.000185	0.06439		6.44E-05
Sum of TEFs				0.3025			0.077653			0 004542			0.081476			0.039301

U = Compound analyzed for but not detected
J = Value is estimated
B = Analyte detected in blank
E = Concentration exceeds calibration range
X = Estimated maximum possible concentration
I* = Ether interference

TABLE 3
SUMMARY OF ON-SITE DIOXIN DATA

ANALYTE	TEF	SS213			SS214			SS215			SS218		
		concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency	concen-tration (ug/kg)		2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency
2378-TCDD	1	0.007277	U	0.003639	0.009895	U	0.004948	0.008545	U	0.004273	0.01034	U	0.00517
12378-PeCDD	0.5	0.008025	U	0 002006	0.04448	U	0.01112	0.02104	U	0 00526	0 009136	U	0.002284
123478-HxCDD	0 1	0.01087	X	0.001087	0.00413	U	0 000207	0.004336	U	0.000217	0.02428		0.002428
123678-HxCDD	0.1	0.04109		0.004109	0.4251		0.04251	0.1335		0 01335	0.08185		0.008185
123789-HxCDD	0 1	0 03863		0 003863	0.04619	X	0 004619	0.03162	X	0.003162	0.1269		0.01269
1234678-HpCDD	0 01	0.7471		0 007471	8 79		0.0879	1 115		0 01115	2 133		0 02133
OCDD	0 001	5.77	B	0.00577	129.4	B	0.1294	10.44	B	0.01044	14.42	B	0.01442
2378-TCDF	0 1	0.02082	X	0 002082	0.3255		0.03255	0.1609		0.01609	0.02678		0.002678
12378-PeCDF	0.05	0 006983	U	0.000175	0.02363		0.001182	0.01124	U	0.000281	0.00969	U	0 000242
23478-PeCDF	0.5	0.03744	X	0.01872	0.05129	X	0.025645	0.01078	U	0 002695	0.009296	U	0.002324
123478-HxCDF	0 1	0.003976	U	0 000199	0.3256		0.03256	0.1189	X	0.01189	0 012	X	0.0012
123678-HxCDF	0 1	0 01614	X	0 001614	0 07199		0.007199	0 08065	I	0 008065	0.01645	I	0 001645
234678-HxCDF	0 1	0.1029	I	0 01029	0.6235	I	0.06235	0.2466	I	0.02466	0 1915	I	0.01915
123789-HxCDF	0 1	0 005327	U	0 000266	0 2735	X	0 02735	0.08973	X	0 008973	0.007845	U	0.000392
1234678-HpCDF	0.01	0.07624		0.000762	0.259		0.00259	0.118		0.00118	0.1476		0.001476
1234789-HpCDF	0.01	0.006159	U	3 08E-05	0.00933	U	4.67E-05	0 009744	U	4.87E-05	0.009493	U	4.75E-05
OCDF	0 001	0 1819		0 000182	0.5073		0.000507	0.1772		0.000177	0.343		0.000343
Sum of TEFs				0 062266			0.472682			0.121911			0.096005

U = Compound analyzed for but not detected
J = Value is estimated
B = Analyte detected in blank
E = Concentration exceeds calibration range
X = Estimated maximum possible concentration
I* = Ether interference

TABLE 3
SUMMARY OF ON-SITE DIOXIN DATA

ANALYTE	TEF	SS219			SS220			SS259			SS261		
				2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency
2378-TCDD	1	0 012	U	0.006	0.6932	X	0.6932	0.002177	U	0.001089	0.00126	U	0.00063
12378-PeCDD	0.5	0.0113	U	0.002825	0.01506	U	0.003765	0.002581	U	0.000645	0 01141		0.005705
123478-HxCDD	0.1	0.031	X	0.0031	0.09271	X	0.009271	0.009159		0.000916	0.01638		0.001638
123678-HxCDD	0.1	0.104		0.0104	0.6108		0.06108	0.0325		0.00325	0.06777		0.006777
123789-HxCDD	0.1	0.127		0.0127	0.5689		0.05689	0.03029		0.003029	0.0655		0.00655
1234678-HpCDD	0.01	2.102		0.02102	19.59		0.1959	0.7332		0.007332	1.602		0.01602
OCDD	0.001	13.11	B	0.01311	229.4	B	0.2294	5.877	B	0.005877	12.2	B	0.0122
2378-TCDF	0.1	0.01286	U	0.000643	0.06803	X	0.006803	0.002725	U	0.000136	0.008048		0.000805
12378-PeCDF	0.05	0.009673	U	0.000242	0.01196	U	0.000299	0.002216	U	5.54E-05	0.005041		0.000252
23478-PeCDF	0.5	0.00928	U	0.00232	0.01147	U	0.002868	0.005341	X	0.002671	0.006094		0.003047
123478-HxCDF	0 1	0.012	X	0.0012	0.01415	U	0.000708	0.007156		0.000716	0.009528	X	0.000953
123678-HxCDF	0.1	0.014	I	0.0014	0.1358	I	0.01358	0.01081	I	0.001081	0.0178	I	0.00178
234678-HxCDF	0.1	0.126	I	0.0126	2.247	I	0.2247	0.002302	U	0.000115	0.002632	U	0.000132
123789-HxCDF	0.1	0.00719	U	0.00036	0.01896	U	0.000948	0.002877	U	0.000144	0.00329	U	0.000165
1234678-HpCDF	0.01	0.151		0.00151	0.7796		0.007796	0.04608		0.000461	0.06279		0.000628
1234789-HpCDF	0.01	0 0101	U	5.05E-05	0.01651	U	8.26E-05	0.00491	U	2.46E-05	0.001692	U	8.46E-06
OCDF	0.001	0.296		0.000296	1.458		0.001458	0.09379		9.38E-05	0.1266		0.000127
Sum of TEFs				0.089776			1.508748			0.027634			0.057416

U = Compound analyzed for but not detected
J = Value is estimated
B = Analyte detected in blank
E = Concentration exceeds calibration range
X = Estimated maximum possible concentration
I* = Ether interference

TABLE 3
SUMMARY OF ON-SITE DIOXIN DATA

ANALYTE	TEF	SB266B			SB268B			SB271B			SB276B		
				2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency
2378-TCDD	1	0.002055	U	0.001028	0.001619	U	0.00081	0.00198	U	0.00099	0.002264	U	0.001132
12378-PeCDD	0 5	0.004536	U	0.001134	0 00271	U	0.000678	0.005368		0 002684	0.00234	U	0.000585
123478-HxCDD	0 1	0.004306		0.000431	0.002663	U	0.000133	0.008192	X	0.000819	0.00141	U	7.05E-05
123678-HxCDD	0.1	0.06578		0 006578	0.2699		0.02699	0 02732		0.002732	0.001227	U	6.14E-05
123789-HxCDD	0 1	0 01738		0 001738	0.1011		0.01011	0.02673		0 002673	0.001251	U	6.26E-05
1234678-HpCDD	0 01	0 7537		0 007537	1 707		0.01707	0 5658		0 005658	0 04036		0 000404
OCDD	0 001	5.625	B	0 005625	9 421	B	0.009421	4.595	B	0.004595	0 3526	B	0 000353
2378-TCDF	0 1	0 112		0.0112	0.002484	U	0.000124	0.00616	U	0.000308	0.003794	U	0 00019
12378-PeCDF	0.05	0 005872		0.000294	0.003419		0.000171	0.01233		0.000617	0.002109	U	5.27E-05
23478-PeCDF	0.5	0 02657		0.013285	0 004944	X	0.002472	0.01053		0.005265	0.002024	U	0.000506
123478-HxCDF	0.1	0 1374	X	0.01374	0.001829	U	9.15E-05	0.002409	U	0.00012	0.002931	U	0.000147
123678-HxCDF	0 1	0 03748	X	0 003748	0 01085	I	0 001085	0.02781	I	0.002781	0.002815	U	0 000141
234678-HxCDF	0 1	0 04429		0.004429	0 001961	U	9.81E-05	0.002582	U	0.000129	0.003142	U	0 000157
123789-HxCDF	0 1	0 1362	X	0.01362	0 002451	U	0.000123	0.003228	U	0 000161	0 003927	U	0.000196
1234678-HpCDF	0 01	0.04647		0 000465	0.07205		0.000721	0.04008		0 000401	0.007288		7.29E-05
1234789-HpCDF	0.01	0.01373	U	6 87E-05	0.002354	U	1.18E-05	0.00602	U	3.01E-05	0.002578	U	1.29E-05
OCDF	0 001	0 07017		7 02E-05	0.1387		0.000139	0.04747		4.75E-05	0 01221		1.22E-05
Sum of TEFs				0.084989			0.070246			0.030011			0.004155

U = Compound analyzed for but not detected
J = Value is estimated
B = Analyte detected in blank
E = Concentration exceeds calibration range
X = Estimated maximum possible concentration
I* = Ether interference

TABLE 3
SUMMARY OF ON-SITE DIOXIN DATA

ANALYTE	TEF	SB277B			SB266C			SB268C			SS-287		
				2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency			2,3,7,8-TCDD Equivalency
2378-TCDD	1	0 002123	U	0.001062	0.001465	U	0.000733	0.001947	U	0 000974	0.04192		0 04192
12378-PeCDD	0 5	0 002248	U	0.000562	0 001735	U	0 000434	0.002033	U	0 000508	0.00847		0 004235
123478-HxCDD	0 1	0.002576	U	0 000129	0.001581	U	7.91E-05	0 00208	U	0 000104	0 0107		0.00107
123678-HxCDD	0 1	0 002242	U	0.000112	0.008605		0.000861	0.00181	U	9 05E-05	0 0347		0.00347
123789-HxCDD	0 1	0.002285	U	0.000114	0.006452		0.000645	0.001845	U	9.23E-05	0 0219		0 00219
1234678-HpCDD	0 01	0.00704		7.04E-05	0.1261		0.001261	0.003634		3.63E-05	0.664		0.00664
OCDD	*0 001*	*0.04653*	*B*	*4.65E-05*	*0.8678*	*B*	*0.000868*	*0 02792*	*B*	*2.79E-05*	*5.569*	*B*	*0.005569*
2378-TCDF	0.1	0.003494	U	0.000175	0.00231	U	0.000116	0.003093	U	0.000155	0 019		0.0019
12378-PeCDF	0 05	0.001853	U	4 63E-05	0.001748	U	4.37E-05	0.001942	U	4 86E-05	0 0012		0.00006
23478-PeCDF	0 5	0.001778	U	0.000445	0.001677	U	0.000419	0.001863	U	0.000466	0 0016		0.0008
123478-HxCDF	0 1	0.003032	U	0.000152	0 001842	U	9.21E-05	0.002427	U	0.000121	0 0029		0.00029
123678-HxCDF	0 1	0.002912	U	0.000146	0.00177	U	8.85E-05	0 007376	I	0 000738	0.011		0.0011
234678-HxCDF	0 1	0.00325	U	0.000163	0 001975	U	9.88E-05	0.002601	U	0.00013	0.00227		0.000227
123789-HxCDF	0.1	0.004063	U	0 000203	0.002469	U	0.000123	0.003252	U	0.000163	0.00016	U	0.000008
1234678-HpCDF	0 01	0.00345		3 45E-05	0.009359		9.36E-05	0.005162		5.16E-05	0.0548	B	0.000548
1234789-HpCDF	0 01	0 002198	U	1.1E-05	0.001666	U	8 33E-06	0 002245	U	1 12E-05	0 0036		0.000036
OCDF	0 001	0.002486	U	1.24E-06	0 01473		1 47E-05	0 001854	U	9.27E-07	0 106	B	0.000106
Sum of TEFs				0.003471			0.005978			0 003717			0.070169

U = Compound analyzed for but not detected
J = Value is estimated
B = Analyte detected in blank
E = Concentration exceeds calibration range
X = Estimated maximum possible concentration
I* = Ether interference

TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Lead (mg/kg)	ln of lead	Remediated Lead	Benzo(a) anthracene (ug/kg)	ln Benzo(a) anthacene	Remediated Benzo(a) anthacene	Benzo(a) pyrene (ug/kg)	ln Benzo(a) pyrene	Remediated Benzo(a) pyrene
SS-1	**74.9**	4 32	4 32	340	5 83	5 83	340	5 83	5 83
SS-2	**93.4**	4 54	4 54	360	5 89	5 89	360	5 89	5 89
SS-3	**169**	5 13	5 13	395	5 98	5 98	**130**	4 87	4 87
SS-4	**63.7**	4 15	4 15	380	5 94	5 94	380	5 94	5 94
SS-5	**414**	6 03	6 03	390	5 97	5 97	**260**	5 56	5 56
SS-6	**1670**	7 42	7 42	12000	9 39	9 39	12000	9 39	9 39
SS-7	**712**	6 57	6 57	335	5 81	5 81	335	5 81	5 81
SS-8	**204**	5 32	5 32	360	5 89	5 89	360	5 89	5 89
SS-10	**316**	5 76	5 76	355	5 87	5 87	355	5 87	5 87
SS-11	**1160**	7 06	*7 06*	360	5 89	5 89	360	5 89	5 89
SS-12	**360**	5 89	5 89	375	5 93	5 93	375	5 93	5 93
SS-13	**34.6**	3 54	3 54	345	5 84	5 84	345	5 84	5 84
SS-16	**25.2**	3 23	3 23	365	5 90	5 90	365	5 90	5 90
SS-18	**462**	6 14	6 14	3950	8 28	8 28	3950	8 28	8 28
SS-19	**386**	5 96	*5 36*	**2500**	7 82	*6 00*	**3600**	8 19	*6 15*
SS-20	**572**	6 35	*5 36*	**5400**	8 59	*6 00*	**7600**	8 94	*6 15*
SS-31	**13100**	9 48	*5 36*	10	2 30	*6 00*	10	2 30	*6 15*
SS-32	**10600**	9 27	*5 36*	10	2 30	*6 00*	10	2 30	*6 15*
SS-33	**5180**	8 55	*5 36*	10	2 30	*6 00*	10	2 30	*6 15*
SS-39	**57.5**	4 05	4 05	1850	7 52	7 52	**680**	6 52	6 52
SS-40	**3350**	8 12	*5 36*	10	2 30	*6 00*	10	2 30	*6 15*
SS-41	**16.1**	2 78	2 78	190	5 25	5 25	190	5 25	5 25
SS-42	**40.9**	3 71	3 71	**33**	3 50	3 50	**22**	3 09	3 09
SS-43	**88.4**	4 48	4 48	190	5 25	5 25	190	5 25	5 25
SS-44	**462**	6 14	6 14	**4800**	8 48	8 48	**3200**	8 07	8 07
SS-45	**798**	6 68	6 68	40	3 69	3 69	40	3 69	3 69
SS-49	**980**	6 89	6 89	5500	8 61	8 61	5500	8 61	8 61
SS-50	**69.2**	4 24	4 24	5500	8 61	8 61	5500	8 61	8 61
SS-51	**1470**	7 29	*5 36*	**2100**	7 65	*6 00*	**2000**	7 60	*6 15*
SS-52	**912**	6 82	6 82	**7300**	8 90	8 90	**4300**	8 37	8 37
SS-57	**1220**	7 11	7 11	5500	8 61	8 61	5500	8 61	8 61
SS-58	**1850**	7 52	7 52	6000	8 70	8 70	6000	8 70	8 70
SS-59	**1040**	6 95	*5 36*	6000	8 70	*6 00*	6000	8 70	*6 15*
SS-60	**2080**	7 64	*5 36*	7000	8 85	*6 00*	7000	8 85	*6 15*
SS-61	**66.5**	4 20	4 20	**8650**	9 07	9 07	**5900**	8 68	8 68
SS-63	**179**	5 19	5 19	220	5 39	5 39	220	5 39	5 39
SS-64	**185**	5 22	5 22	6000	8 70	8 70	6000	8 70	8 70
SS-65	**295**	5 69	5 69	**1600**	7 38	7 38	**1000**	6 91	6 91
SS-67	**253**	5 53	5 53	5500	8 61	8 61	5500	8 61	8 61
SS-68	**616**	6 42	6 42	6000	8 70	8 70	6000	8 70	8 70
SS-69	**798**	6 68	6 68	6000	8 70	8 70	6000	8 70	8 70
SS-73	**385**	5 95	5 95	6000	8 70	8 70	6000	8 70	8 70
SS-74	**599**	6 40	6 40	6000	8 70	8 70	6000	8 70	8 70
SS-75	**119**	4 78	4 78	**290**	5 67	5 67	**450**	6 11	6 11
SS-77	**304**	5 72	5 72	6000	8 70	8 70	6000	8 70	8 70
SS-78	**486**	6 19	6 19	6000	8 70	8 70	6000	8 70	8 70
SS-79	**64.3**	4 16	4 16	6000	8 70	8 70	6000	8 70	8 70
SS-80	**87.7**	4 47	4 47	5500	8 61	8 61	5500	8 61	8 61
SS-81	**1100**	7 00	*5 36*	6000	8 70	*6 00*	6000	8 70	*6 15*

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TABLE 4
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ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Lead (mg/kg)	ln of lead	Remediated Lead	Benzo(a) anthracene (ug/kg)	ln Benzo(a) anthacene	Remediated Benzo(a) anthacene	Benzo(a) pyrene (ug/kg)	ln Benzo(a) pyrene	Remediated Benzo(a) pyrene
SS-82	**218**	5 38	5 38	**140**	4 94	4 94	180	5 19	5 19
SS-83	**200**	5 30	5 30	5500	8 61	8 61	5500	8 61	8 61
SS-84	**337**	5 82	5 82	6000	8 70	8 70	6000	8 70	8 70
SS-85	**158**	5 06	5 06	6000	8 70	8 70	6000	8 70	8 70
SS-86	**329**	5 80	*5 36*	5500	8 61	*6 00*	5500	8 61	*6 15*
SS-87	**215**	5 37	*5 36*	**6500**	8 78	*6 00*	**4800**	8 48	*6 15*
SS-89	**469**	6 15	*5 36*	6000	8 70	*6 00*	6000	8 70	*6 15*
SS-93	**393**	5 97	*5 36*	**940**	6 85	*6 00*	6500	8 78	*6 15*
SS-94	**941**	6 85	*5 36*	5500	8 61	*6 00*	5500	8 61	*6 15*
SS-95	**4650**	8 44	*5 36*	6000	8 70	*6 00*	6000	8 70	*6 15*
SS-96	**1160**	7 06	*5 36*	4650	8 44	*6 00*	4650	8 44	*6 15*
SS-97	**560**	6 33	*5 36*	**1300**	7 17	*6 00*	**1200**	7 09	*6 15*
SS-98	**216**	5 38	5 38	10000	9 21	9 21	10000	9 21	9 21
S-103	**369**	5 91	*5 36*	5500	8 61	*6 00*	5500	8 61	*6 15*
SS-104	**140**	4 94	*5 36*	4200	8 34	*6 00*	4200	8 34	*6 15*
SS-105	**8460**	9 04	*5 36*	12000	9 39	*6 00*	12000	9 39	*6 15*
SS-106	**323**	5 78	*5 36*	6000	8 70	*6 00*	6000	8 70	*6 15*
SS-107	**40**	5 99	5 99	4850	8 49	8 49	4850	8 49	8 49
SS-108	**344**	5 84	5 84	5000	8 52	8 52	5000	8 52	8 52
SS-109	**239**	5 48	5 48	**7400**	8 91	8 91	**9800**	9 19	9 19
SS-110	**88.6**	4 48	4 48	10000	9 21	9 21	**2900**	7 97	7 97
SS-114	**23.8**	3 17	3 17	180	5 19	5 19	180	5 19	5 19
SS-115	**214**	5 37	5 37	4450	8 40	8 40	4450	8 40	8 40
SS116	**12**	2 48	2 48	175	5 16	5 16	175	5 16	5 16
SS-120	**16.45**	2 80	2 80	185	5 22	5 22	185	5 22	5 22
SS-121	**72.9**	4 29	4 29	380	5 94	5 94	380	5 94	5 94
SS-122	**8.5**	2 14	2 14	175	5 16	5 16	175	5 16	5 16
SB-32E	**8**	2 08	2 08	**54**	3 99	3 99	175	5 16	5 16
SB-33A	**112**	4 72	4 72	**59**	4 08	4 08	**48**	3 87	3 87
B-37A	**5.8**	1 76	1 76	**61**	4 11	4 11	**52**	3 95	3 95
SB-49A	**34.1**	3 53	3 53	600	6 40	6 40	600	6 40	6 40
SB-49B	**3.9**	1 36	1 36	175	5 16	5 16	175	5 16	5 16
SB-49C	**5.2**	1 65	1 65	175	5 16	5 16	175	5 16	5 16
SB-49D	**7.5**	2 01	2 01	175	5 16	5 16	175	5 16	5 16
SB-54A	**73.5**	4 30	4 30	**1900**	7 55	7 55	**1600**	7 38	7 38
SB-54C				**3200**	8 07	8 07	**2700**	7 90	7 90
SB-54B	**305**	5 72	5 72	**7200**	8 88	8 88	**5200**	8 56	8 56
SB-54D	**317**	5 76	5 76	**4500**	8 41	8 41	**3300**	8 10	8 10
SB-55A	**640**	6 46	6 46	1800	7 50	7 50	1800	7 50	7 50
SB-55B	**101**	4 62	4 62	**1600**	7 38	7 38	**530**	6 27	6 27
SB-55C	**177**	5 18	5 18	**500**	6 21	6 21	**360**	5 89	5 89
SB-55D	**20.6**	3 03	3 03	**450**	6 11	6 11	**310**	5 74	5 74
SB-56A	**313**	5 75	5 75	350	5 86	5 86	350	5 86	5 86
SB-56B	**631**	6 45	6 45	900	6 80	6 80	900	6 80	6 80
SB-56D	**87.8**	4 48	4 48	180	5 19	5 19	180	5 19	5 19
SB-57C	**196**	5 28	5 28	**410**	6 02	6 02	**590**	6 38	6 38
SB-58A	**211**	5 35	5 35	**120**	4 79	4 79	**110**	4 70	4 70
SB-58B	**279**	5 63	5 63	**330**	5 80	5 80	**250**	5 52	5 52
SB-58C	**62.3**	4 13	4 13	**610**	6 41	6 41	**470**	6 15	6 15

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TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Lead (mg/kg)	ln of lead	Remediated Lead	Benzo(a) anthracene (ug/kg)	ln Benzo(a) anthacene	Remediated Benzo(a) anthacene	Benzo(a) pyrene (ug/kg)	ln Benzo(a) pyrene	Remediated Benzo(a) pyrene
SB-58D	**6.8**	1 92	1 92	170	5 14	5 14	170	5 14	5 14
SB-59A	**33.8**	3 52	3 52	195	5 27	5 27	195	5 27	5 27
SB-59B	**4.6**	1 53	1 53	170	5 14	5 14	170	5 14	5 14
SB-59C	**3.7**	1 31	1 31	170	5 14	5 14	170	5 14	5 14
SB-59D	**2.7**	0 99	0 99	170	5 14	5 14	170	5 14	5 14
MW-22	**959**	6 87	*5 36*	360	5 89	*6 00*	360	5 89	*6 15*
D3-D	**15**	2 71	2 71	185	5 22	5 22	185	5 22	5 22
D3-E	**13.6**	2 61	2 61	460	6 13	6 13	460	6 13	6 13
SS-200	**968**	6 88	6 88	**34**	3 53	3 53	**35**	3 56	3 56
SS-201	**2560**	7 85	*5 36*	1800	7 50	*6 00*	1800	7 50	*6 15*
SS-202	**4200**	8 34	*5 36*	2100	7 65	*6 00*	2100	7 65	*6 15*
SS-203	**2890**	7 97	*5 36*	1750	7 47	*6 00*	1750	7 47	*6 15*
SS-204	**2120**	7 66	*5 36*	1750	7 47	*6 00*	**190**	5 25	5 25
SS-205	**380**	5 94	5 94	**42**	3 74	3 74	**47**	3 85	3 85
SS-206	**1990**	7 60	7 60	1750	7 47	7 47	1750	7 47	7 47
SS-207	**736**	6 60	6 60	**660**	6 49	6 49	**840**	6 73	6 73
SS-208	**1010**	6 92	6 92	**52**	3 95	3 95	**60**	4 09	4 09
SS-209	**244**	5 50	5 50	**300**	5 70	5 70	**320**	5 77	5 77
SS-210	**244**	5 50	5 50	**2200**	7 70	7 70	**3000**	8 01	8 01
SS-211	**324**	5 78	5 78	**270**	5 60	5 60	**330**	5 80	5 80
SS-212	**227**	5 42	5 42	**180**	5 19	5 19	**150**	5 01	5 01
SS-213	**190**	5 25	5 25	**49**	3 89	3 89	**47**	3 85	3 85
SS-214	**1850**	7 52	*5 36*	**190**	5 25	5 25	1700	7 44	*6 15*
SS-215	**545**	6 30	*5 36*	**200**	5 30	5 30	1750	7 47	*6 15*
SS-216	**878**	6 78	*5 36*	**330**	5 80	5 80	**440**	6 09	*6 15*
SS-217	**231**	5 44	5 44	**410**	6 02	6 02	**400**	5 99	5 99
SS-218									
SS-219									
SS-220	**2400**	7 78	*5 36*	**270**	5 60	5 60	**140**	4 94	4 94
SS-221	**4050**	8 31	*5 36*	800	6 68	*6 00*	**140**	4 94	4 94
SS-222	**813**	6 70	*5 36*	**120**	4 79	4 79	**160**	5 08	5 08
SS-223	**6420**	8 77	*5 36*	**120**	4 79	4 79	**120**	4 79	4 79
SS-224	**806**	6 69	*5 36*	**390**	5 97	5 97	**500**	6 21	*6 15*
SS-225	**2600**	7 86	*5 36*	**100**	4 61	4 61	**110**	4 70	4 70
SS-226	**138**	4 93	*5 36*	**120**	4 79	4 79	850	6 75	*6 15*
SS-227	**395**	5 98	5 98	**5100**	8 54	8 54	**7600**	8 94	8 94
SS-228	**491**	6 20	6 20	**340**	5 83	5 83	**400**	5 99	5 99
SS-229	**219**	5 39	5 39						
SS-230	**2320**	7 75	7 75						
SS-231	**1040**	6 95	6 95						
SS-232	**4300**	8 37	*5 36*						
SS-233	**12.8**	2 55	2 55						
SS-234									
SS-235									
SS-243									
SS-244	**173**	5 15	5 15						
SS-248	**383**	5 95	5 95	**440**	6 09	6 09	**330**	5 80	5 80
SS-249	**374**	5 92	*5 36*	**2200**	7 70	*6 00*	**1700**	7 44	*6 15*

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TABLE 4
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ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Lead (mg/kg)	ln of lead	Remediated Lead	Benzo(a) anthracene (ug/kg)	ln Benzo(a) anthacene	Remediated Benzo(a) anthacene	Benzo(a) pyrene (ug/kg)	ln Benzo(a) pyrene	Remediated Benzo(a) pyrene
SS-256	**205**	5 32	5 32	**300**	5 70	5 70	**440**	6 09	6 09
SS-257	**37**	3 61	3 61	**620**	6 43	6 43	**790**	6 67	6 67
SS-258	**81**	4 39	4 39	**240**	5 48	5 48	**340**	5 83	5 83
SS-259	**230**	5 44	5 44	**240**	5 48	5 48	**360**	5 89	5 89
SS-260	**112**	4 72	4 72	**1800**	7 50	7 50	**2400**	7 78	7 78
SS-261	**288**	5 66	5 66	**220**	5 39	5 39	**280**	5 63	5 63
SS-278	**184**	5 21	5 21						
SS-279	**5650**	8 64	*5 36*						
SS-280	**1210**	7 10	7 10						
SS-281	**4670**	8 45	*5 36*						
SS-282	**1630**	7 40	*5 36*						
SS-283	**901**	6 80	6 80						
SS-284	**852**	6 75	6 75						
S-285	**1350**	7 21	7 21						
S-286	**466**	6 14	6 14						
SS-287									
MEAN	949 3	5 6	5 1	2377 7	6 6	6 4	2331 7	6 6	6 4
COUNT	155	155	155	141	141	141	141	141	141
S	1825 9	1 8	1 36	2882 7	1 8	1 46	2813 0	1 8	1 42
Sx	146 7	0 1	0 1	242 8	0 1	0 1	236 9	0 1	0 1
95%UCL	1193	2063	558	2781	5903	2396	2725	5741	2237
Cancer Risk		--	--		**1.3E-06**	**3.3E-07**		**1.1E-05**	**2.8E-06**

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TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Benzo(b) fluoranthene (ug/kg)	In Benzo(b) fluoranthene	Remediated Benzo(b) fluoranthene	Dibenzo (a,h)anthacene (ug/kg)	In Dibenzo (a,h)anthacene	Remediated Dibenzo a,h)anthacen	Indeno(1,2,3-cd)pyrene (ug/kg)	In (1,2,3-cd) pyrene	Remediated (1,2,3-cd) pyrene
SS-1	340	5 83	5 83	340	5 83	5 83	340	5 83	5 83
SS-2	360	5 89	5 89	360	5 89	5 89	360	5 89	5 89
SS-3	**120**	4 79	4 79	395	5 98	5 98	395	5 98	5 98
SS-4	**760**	6 63	6 63	380	5 94	5 94	380	5 94	5 94
SS-5	390	5 97	5 97	390	5 97	5 97	390	5 97	5 97
SS-6	12000	9 39	9 39	12000	9 39	9 39	12000	9 39	9 39
SS-7	335	5 81	5 81	335	5 81	5 81	335	5 81	5 81
SS-8	360	5 89	5 89	360	5 89	5 89	360	5 89	5 89
SS-10	355	5 87	5 87	355	5 87	5 87	355	5 87	5 87
SS-11	360	5 89	5 89	360	5 89	5 89	360	5 89	5 89
SS-12	**64**	4 16	4 16	375	5 93	5 93	375	5 93	5 93
SS-13	345	5 84	5 84	345	5 84	5 84	345	5 84	5 84
SS-16	365	5 90	5 90	365	5 90	5 90	365	5 90	5 90
SS-18	3950	8 28	8 28	3950	8 28	8 28	3950	8 28	8 28
SS-19	**3900**	8 27	*6 19*	900	6.80	*6 19*	**1900**	7 55	*6 18*
SS-20	**5900**	8 68	*6.19*	1750	7.47	*6 19*	**4900**	8.50	*6.18*
SS-31	10	2 30	*6 19*	10	2.30	*6 19*	10	2 30	*6 18*
SS-32	10	2.30	*6 19*	10	2.30	*6 19*	10	2.30	*6 18*
SS-33	10	2.30	*6 19*	10	2.30	*6 19*	10	2.30	*6 18*
SS-39	1850	7 52	7 52	1850	7 52	7 52	1850	7 52	7 52
SS-40	10	2.30	*6 19*	10	2 30	*6 19*	10	2.30	*6 18*
SS-41	190	5 25	5 25	190	5 25	5 25	190	5 25	5 25
SS-42	**39**	3 66	3 66	200	5 30	5 30	200	5 30	5 30
SS-43	190	5 25	5 25	190	5 25	5 25	190	5 25	5 25
SS-44	**5600**	8 63	8 63	**1100**	7 00	7 00	**3800**	8 24	8 24
SS-45	40	3 69	3 69	40	3 69	3 69	40	3 69	3 69
SS-49	5500	8 61	8 61	5500	8 61	8 61	5500	8 61	8 61
SS-50	5500	8 61	8 61	5500	8 61	8 61	5500	8 61	8 61
SS-51	**3700**	8 22	*6 19*	7000	8 85	*6 19*	7000	8 85	*6 18*
SS-52	**4400**	8 39	8 39	**1200**	7 09	7 09	**3000**	8 01	8 01
SS-57	5500	8 61	8 61	5500	8 61	8 61	5500	8 61	8 61
SS-58	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-59	6000	8 70	*6 19*	6000	8 70	*6 19*	6000	8.70	*6 18*
SS-60	7000	8 85	*6 19*	7000	8 85	*6 19*	7000	8.85	*6 18*
SS-61	**7300**	8 90	8 90	**1850**	7 52	7 52	**4100**	8 32	8 32
SS-63	**70**	4 25	4 25	220	5 39	5 39	220	5 39	5 39
SS-64	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-65	**1300**	7 17	7 17	**320**	5 77	5 77	**830**	6 72	6 72
SS-67	5500	8 61	8 61	5500	8 61	8 61	5500	8 61	8 61
SS-68	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-69	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-73	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-74	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-75	950	6 86	6 86	950	6 86	6 86	**820**	6 71	6 71
SS-77	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-78	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-79	6000	8 70	8 70	6000	8 70	8 70	6000	8 70	8 70
SS-80	5500	8 61	8 61	5500	8 61	8 61	5500	8 61	8 61
SS-81	6000	8.70	*6 19*	6000	8 70	*6 19*	6000	8.70	*6 18*

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OCI SITE

Sample	Benzo(b) fluoranthene (ug/kg)	In Benzo(b) fluoranthene	Remediated Benzo(b) fluoranthene	Dibenzo (a,h)anthacene (ug/kg)	In Dibenzo (a,h)anthacene	Remediated Dibenzo a,h)anthacen	Indeno(1,2,3-cd)pyrene (ug/kg)	In (1,2,3-cd) pyrene	Remediated (1,2,3-cd) pyrene
SS-82	**190**	5.25	5.25	180	5.19	5.19	**120**	4.79	4.79
SS-83	5500	8.61	8.61	5500	8.61	8.61	5500	8.61	8.61
SS-84	6000	8.70	8.70	6000	8.70	8.70	6000	8.70	8.70
SS-85	6000	8.70	8.70	6000	8.70	8.70	6000	8.70	8.70
SS-86	5500	**8.61**	*6.19*	5500	**8.61**	*6.19*	5500	**8.61**	*6.18*
SS-87	**5400**	8.59	*6.19*	**1400**	7.24	*6.19*	**4000**	8.29	*6.18*
SS-89	6000	8.70	*6.19*	6000	8.70	*6.19*	6000	**8.70**	*6.18*
SS-93	**840**	6.73	*6.19*	6500	**8.78**	*6.19*	6500	**8.78**	*6.18*
SS-94	5500	**8.61**	*6.19*	5500	**8.61**	*6.19*	5500	**8.61**	*6.18*
SS-95	**740**	6.61	*6.19*	6000	**8.70**	*6.19*	6000	**8.70**	*6.18*
SS-96	4650	**8.44**	*6.19*	4650	**8.44**	*6.19*	4650	**8.44**	*6.18*
SS-97	**1700**	7.44	*6.19*	5500	**8.61**	*6.19*	1400	7.24	*6.18*
SS-98	10000	9.21	9.21	10000	9.21	9.21	**590**	6.38	6.38
SS-103	5500	**8.61**	*6.19*	5500	**8.61**	*6.19*	5500	**8.61**	*6.18*
SS-104	4200	**8.34**	*6.19*	4200	**8.34**	*6.19*	4200	**8.34**	*6.18*
SS-105	12000	**9.39**	*6.19*	12000	**9.39**	*6.19*	12000	**9.39**	*6.18*
SS-106	6000	**8.70**	*6.19*	6000	**8.70**	*6.19*	6000	**8.70**	*6.18*
SS-107	4850	8.49	8.49	4850	8.49	8.49	4850	8.49	8.49
SS-108	5000	8.52	8.52	5000	8.52	8.52	5000	8.52	8.52
SS-109	**10000**	9.21	9.21	**2300**	7.74	7.74	**6000**	8.70	8.70
SS-110	10000	9.21	9.21	10000	9.21	9.21	10000	9.21	9.21
SS-114	180	5.19	5.19	180	5.19	5.19	180	5.19	5.19
SS-115	4450	8.40	8.40	4450	8.40	8.40	4450	8.40	8.40
SS116	175	5.16	5.16	175	5.16	5.16	175	5.16	5.16
SS-120	185	5.22	5.22	185	5.22	5.22	185	5.22	5.22
SS-121	**110**	4.70	4.70	380	5.94	5.94	380	5.94	5.94
SS-122	175	5.16	5.16	175	5.16	5.16	175	5.16	5.16
SB-32E	175	5.16	5.16	175	5.16	5.16	175	5.16	5.16
SB-33A	**120**	4.79	4.79	215	5.37	5.37	215	5.37	5.37
SB-37A	**140**	4.94	4.94	185	5.22	5.22	185	5.22	5.22
SB-49A	600	6.40	6.40	600	6.40	6.40	600	6.40	6.40
SB-49B	175	5.16	5.16	175	5.16	5.16	175	5.16	5.16
SB-49C	175	5.16	5.16	175	5.16	5.16	175	5.16	5.16
SB-49D	**64**	4.16	4.16	175	5.16	5.16	175	5.16	5.16
SB-54A	**3200**	8.07	8.07	**250**	5.52	5.52	**890**	6.79	6.79
SB-54C	**7300**	8.90	8.90	**330**	5.80	5.80	**1100**	7.00	7.00
SB-54B	**9400**	9.15	9.15	**1200**	7.09	7.09	**4500**	8.41	8.41
SB-54D	**7900**	8.97	8.97	**460**	6.13	6.13	**2300**	7.74	7.74
SB-55A	1800	7.50	7.50	1800	7.50	7.50	1800	7.50	7.50
SB-55B	**480**	6.17	6.17	**720**	6.58	6.58	**130**	4.87	4.87
SB-55C	**340**	5.83	5.83	900	6.80	6.80	900	6.80	6.80
SB-55D	**330**	5.80	5.80	850	6.75	6.75	850	6.75	6.75
SB-56A	**110**	4.70	4.70	350	5.86	5.86	350	5.86	5.86
SB-56B	900	6.80	6.80	900	6.80	6.80	900	6.80	6.80
SB-56D	**41**	3.71	3.71	180	5.19	5.19	180	5.19	5.19
SB-57C	**1300**	7.17	7.17	1700	7.44	7.44	1700	7.44	7.44
SB-58A	**250**	5.52	5.52	170	5.14	5.14	**71**	4.26	4.26
SB-58B	**630**	6.45	6.45	**63**	4.14	4.14	**100**	4.61	4.61
SB-58C	**1100**	7.00	7.00	**59**	4.08	4.08	**260**	5.56	5.56

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TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES
ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Benzo(b) fluoranthene (ug/kg)	In Benzo(b) fluoranthene	Remediated Benzo(b) fluoranthene	Dibenzo (a,h)anthacene (ug/kg)	In Dibenzo (a,h)anthacene	Remediated Dibenzo a,h)anthacen	Indeno(1,2,3 cd)pyrene (ug/kg)	In (1,2,3-cd) pyrene	Remediated (1,2,3-cd) pyrene
SB-58D	170	5 14	5 14	170	5 14	5 14	170	5 14	5 14
SB-59A	**75**	4 32	4 32	195	5 27	5 27	195	5 27	5 27
SB-59B	170	5 14	5 14	170	5 14	5 14	170	5 14	5 14
SB-59C	170	5 14	5 14	170	5 14	5 14	170	5 14	5 14
SB-59D	170	5 14	5 14	170	5 14	5 14	170	5 14	5 14
MW-22	360	5 89	*6 19*	360	5 89	*6 19*	360	5 89	*6 18*
D3-D	185	5 22	5 22	185	5 22	5 22	185	5 22	5 22
D3-E	460	6 13	6 13	460	6 13	6 13	460	6 13	6 13
SS-200	335	5 81	5 81	335	5 81	5 81	335	5 81	5 81
SS-201	1800	7 50	*6 19*	1800	7 50	*6 19*	1800	7 50	*6 18*
SS-202	2100	7 65	*6 19*	2100	7 65	*6 19*	2100	7 65	*6 18*
SS-203	1750	7 47	*6 19*	1750	7 47	*6 19*	1750	7 47	*6 18*
SS-204	1750	7 47	*6 19*	1750	7 47	*6 19*	1750	7 47	*6 18*
SS-205	175	5 16	5 16	175	5 16	5 16	**230**	5 44	5 44
SS-206	1750	7 47	7 47	1750	7 47	7 47	1750	7 47	7 47
SS-207	1750	7 47	7 47	1750	7 47	7 47	1750	7 47	7 47
SS-208	170	5 14	5 14	170	5 14	5 14	170	5 14	5 14
SS-209	**360**	5 89	5 89	**290**	5 67	5 67	**450**	6 11	6 11
SS-210	**3100**	8 04	8 04	**1200**	7 09	7 09	**2700**	7 90	7 90
SS-211	**370**	5 91	5 91	**330**	5 80	5 80	**420**	6 04	6 04
SS-212	**130**	4 87	4 87	170	5 14	5 14	**92**	4 52	4 52
SS-213	170	5 14	5 14	170	5 14	5 14	**210**	5 35	5 35
SS-214	1700	7 44	*6 19*	1700	7 44	*6 19*	1700	7 44	*6 18*
SS-215	1750	7 47	*6 19*	1750	7 47	*6 19*	1750	7 47	*6 18*
SS-216	1750	7 47	*6 19*	1750	7 47	*6 19*	1750	7 47	*6 18*
SS-217	**420**	6 04	6 04	**110**	4 70	4 70	**280**	5 63	5 63
SS-218									
SS-219									
SS-220	900	6 80	6 80	900	6 80	*6 19*	900	6 80	*6 18*
SS-221	800	6 68	6 68	800	6 68	*6 19*	800	6 68	*6 18*
SS-222	850	6 75	6 75	850	6 75	*6 19*	850	6 75	*6 18*
SS-223	850	6 75	6 75	850	6 75	*6 19*	850	6 75	*6 18*
SS-224	**580**	6 36	6 36	800	6 68	*6 19*	**430**	6 06	*6 18*
SS-225	850	6 75	6 75	850	6 75	*6 19*	850	6 75	*6 18*
SS-226	850	6 75	6 75	850	6 75	*6 19*	850	6 75	*6 18*
SS-227	**8800**	9 08	9 08	**890**	6 79	6 79	**7300**	8 90	8 90
SS-228	850	6 75	6 75	850	6 75	6 75	**360**	5 89	5 89
SS-229									
SS-230									
SS-231									
SS-232									
SS-233									
SS-234									
SS-235									
SS-243									
SS-244									
SS-248	170	5 14	5 14	**140**	4 94	4 94	**240**	5 48	5 48
SS-249	**2200**	7 70	*6 19*	**600**	*7 00*	*6 19*	**1000**	6 91	*6 18*

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TABLE 4
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ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Benzo(b) fluoranthene (ug/kg)	In Benzo(b) fluoranthene	Remediated Benzo(b) fluoranthene	Dibenzo (a,h)anthacene (ug/kg)	In Dibenzo (a,h)anthacene	Remediated Dibenzo a,h)anthacen	Indeno(1,2,3-cd)pyrene (ug/kg)	In (1,2,3-cd) pyrene	Remediated (1,2,3-cd) pyrene
SS-256	**560**	6 33	6 33	850	6 75	6 75	440	6 09	6 09
SS-257	**930**	6 84	6 84	**1800**	7 50	7 50	**450**	6 11	6 11
SS-258	**480**	6 17	6 17	850	6 75	6 75	850	6 75	6 75
SS-259	850	6 75	6 75	850	6 75	6 75	**320**	5 77	5 77
SS-260	**2600**	7 86	7 86	**390**	5 97	5 97	**1900**	7 55	7 55
SS-261	800	6 68	6 68	800	6 68	6 68	800	6 68	6 68
SS-278									
SS-279									
SS-280									
SS-281									
SS-282									
SS-283									
SS-284									
-285									
SS-286									
SS-287									
MEAN	2556 4	6 8	6 6	2193 0	6 7	6 5	2315 8	6 8	6 5
COUNT	141	141	141	141	141	141	141	141	141
S	2951 5	1 7	1 42	2714 3	1 6	1 23	2687 6	1 6	1 26
Sx	248 6	0 1	0 1	228 6	0 1	0 1	226 3	0 1	0 1
95%UCL	2970	6365	2691	2573	4545	1747	2692	5036	1941
Cancer Risk		**1.5E-06**	**3.8E-07**		**9.1E-06**	**2.3E-06**		**1.1E-06**	**2.7E-07**

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TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES
ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	beryliium (mg/kg)	In Beryllium	Remediated Beryllium	BEHP (ug/kg)	In BEHP	Remediated BEHP	Dieldrin (ug/kg)	In Dieldrin	Remediated Dieldrin
SS-1	**0.33**	-1 11	-1 11	340	5 83	5 83	16 5	2 80	2 80
SS-2	**0.28**	-1 27	-1 27	**290**	5 67	5 67	8 5	2 14	2 14
SS-3	**0.67**	-0 40	-0 40	**1500**	7 31	7 31	9 5	2 25	2 25
SS-4	**0.39**	-0 94	-0 94	**360**	5 89	5 19	9	2 20	2 20
SS-5	**0.61**	-0 49	-0 49	**1100**	7 00	7 00	19	2 94	2 94
SS-6	**0.3**	-1 20	-1 20	**190000**	12 15	12 15	145	4 98	4 98
SS-7	0 05	-3 00	-3 00	**2900**	7 97	7 97	8	2 08	2 08
SS-8	**0.38**	-0 97	-0 97	**9900**	9 20	9 20	8 5	2 14	2 14
SS-10	**0.35**	-1 05	-1 05	**3500**	8 16	8 16	17 5	2 86	2 86
SS-11	**0.55**	-0 60	-0 60	**7400**	8 91	8 91	17 5	2 86	2 86
SS-12	**0.38**	-0 97	-0 97	**7200**	8 88	8 88	18 5	2 92	2 92
SS-13	**0.24**	-1 43	-1 43	**1100**	7 00	7 00	17	2 83	2 83
SS-16	**1.2**	0 18	0 18	**510**	6 23	6 23	18	2 89	2 89
SS-18	0 06	-2 81	-2 81	**75000**	11 23	11 23	**220**	5 39	5 39
SS-19	**1.8**	0 59	*-1 56*	**12000**	9 39	*8 82*	17 5	2 86	*2 60*
SS-20	**2.5**	0 92	*-1 56*	**15000**	9 62	*8 82*	17 5	2 86	*2 60*
SS-31	**1.3**	0 26	*-1 56*	**160**	5 08	*8 82*			*2 60*
SS-32	**0.29**	-1 24	*-1 56*	**140**	4 94	*8 82*			*2 60*
SS-33	**0.26**	-1 35	*-1 56*	**71**	4 26	*8 82*			*2 60*
SS-39	**0.26**	-1 35	-1 35	1850	7 52	7 52			
SS-40	**0.27**	-1 31	*-1 56*	**120**	4 79	*8 82*			
SS-41	**0.22**	-1 51	-1 51	190	5 25	5 25	3 6	1 28	1 28
SS-42	**0.39**	-0 94	-0 94	200	5 30	5 30	2	0 69	0 69
SS-43	**0.36**	-1 02	-1 02	190	5 25	5 25	3 85	1 35	1 35
SS-44	**1.5**	0 41	0 41	800	6 68	6 68	19 5	2 97	2 97
SS-45	**0.69**	-0 37	-0 37	40	3 69	3 69			
SS-49	**0.22**	-1 51	-1 51	5500	8 61	8 61	**2.1**	0 74	0 74
SS-50	**0.22**	-1 51	-1 51	**3200**	8 07	8 07	**140**	4 94	4 94
SS-51	**0.42**	-0 87	*-1 56*	**66000**	11 10	*8 82*	**34**	3 53	*2 60*
SS-52	**0.79**	-0 24	-0 24	**2100**	7 65	7 65	21 5	3 07	3 07
SS-57	**0.21**	-1 56	-1 56	5500	8 61	8 61	1 75	0 56	0 56
SS-58	**0.25**	-1 39	-1 39	**15000**	9 62	9 62	10 5	2 35	2 35
SS-59	**0.31**	-1 17	*-1 56*	**18000**	9 80	*8 82*	2 05	0 72	*0 72*
SS-60	**0.6**	-0 51	*-1 56*	**47000**	10 76	*8 82*	**62**	4 13	*2 60*
SS-61	**0.32**	-1 14	-1 14	5000	8 52	8 52	19	2 94	2 94
SS-63	**0.4**	-0 92	-0 92	**3850**	8 26	8 26	2 2	0 79	0 79
SS-64	**0.71**	-0 34	-0 34	**8700**	9 07	9 07	**140**	4 94	4 94
SS-65	**0.87**	-0 14	-0 14	**3900**	8 27	8 27	16 5	2 80	2 80
SS-67	**0.27**	-1 31	-1 31	**3400**	8 13	8 13	18 5	2 92	2 92
SS-68	**0.36**	-1 02	-1 02	**19000**	9 85	9 85	**10**	2 30	2 30
SS-69	**0.3**	-1 20	-1 20	**68000**	11 13	11 13	**0.83**	-0 19	-0 19
SS-73	**0.34**	-1 08	-1 08	**2900**	7 97	7 97	19	2 94	2 94
SS-74	**0.27**	-1 31	-1 31	**6600**	8 79	8 79	**62**	4 13	4 13
SS-75	**0.56**	-0 58	-0 58	950	6 86	6 86			
SS-77	0 37	-0 99	-0 99	2000	7 60	7 60	1 95	0 67	0 67
SS-78	**0.89**	-0 12	-0 12	**9500**	9 16	9 16	**17**	2 83	2 83
SS-79	**0.23**	-1 47	-1 47	**5800**	8 67	8 67	1 9	0 64	0 64
SS-80	**0.39**	-0 94	-0 94	**2900**	7 97	7 97	**3.7**	1 31	1 31
SS-81	**0.88**	-0 13	*-1 56*	**28000**	10 24	*8 82*	**390**	5 97	*2 60*

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TABLE 4
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ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	beryllium (mg/kg)	ln Beryllium	Remediated Beryllium	BEHP (ug/kg)	ln BEHP	Remediated BEHP	Dieldrin (ug/kg)	ln Dieldrin	Remediated Dieldrin
SS-82	**1.1**	0 10	0 10	**10000**	9 21	9 21	**10**	2 30	2 30
SS-83	**0.3**	-1 20	-1 20	**2400**	7 78	7 78	**1.3**	0 26	0 26
SS-84	**0.23**	-1 47	-1 47	**2800**	7 94	7 94	19 5	2 97	2 97
SS-85	**0.23**	-1 47	-1 47	**2800**	7 94	7 94	1 9	0 64	0 64
SS-86	**1.5**	0 41	*-1 56*	**35000**	10 46	*8 82*			
SS-87	**0.46**	-0 78	-0 78	**6100**	8 72	*8 82*	19 5	2 97	*2 60*
SS-89	**0.63**	-0 46	*-1 56*	**7000**	8 85	*8 82*			
SS-93	**0.69**	-0 37	*-1 56*	**3700**	8 22	*8 82*	210	5 35	*2 60*
SS-94	**1.7**	0 53	*-1 56*	**29000**	10 28	*8 82*	**83**	4 42	*2 60*
SS-95	**1**	0 00	*-1 56*	**220000**	12 30	*8 82*	**180**	5 19	*2 60*
SS-96	**0.68**	-0 39	*-1 56*	**27000**	10 20	*8 82*	**310**	5 74	*2 60*
SS-97	**0.97**	-0 03	*-1 56*	**19000**	9 85	*8 82*	190	5 25	*2 60*
SS-98	**0.65**	-0 43	-0 43	10000	9 21	9 21			
SS-103	**0.88**	-0 13	*-1 56*	**27000**	10 20	*8 82*	**61**	4 11	*2 60*
SS-104	**0.56**	-0 58	*-1 56*	**20000**	9 90	*8 82*			
SS-105	**0.9**	-0 11	*-1 56*	**150000**	11 92	*8 82*	23 5	3 16	*2 60*
SS-106	**4**	1 39	*-1 56*	**30000**	10 31	*8 82*			
SS-107	**0.79**	-0 24	-0 24	**29000**	10 28	10 28			
SS-108	**0.73**	-0 31	-0 31	**14000**	9 55	9 55			
SS-109	**0.87**	-0 14	-0 14	**1500**	7 31	7 31	19	2 94	2 94
SS-110	**0.67**	-0 40	-0 40	10000	9 21	9 21			
SS-114	**0.22**	-1 51	-1 51	180	5 19	5 19			
SS-115	**0.55**	-0 60	-0 60	**30000**	10 31	10 31			
SS116	**0.49**	-0 71	-0 71	235	5 46	5 46			
SS-120	**0.22**	-1 51	-1 51	185	5 22	5 22			
SS-121	**0.53**	-0 63	-0 63	**3700**	8 22	8 22			
SS-122	**0.22**	-1 51	-1 51	175	5 16	5 16			
SB-32E	**0.11**	-2 21	-2 21	175	5 16	5 16	**0.61**	-0 49	-0 49
SB-33A	**0.32**	-1 14	-1 14	215	5 37	5 37	1 1	0 10	0 10
SB-37A	**0.34**	-1 08	-1 08	185	5 22	5 22	1 75	0 56	0 56
SB-49A	**0.66**	-0 42	-0 42	600	6 40	6 40	**0.65**	-0 43	-0 43
SB-49B	**0.1**	-2 30	-2 30	175	5 16	5 16	1 75	0 56	0 56
SB-49C	**0.1**	-2 30	-2 30	175	5 16	5 16	1 75	0 56	0 56
SB-49D	**0.37**	-0 99	-0 99	**60**	4 09	4 09	1 75	0 56	0 56
SB-54A	**0.33**	-1 11	-1 11	**5300**	8 58	8 58	10	2 30	2 30
SB-54C	--			**13000**	9 47	9 47			
SB-54B	**1.1**	0 10	0 10	**7200**	8 88	8 88	10	2 30	2 30
SB-54D	**1.2**	0 18	0 18	**14000**	9 55	9 55	11	2 40	2 40
SB-55A	**1.8**	0 59	0 59	**13000**	9 47	9 47	9	2 20	2 20
SB-55B	**0.34**	-1 08	-1 08	**3200**	8 07	8 07	**24**	3 18	3 18
SB-55C	**0.44**	-0 82	-0 82	**3000**	8 01	8 01	4 5	1 50	1 50
SB-55D	**0.14**	-1 97	-1 97	**2200**	7 70	7 70	8 5	2 14	2 14
SB-56A	**0.63**	-0 46	-0 46	**14000**	9 55	9 55	**46**	3 83	3 83
SB-56B	**0.36**	-1 02	-1 02	**11000**	9 31	9 31	**58**	4 06	4 06
SB-56D	**0.26**	-1 35	-1 35	**330**	5 80	5 80	**1.7**	0 53	0 53
SB-57C	**0.66**	-0 42	-0 42	**4200**	8 34	8 34	8 5	2 14	2 14
SB-58A	**1.2**	0 18	0 18	**2400**	7 78	7 78	8	2 08	2 08
SB-58B	**1.3**	0 26	0 26	**3400**	8 13	8 13	8 5	2 14	2 14
SB-58C	**0.64**	-0 45	-0 45	**2600**	7 86	7 86	3 4	1 22	1 22

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Sample	beryliium (mg/kg)	In Beryllium	Remediated Beryllium	BEHP (ug/kg)	In BEHP	Remediated BEHP	Dieldrin (ug/kg)	In Dieldrin	Remediated Dieldrin
SB-58D	0.24	-1 43	-1 43	170	5 14	5 14	1 7	0 53	0 53
SB-59A	0.46	-0 78	-0 78	360	5 89	5 89	1 95	0 67	0 67
SB-59B	0.35	-1 05	-1 05	79	4 37	4 37	1 75	0 56	0 56
SB-59C	0.11	-2 21	-2 21	60	4 09	4 09	0.36	-1 02	-1 02
SB-59D	0.14	-1 97	-1 97	45	3 81	3 81	1 7	0 53	0 53
MW-22	0.37	-0.99	*-1 56*	16000	9 68	*8 82*	8 5	2 14	*2 60*
D3-D	0.44	-0 82	-0 82	310	5 74	5 74	2.7	0 99	0 99
D3-E	0.45	-0 80	-0 80	1600	7 38	7 38	2.9	1 06	1 06
SS-200	0.15	-1 90	-1 90	3300	8 10	8 10			
SS-201	0.24	-1.43	*-1 56*	230000	12.35	*8 82*			
SS-202	0.18	-1.71	-1.71	200000	12.21	*8 82*			
SS-203	0.32	-1.14	*-1 56*	130000	11.78	*8 82*	13	2.56	*2 60*
SS-204	0.35	-1.05	*-1 56*	44000	10.69	*8 82*	13	2 56	*2 60*
SS-205	0.3	-1 20	-1 20	14000	9 55	9 55	51	3 93	3 93
SS-206	0.31	-1 17	-1 17	39000	10 57	10 57			
SS-207	0.89	-0 12	-0 12	28000	10 24	10 24			
SS-208	0.18	-1 71	-1 71	3800	8 24	8 24			
SS-209	0.46	-0 78	-0 78	11000	9 31	9 31	43	3 76	3 76
SS-210	0.69	-0 37	-0 37	5000	8 52	8 52	14	2 64	2 64
SS-211	0.38	-0 97	-0 97	12000	9 39	9 39	20	3 00	3 00
SS-212	0.27	-1 31	-1 31	7300	8 90	8 90	20	3 00	3 00
SS-213	0.39	-0 94	-0 94	25000	10 13	10 13	36	3 58	3 58
SS-214	1.9	0.64	*-1 56*	51000	10.84	*8 82*	740	6 61	*2 60*
SS-215	0.69	-0 37	*-1 56*	30000	10 31	*8 82*	13	2 56	*2 60*
SS-216	1	0 00	*-1 56*	45000	10 71	*8 82*	61	4 11	*2 60*
SS-217	0.76	-0 27	-0 27	16000	9 68	9 68	18	2 89	2 89
SS-218									
SS-219									
SS-220	1.4	0 34	*-1 56*	93000	11 44	*8 82*	710	2.90	*2 60*
SS-221	1.1	0.10	*-1 56*	120000	11.70	*8 82*	120	2.90	*2 60*
SS-222	1.7	0.53	*-1 56*	46000	10.74	*8 82*	46	2.90	*2 60*
SS-223	0.66	-0 42	*-1 56*	130000	11 78	*8 82*	30	2.90	*2 60*
SS-224	2.9	1 06	*-1 56*	59000	10 99	*8 82*	12 5	2 90	2.53
SS-225	3.3	1.19	*-1 56*	69000	11 14	*8 82*	48	2.90	*2 60*
SS-226	0.18	-1 71	-1 71	850	6.75	*8 82*	11.5	2.90	2.44
SS-227	0.75	-0 29	-0 29	8200	9 01	9 01			
SS-228	3.1	1 13	1 13	90000	11 41	11 41			
SS-229									
SS-230									
SS-231									
SS-232									
SS-233									
SS-234									
SS-235									
SS-243									
SS-244									
SS-248	3.1	1 13	1 13	34000	10 43	10 43	13	2 56	
SS-249	1.3	0.26	*-1 56*	5500	8.61	*8 82*	13 5	2.60	*2 60*

Qualifiers for all data points are presented on Table 2

Shaded samples are those selected for remediation Assumed concentrations following remediation are those presented on Page 8 of Work Plan

TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES
ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	beryliium (mg/kg)	ln Beryllium	Remediated Beryllium	BEHP (ug/kg)	ln BEHP	Remediated BEHP	Dieldrin (ug/kg)	ln Dieldrin	Remediated Dieldrin
SS-256	**1.1**	0 10	0 10	**6400**	8 76	8 76	12 5	2 53	2 53
SS-257	**0.44**	-0 82	-0 82	**1500**	7 31	7 31	12 5	2 53	2 53
SS-258	**0.63**	-0 46	-0 46	**1600**	7 38	7 38	13	2 56	2 56
SS-259	**0.44**	-0 82	-0 82	**7100**	8 87	8 87	13	2 56	2 56
SS-260	**1.3**	0 26	0 26	**6300**	8 75	8 75	13	2 56	2 56
SS-261	**1.7**	0 53	0 53	**17000**	9 74	9 74	**83**	4 42	4 42
SS-278									
SS-279									
SS-280									
SS-281									
SS-282									
SS-283									
SS-284									
SS-285									
SS-286									
SS-287									
MEAN	0 7	-0 7	-1 1	21732 8	8 4	8 1	46 3	2 5	2 2
COUNT	140	140	140	141	141	141	111	111	113
S	0 7	0 8	0 71	42243 9	2 1	1 65	111 1	1 5	1 19
Sx	0 1	0 1	0 1	3557 6	0 2	0 14	10 5	0 1	0 1
95%UCL	0 79	0 79	0 51	27645	70906	19441	64	57	25
Cancer Risk		**7.1E-06**	**5.2E-06**		**1.3E-05**	**5.8E-06**		**2.0E-05**	**8.6E-06**

Qualifiers for all data points are presented on Table 2
Shaded samples are those selected for remediation Assumed concentrations following remediation are those presented on Page 8 of Work Plan

TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Aroclor 1248 (ug/kg)	In Aroclor 1248	Remediated In Aroclor 1248	TCDD/TCDFs (ug/kg)	Remediated TCDD/TCDFs
SS-1	85	4 44	4 44	**0.0037**	0 0037
SS-2	**550**	6 31	6 31		
SS-3	47 5	3 86	3 86		
SS-4	45 5	3 82	3 82		
SS-5	95	4 55	4 55	**0.0933**	0 0933
SS-6	700	6 55	*6 55*		
SS-7	40 5	3 70	3 70		
SS-8	43 5	3 77	3 77		
SS-10	**2700**	7 90	7 90	**0.26**	0 26
SS-11	**2700**	7 90	*7 90*	**0.185**	0 185
SS-12	90	4 50	4 50		
SS-13	85	4 44	4 44		
SS-16	90	4 50	4 50	**0.00225**	0 00225
SS-18	95	4 55	4 55	**0.216**	0 216
SS-19	**14000**	9 55	*7 30*		
SS-20	**15000**	9 62	*7 30*		
SS-31					
SS-32					
SS-33					
SS-39					
SS-40					
SS-41	36	3 58	3 58		
SS-42	20	3 00	3 00	0 1215	0 1215
SS-43	38 5	3 65	3 65		
SS-44	195	5 27	5 27		
SS-45					
SS-49	**1300**	7 17	7 17		
SS-50	**290**	5 67	5 67		
SS-51	**7400**	8 91	*7 30*		
SS-52	215	5 37	5 37	0 183	0 183
SS-57	**200**	5 30	5 30		
SS-58	**4500**	8 41	8 41		
SS-59	**1700**	7 44	*7 30*		
SS-60	**17000**	9 74	*7 30*		
SS-61	190	5 25	5 25		
SS-63	**275**	5 62	5 62		
SS-64	**1200**	7 09	7 09	**0.145**	0 145
SS-65	165	5 11	5 11		
SS-67	**5200**	8 56	8 56		
SS-68	**680**	6 52	6 52		
SS-69	**4700**	8 46	8 46		
SS-73	**4000**	8 29	8 29		
SS-74	**3600**	8 19	8 19	**0.138**	0 138
SS-75					
SS-77	2800	7 94	7 94	0 163	0 16
SS-78	**3600**	8 19	8 19		
SS-79	**1500**	7 31	7 31		
SS-80	**8500**	9 05	9 05		
SS-81	**74000**	11 21	*7 30*	**0.209**	*0 04*

Qualifiers for all data points are presented on Table 2
Shaded samples are those selected for remediation Assumed concentrations following remediation are those presented on Page 8 of Work Plan

TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES
ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Aroclor 1248 (ug/kg)	In Aroclor 1248	Remediated In Aroclor 1248	TCDD/TCDFs (ug/kg)	Remediated TCDD/TCDFs
SS-82	**3500**	8 16	8 16		
SS-83	**1100**	7 00	7 00		
SS-84	**9200**	9 13	9 13		
SS-85	**490**	6 19	6 19		
SS-86	**14000**	9 55	*7 30*		
SS-87	195	5.27	*5.27*	**0.793**	*0 04*
SS-89	**9100**	9.12	*7 30*		
SS-93	**32000**	10 37	*7 30*		
SS-94	**9500**	9.16	*7 30*		
SS-95	**2000**	7 60	*7 30*		
SS-96	**910**	6.81	*7 30*	**0.288**	*0 04*
SS-97	**9000**	9.10	*7 30*	**0.18**	*0 04*
SS-98					
SS-103	**45000**	10.71	*7 30*		
SS-104	**13000**	9 47	*7 30*		
SS-105	**1400**	7 24	*7 30*		
SS-106	**9200**	9.13	*7 30*		
SS-107	**2000**	7 60	7 60		
SS-108	**9200**	9 13	9 13		
SS-109	950	6 86	6 86		
SS-110					
SS-114	**43**	3 76	3 76		
SS-115	**1300**	7 17	7 17	**0.303**	0 303
SS116	**2900**	7 97	7 97		
SS-120					
SS-121	**1400**	7 24	7 24		
SS-122					
SB-32E	17 5	2 86	2 86		
SB-33A	21 5	3 07	3 07		
SB-37A	17 5	2 86	2 86		
SB-49A					
SB-49B	17 5	2 86	2 86		
SB-49C	17 5	2 86	2 86		
SB-49D	17 5	2 86	2 86		
SB-54A	**600**	6 40	6 40		
SB-54C					
SB-54B	**5600**	8 63	8 63		
SB-54D	**5400**	8 59	8 59		
SB-55A	**4400**	8 39	8 39		
SB-55B	90	4 50	4 50		
SB-55C	90	4 50	4 50		
SB-55D	85	4 44	4 44		
SB-56A	**520**	6 25	6 25		
SB-56B	**540**	6 29	6 29		
SB-56D	17 5	2 86	2 86		
SB-57C	**2200**	7 70	7 70		
SB-58A	**2300**	7 74	7 74		
SB-58B	**2700**	7 90	7 90		
SB-58C	**4900**	8 50	8 50		

Qualifiers for all data points are presented on Table 2

Shaded samples are those selected for remediation Assumed concentrations following remediation are those presented on Page 8 of Work Plan

TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE OCI SITE

Sample	Aroclor 1248 (ug/kg)	In Aroclor 1248	Remediated In Aroclor 1248	TCDD/TCDFs (ug/kg)	Remediated TCDD/TCDFs
SB-58D	**44**	3 78	3 78		
SB-59A	**350**	5 86	5 86		
SB-59B	17 5	2 86	2 86		
SB-59C	17	2 83	2 83		
SB-59D	17	2 83	2 83		
MW-22	**3300**	8 10	*7 30*		
D3-D					
D3-E	19 5	2 97	2 97		
SS-200	420	6 04	6 04		
SS-201	2100	7 65	*7 30*		
SS-202	24000	10 09	*7 30*		
SS-203	48000	10 78	*7 30*		
SS-204	19000	9 85	*7 30*		
SS-205	1100	7 00	7 00		
SS-206	1600	7 38	7 38		
SS-207	4300	8 37	8 37		
SS-208	930	6 84	6 84		
SS-209	810	6 70	6 70	0 078	0 078
SS-210	170	5 14	5 14	0 0045	0 0045
SS-211	820	6 71	6 71	0 081	0 081
SS-212	1200	7 09	7 09	0 039	0 039
SS-213	2200	7 70	7 70	0 062	0 062
SS-214	92000	11 43	*7 30*	0 47	*0 04*
SS-215	42000	10 65	*7 30*	0 12	*0 04*
SS-216	7000	8 85	*7 30*		
SS-217	830	6 72	6 72		
SS-218				0 096	0 096
SS-219				0 09	0 09
SS-220	12000	9 39	*7 30*	1 51	*0 04*
SS-221	41000	10 62	*7 30*		
SS-222	3200	8 07	*7 30*		
SS-223	6000	8 70	*7 30*		
SS-224	34000	10 43	*7 30*		
SS-225	2400	7 78	*7 30*		
SS-226	11000	9 31	*7 30*		
SS-227	3700	8 22	8 22		
SS-228	3800	8 24	8 24		
SS-229					
SS-230					
SS-231					
SS-232					
SS-233					
SS-234	8200	9 01	9 01		
SS-235	8600	9 06	*7 30*		
SS-243	5200	8 56	8 56		
SS-244					
SS-248	3400	8 13	8 13		
SS-249	9500	9 16	*7 30*		

Qualifiers for all data points are presented on Table 2

Shaded samples are those selected for remediation Assumed concentrations following remediation are those presented on Page 8 of Work Plan

TABLE 4
SUMMARY OF ANALYTICAL DATA FOR SURFACE AND NEAR SURFACE SOIL SAMPLES
ASSUMING REMEDIATION OF SELECT AREAS OF THE SITE
OCI SITE

Sample	Aroclor 1248 (ug/kg)	In Aroclor 1248	Remediated In Aroclor 1248	TCDD/TCDFs (ug/kg)	Remediated TCDD/TCDFs
SS-256	11000	9 31	9 31		
SS-257	320	5 77	5 77		
SS-258	770	6 65	6 65		
SS-259	560	6 33	6 33	0 028	0 028
SS-260	3000	8 01	8 01		
SS-261	2900	7 97	7 97	0 057	0 057
SS-278					
SS-279					
SS-280					
SS-281					
SS-282					
SS-283					
SS-284					
SS-285					
SS-286					
SS-287				0 07	0 07
MEAN	6226 2	7 0	6 5	0 21	0 09
COUNT	130	130	130	29	29
S	13252 3	2 3	1 77	0 30	0 08
Sx	1162 3	0 20	0 16	0 055	0 014
95%UCL	8158	29747	4896	**0.3004**	**0.1175**
Cancer Risk		**1.4E-04**	**3.0E-05**	**5.5E-05**	**2.5E-05**

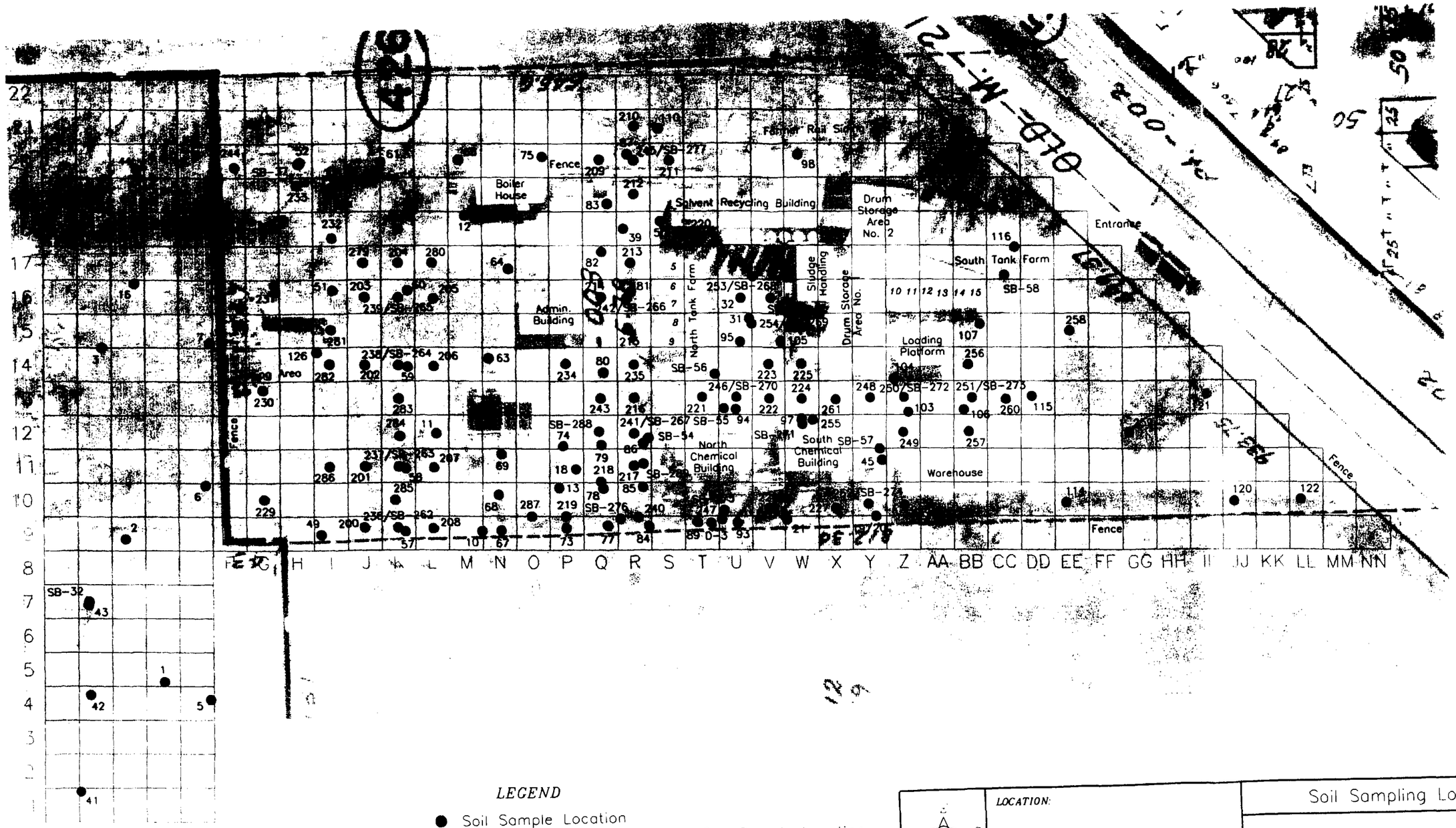
Total Carcinogenic Risk for All Chemicals

Pre-Remediation	**2.6E-04**
Post Remediation	**8.2E-05**

Qualifiers for all data points are presented on Table 2
Shaded samples are those selected for remediation Assumed concentrations following remediation are those presented on Page 8 of Work Plan

FIGURES

(PART 1)



LEGEND

● Soil Sample Location
##(without prefix) = Surface Soil Sample Location
SB-## = Subsurface Soil Sample Location

Note:
Adapted from EPA's Soil Contamination Exceeding Cleanup Goals drawing.

LOCATION:
Organic Chemicals, Inc.
Grandville, Michigan

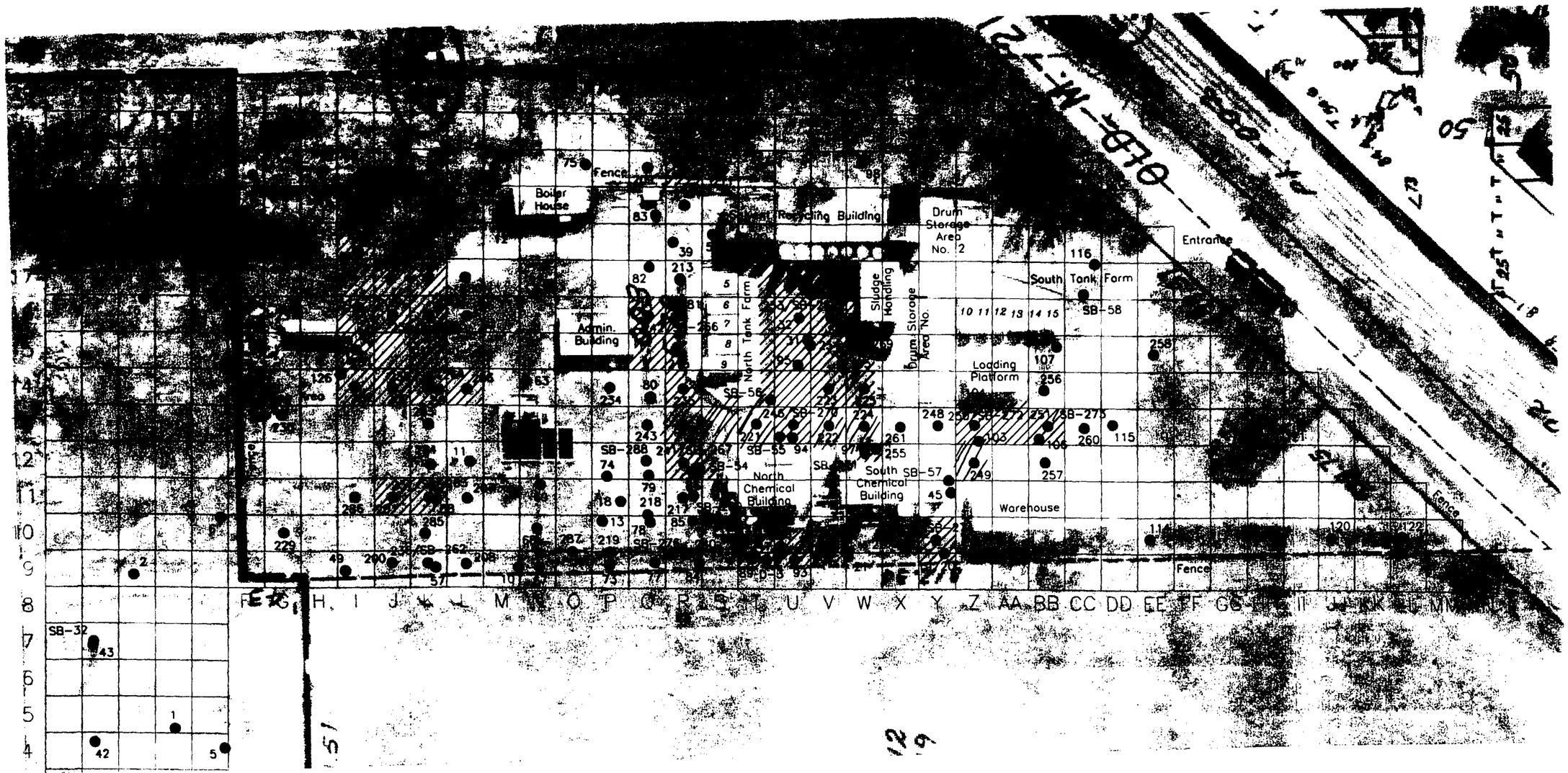
Figure #1

0 25 50 75
Approximate scale in feet

DRAWING DATE: 8-31-2001
PROJECT NUMBER: 1059
PROJECT MANAGER: JER
CAD FILE: 1059-2-44
DRAWN BY: BAP

Soil Sampling Locations

Compliance INC
Environmental Engineering & Regulatory Consulting
Traverse City (231) 922-7400 Livonia (734) 953-6486



LEGEND

- ● Soil Sample Location
  ##(without prefix) = Surface Soil Sample Location
  SB-## = Subsurface Soil Sample Location
- Grid identified for remediation

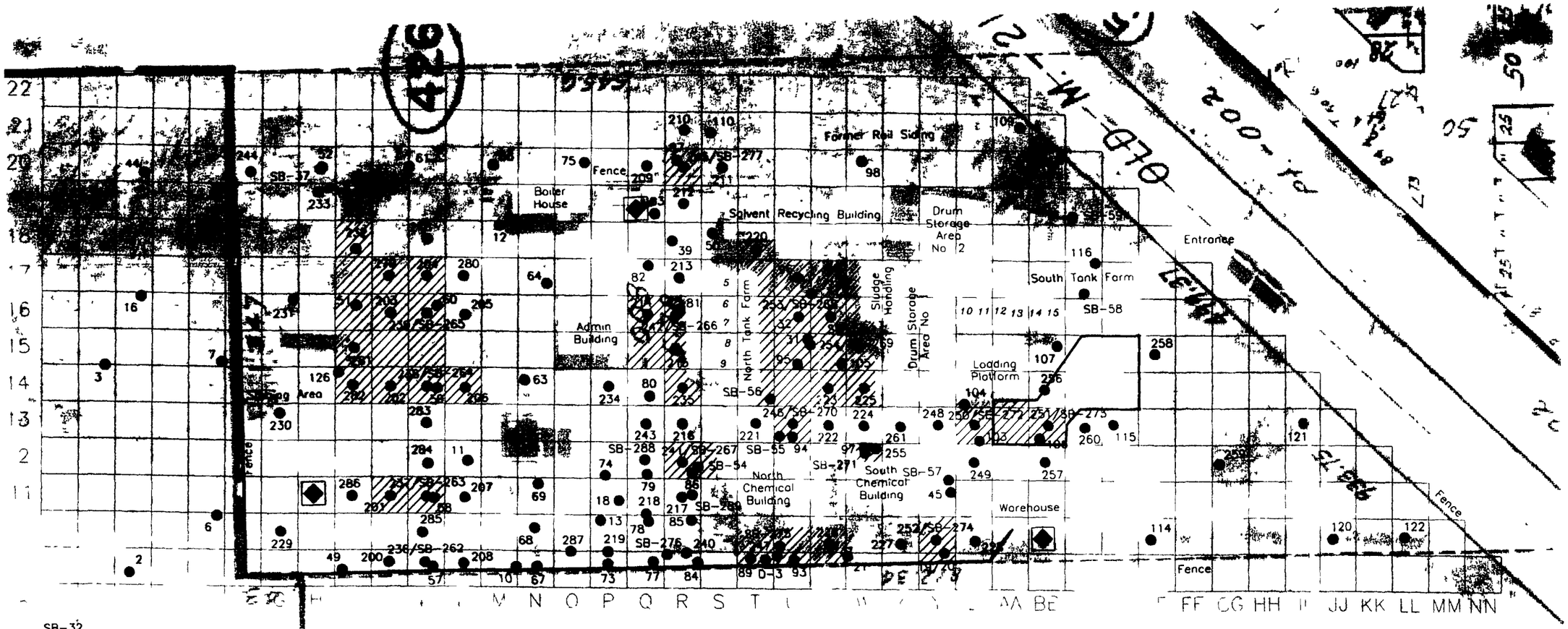
Note:
Adapted from EPA's Soil Contamination Exceeding Cleanup Goals drawing.

LOCATION: Organic Chemicals, Inc. Grandville, Michigan	Areas of Site Identified for Remediation
Figure #2	*DRAWING DATE:* 8-31-2001
	PROJECT NUMBER: 1059
0 25 50 75 Approximate scale in feet	*PROJECT MANAGER:* JER
	CAD FILE: 1059-2-45
	DRAWN BY: BAP

Compliance Engineering INC
Environmental Engineering & Regulatory Consulting
Traverse City (231) 922-7400 Livonia (734) 953-6486

FIGURES

(PART 2)



LEGEND

- Perimeter Dust Monitoring Location
- Location of Decon/Access Area
- Location of Silt Fence
- Soil Sample Location
  ##(without prefix) = Surface Soil Sample Location
  SB-## = Subsurface Soil Sample Location
- Grid identified for remediation

Note
Adapted from EPA's Soil Contamination Exceeding Cleanup Goals drawing

LOCATION
Organic Chemicals Inc
Grandville Michigan

Figure #

0 25 50 75
Approximate scale in feet

DRAWING DATE 8-31 2001
PROJECT NUMBER 1059
PROJECT MANAGER JER
CAD FILE 1059-2-46
DRAWN BY BAP

Location of Remediation Activities

Compliance Services Inc
Environmental Engineering & Regulatory Consulting
Traverse City (231) 922 7400 Ivonia (734) 953 6486

APPENDIX A

PRE-DESIGN SOIL SAMPLING DATA

Organic Chemicals Inc.
Pre-Design Soil Data

	SS-200		SS-201	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.15**	**B**	**0.24**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**968**		**2560**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**34**	**J**	3600	U
Benzo(a)pyrene (ug/kg)	**35**	**J**	3600	U
Benzo(b)fluoranthene (ug/kg)	670	U	3600	U
Dibenzo(a,h)anthracene (ug/kg)	670	U	3600	U
Indeno(1,2,3-cd)pyrene (ug/kg)	670	U	3600	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**3300**	**B**	**230000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)	**420**	**D**	**2100**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = *Conc. exceeds calibration range*
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-202		SS-203	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)	**0.18**	**B**	**0.32**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**4200**		**2890**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	4200	U	3500	U
Benzo(a)pyrene (ug/kg)	4200	U	3500	U
Benzo(b)fluoranthene (ug/kg)	4200	U	3500	U
Dibenzo(a,h)anthracene (ug/kg)	4200	U	3500	U
Indeno(1,2,3-cd)pyrene (ug/kg)	4200	U	3500	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**200000**	**DB**	**130000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)			26	U
Aroclor 1248 (ug/kg)	**24000**	**D**	**48000**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

Organic Chemicals Inc.
Pre-Design Soil Data

	SS-204		SS-205	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.35**	**B**	**0.3**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**2120**		**380**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	3500	U	**42**	**J**
Benzo(a)pyrene (ug/kg)	**190**	**J**	**47**	**J**
Benzo(b)fluoranthene (ug/kg)	3500	U	350	U
Dibenzo(a,h)anthracene (ug/kg)	3500	U	350	U
Indeno(1,2,3-cd)pyrene (ug/kg)	3500	U	**230**	**J**
Bis(2-ethylhexyl)phthalate (ug/kg)	**44000**	**DL**	**14000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)	26	U	**51**	**P**
Aroclor 1248 (ug/kg)	**19000**	**DP**	**1100**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-206		SS-207	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.31**	**B**	**0.89**	
Chromium (mg/kg)				
Lead (mg/kg)	**1990**		**736**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	3500	U	**660**	**DJ**
Benzo(a)pyrene (ug/kg)	3500	U	**840**	**DJ**
Benzo(b)fluoranthene (ug/kg)	3500	U	3500	U
Dibenzo(a,h)anthracene (ug/kg)	3500	U	3500	U
Indeno(1,2,3-cd)pyrene (ug/kg)	3500	U	3500	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**39000**	**DB**	**28000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)	**1600**	**D**	**4300**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-208		SS-209	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)	**0.18**	**B**	**0.46**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**1010**		**244**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**52**	**J**	**300**	**J**
Benzo(a)pyrene (ug/kg)	**60**	**J**	**320**	**DJ**
Benzo(b)fluoranthene (ug/kg)	340	U	**360**	
Dibenzo(a,h)anthracene (ug/kg)	340	U	**290**	**J**
Indeno(1,2,3-cd)pyrene (ug/kg)	**210**	**J**	**450**	
Bis(2-ethylhexyl)phthalate (ug/kg)	**3800**	**DB**	**11000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)			**43**	
Aroclor 1248 (ug/kg)	**930**	**D**	**810**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence			0.078	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-210		SS-211	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)	0.69		0.38	B
Chromium (mg/kg)				
Lead (mg/kg)	244		324	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	2200		270	J
Benzo(a)pyrene (ug/kg)	3000		330	DJ
Benzo(b)fluoranthene (ug/kg)	3100		370	
Dibenzo(a,h)anthracene (ug/kg)	1200	J	330	J
Indeno(1,2,3-cd)pyrene (ug/kg)	2700		420	
Bis(2-ethylhexyl)phthalate (ug/kg)	5000	B	12000	DB
Pesticides/PCBs				
Dieldrin (ug/kg)	14	J	20	PJ
Aroclor 1248 (ug/kg)	170	DP	820	DP
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0.0045		0.081	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

Organic Chemicals Inc.
Pre-Design Soil Data

	SS-212		SS-213	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.27**	**B**	**0.39**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**227**		**190**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**180**	**J**	**49**	**J**
Benzo(a)pyrene (ug/kg)	**150**	**J**	**47**	**J**
Benzo(b)fluoranthene (ug/kg)	**130**	**J**	340	U
Dibenzo(a,h)anthracene (ug/kg)	340	U	340	U
Indeno(1,2,3-cd)pyrene (ug/kg)	**92**	**J**	340	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**7300**	**DB**	**25000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)	**20**	**J**	**36**	
Aroclor 1248 (ug/kg)	**1200**	**D**	**2200**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0.039		0.062	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-214		SS-215	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**1.9**		**0.69**	
Chromium (mg/kg)				
Lead (mg/kg)	**1850**		**545**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**190**	**J**	**200**	**J**
Benzo(a)pyrene (ug/kg)	3400	U	3500	U
Benzo(b)fluoranthene (ug/kg)	3400	U	3500	U
Dibenzo(a,h)anthracene (ug/kg)	3400	U	3500	U
Indeno(1,2,3-cd)pyrene (ug/kg)	3400	U	3500	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**51000**	**DB**	**30000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)	**740**		**26**	**U**
Aroclor 1248 (ug/kg)	**92000**	**DP**	**42000**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0.47		0.12	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-216		SS-217	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**1**		**0.76**	
Chromium (mg/kg)				
Lead (mg/kg)	**878**		**231**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**330**	**J**	410	UJ
Benzo(a)pyrene (ug/kg)	**410**	**DJ**	440	jDB
Benzo(b)fluoranthene (ug/kg)	3500	U	420	UJ
Dibenzo(a,h)anthracene (ug/kg)	3500	U	**110**	**J**
Indeno(1,2,3-cd)pyrene (ug/kg)	3500	U	**280**	**J**
Bis(2-ethylhexyl)phthalate (ug/kg)	**45000**	**DB**	**16000**	**JDB**
Pesticides/PCBs				
Dieldrin (ug/kg)	**61**	**P**	**18**	**PJ**
Aroclor 1248 (ug/kg)	**7000**	**D**	**830**	**JD**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-218		SS-219	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0.096		1.16	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-220		SS-221	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**1.4**		**1.1**	
Chromium (mg/kg)				
Lead (mg/kg)	**2400**		**4050**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**270**	**J**	1600	UJ
Benzo(a)pyrene (ug/kg)	**140**	**J**	**140**	**J**
Benzo(b)fluoranthene (ug/kg)	1800	U	1600	UJ
Dibenzo(a,h)anthracene (ug/kg)	1800	U	1600	UJ
Indeno(1,2,3-cd)pyrene (ug/kg)	1800	U	1600	UJ
Bis(2-ethylhexyl)phthalate (ug/kg)	**93000**	**DB**	**120000**	**JDB**
Pesticides/PCBs				
Dieldrin (ug/kg)	**710**	**D**	**120**	**JP**
Aroclor 1248 (ug/kg)	**12000**	**D**	**41000**	**JD**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	1.51			

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-222		SS-223	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**1.7**		**0.66**	
Chromium (mg/kg)				
Lead (mg/kg)	**813**		**6420**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**120**	**J**	**120**	**J**
Benzo(a)pyrene (ug/kg)	**160**	**J**	**120**	**J**
Benzo(b)fluoranthene (ug/kg)	1700	U	1700	U
Dibenzo(a,h)anthracene (ug/kg)	1700	U	1700	U
Indeno(1,2,3-cd)pyrene (ug/kg)	1700	U	1700	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**46000**	**DB**	**130000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)	**46**	**P**	**30**	**P**
Aroclor 1248 (ug/kg)	**3200**	**D**	**6000**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

Organic Chemicals Inc.
Pre-Design Soil Data

	SS-224		SS-225	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**2.9**		**3.3**	
Chromium (mg/kg)				
Lead (mg/kg)	**806**		**2600**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**390**	**J**	**100**	**J**
Benzo(a)pyrene (ug/kg)	**500**	**J**	**110**	**J**
Benzo(b)fluoranthene (ug/kg)	**580**	**J**	1700	U
Dibenzo(a,h)anthracene (ug/kg)	1600	U	1700	U
Indeno(1,2,3-cd)pyrene (ug/kg)	**430**	**J**	1700	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**59000**	**DB**	**69000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)	25	U	**48**	**P**
Aroclor 1248 (ug/kg)	**34000**	**D**	**2400**	**P**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-226		SS-227	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)	**0.18**	**B**	**0.75**	
Chromium (mg/kg)				
Lead (mg/kg)	**138**		**395**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	1700	J	**5100**	
Benzo(a)pyrene (ug/kg)	**120**	**J**	**7600**	
Benzo(b)fluoranthene (ug/kg)	1700	UJ	**8800**	
Dibenzo(a,h)anthracene (ug/kg)	1700	UJ	**890**	**J**
Indeno(1,2,3-cd)pyrene (ug/kg)	1700	UJ	**7300**	
Bis(2-ethylhexyl)phthalate (ug/kg)	1700	U	**8200**	**B**
Pesticides/PCBs				
Dieldrin (ug/kg)	23	U		
Aroclor 1248 (ug/kg)	**11000**	**D**	**3700**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-228		SS-229	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)	**3.1**			
Chromium (mg/kg)				
Lead (mg/kg)	**491**		**219**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**340**	**J**		
Benzo(a)pyrene (ug/kg)	**400**	**J**		
Benzo(b)fluoranthene (ug/kg)	1700	U		
Dibenzo(a,h)anthracene (ug/kg)	1700	U		
Indeno(1,2,3-cd)pyrene (ug/kg)	**360**	**J**		
Bis(2-ethylhexyl)phthalate (ug/kg)	**90000**	**DB**		
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)	**3800**			
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-230		SS-231	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)	2320		1040	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-232		SS-233	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)	**4300**		**12.8**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-234		SS-235	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)	**8200**	**D**	**8600**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-236		SS-237	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)	0.27	U	0.27	U
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-238		SS-239	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)	0.27	U	0.31	
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-240		SS-241	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)	0.27	U	0.31	
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-242		SS-243	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)	0.26	U		
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)			5200	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-244		SS-245	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)			0.25	U
Lead (mg/kg)	173			
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-246		SS-247	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)	0.34		0.25	U
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-248		SS-249	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)	**3.1**		**1.3**	
Chromium (mg/kg)				
Lead (mg/kg)	**383**		**374**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**440**	**DJ**	**2200**	**J**
Benzo(a)pyrene (ug/kg)	**330**	**J**	**1700**	**J**
Benzo(b)fluoranthene (ug/kg)	340	U	**2200**	**J**
Dibenzo(a,h)anthracene (ug/kg)	**140**	**J**	**600**	**J**
Indeno(1,2,3-cd)pyrene (ug/kg)	**240**	**J**	**1000**	**J**
Bis(2-ethylhexyl)phthalate (ug/kg)	**34000**	**DB**	**5500**	**B**
Pesticides/PCBs				
Dieldrin (ug/kg)	26	U	27	U
Aroclor 1248 (ug/kg)	**3400**		**9500**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-250		SS-251	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)	0.27	U	0.26	U
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-252		SS-253	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)	0.29	U	0.35	
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-254		SS-255	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)	0.26	U	0.26	U
Lead (mg/kg)				
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-256		SS-257	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**1.1**		**0.44**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**205**	**E**	**37**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**300**	**J**	**620**	**J**
Benzo(a)pyrene (ug/kg)	**440**	**J**	**790**	**J**
Benzo(b)fluoranthene (ug/kg)	**560**	**J**	**930**	**J**
Dibenzo(a,h)anthracene (ug/kg)	1700	U	**1800**	**J**
Indeno(1,2,3-cd)pyrene (ug/kg)	880	U	**450**	**J**
Bis(2-ethylhexyl)phthalate (ug/kg)	**6400**	**B**	**1500**	**JB**
Pesticides/PCBs				
Dieldrin (ug/kg)	25	UJ	25	U
Aroclor 1248 (ug/kg)	**9100**	**JE**	**400**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

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E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-258		SS-259	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)	**0.63**		**0.44**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**81**	**E**	**230**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**240**	**J**	**240**	**J**
Benzo(a)pyrene (ug/kg)	**340**	**J**	**350**	**J**
Benzo(b)fluoranthene (ug/kg)	**480**	**J**	1700	U
Dibenzo(a,h)anthracene (ug/kg)	1700	U	1700	U
Indeno(1,2,3-cd)pyrene (ug/kg)	1700	U	**320**	**J**
Bis(2-ethylhexyl)phthalate (ug/kg)	**1600**	**JB**	**7100**	**B**
Pesticides/PCBs				
Dieldrin (ug/kg)	26	U	26	U
Aroclor 1248 (ug/kg)	**870**		**1200**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence			0.028	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS-260		SS-261	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**1.3**		**1.7**	
Chromium (mg/kg)				
Lead (mg/kg)	**112**	**E**	**288**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**1800**		**220**	J
Benzo(a)pyrene (ug/kg)	**2400**		**280**	DJ
Benzo(b)fluoranthene (ug/kg)	**2600**		1600	U
Dibenzo(a,h)anthracene (ug/kg)	**390**	J	1600	U
Indeno(1,2,3-cd)pyrene (ug/kg)	**1900**		1600	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**6300**	**B**	**17000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)	26	U	**83**	
Aroclor 1248 (ug/kg)	**1200**		**2600**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence			0.057	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-262B		SB-262C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.1**	**U**	**0.1**	**U**
Chromium (mg/kg)				
Lead (mg/kg)	**9.8**	**E**	**13.8**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	350	U	340	U
Benzo(a)pyrene (ug/kg)	350	U	340	U
Benzo(b)fluoranthene (ug/kg)	350	U	340	U
Dibenzo(a,h)anthracene (ug/kg)	350	U	340	U
Indeno(1,2,3-cd)pyrene (ug/kg)	350	U	340	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**1600**	**B**	**1600**	**B**
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)	34	U	33	U
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-263B		SB-263C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.11**	**B**	**0.12**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**12700**	**E**	**51.1**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	3400	U	340	U
Benzo(a)pyrene (ug/kg)	3400	U	340	U
Benzo(b)fluoranthene (ug/kg)	3400	U	340	U
Dibenzo(a,h)anthracene (ug/kg)	3400	U	340	U
Indeno(1,2,3-cd)pyrene (ug/kg)	3400	U	340	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**23000**	**B**	**5200**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)	**1900**		**57**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-264B		SB-264C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.13**	**B**	**0.13**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**1590**	**E**	**54.1**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	3600	U	350	U
Benzo(a)pyrene (ug/kg)	3600	U	350	U
Benzo(b)fluoranthene (ug/kg)	3600	U	350	U
Dibenzo(a,h)anthracene (ug/kg)	3600	U	350	U
Indeno(1,2,3-cd)pyrene (ug/kg)	3600	U	350	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**26000**	**B**	**2700**	**B**
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)	**2000**		**390**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-265B		SB-265C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.21**	**B**	**0.11**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**228**	**E**	**229**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	370	U	340	U
Benzo(a)pyrene (ug/kg)	**25**	**J**	340	U
Benzo(b)fluoranthene (ug/kg)	370	U	340	U
Dibenzo(a,h)anthracene (ug/kg)	370	U	340	U
Indeno(1,2,3-cd)pyrene (ug/kg)	370	U	340	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**2200**	**B**	**8400**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)	26	U	26	U
Aroclor 1248 (ug/kg)	**88**		**160**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-266B		SB-266C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.93**		**0.13**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**243**	**E**	**32.1**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	340	U	360	U
Benzo(a)pyrene (ug/kg)	340	U	360	U
Benzo(b)fluoranthene (ug/kg)	340	U	360	U
Dibenzo(a,h)anthracene (ug/kg)	340	U	360	U
Indeno(1,2,3-cd)pyrene (ug/kg)	340	U	360	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**19000**	**DB**	**4100**	**D**
Pesticides/PCBs				
Dieldrin (ug/kg)	25	U	27	U
Aroclor 1248 (ug/kg)	**40000**	**D**	**7800**	**JDP**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0.085		0.006	

Shaded cells = Chemical not a selected analyte

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J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-267B		SB-267C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.21**	**B**	**0.13**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**39.3**	**E**	**309**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	370	U	3300	U
Benzo(a)pyrene (ug/kg)	**50**	**J**	3300	U
Benzo(b)fluoranthene (ug/kg)	370	U	3300	U
Dibenzo(a,h)anthracene (ug/kg)	370	U	3300	U
Indeno(1,2,3-cd)pyrene (ug/kg)	370	U	3300	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**13000**	**DB**	**93000**	**DB**
Pesticides/PCBs				
Dieldrin (ug/kg)	29	U	**18**	
Aroclor 1248 (ug/kg)	**5000**			
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-268B		SB-268C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.13**	**B**	**0.13**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**457**	**E**	**5.9**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	370	U	360	U
Benzo(a)pyrene (ug/kg)	370	U	360	U
Benzo(b)fluoranthene (ug/kg)	370	U	360	U
Dibenzo(a,h)anthracene (ug/kg)	370	U	360	U
Indeno(1,2,3-cd)pyrene (ug/kg)	370	U	360	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**7000**	**DB**	**170**	**J**
Pesticides/PCBs				
Dieldrin (ug/kg)	32	U	2.7	U
Aroclor 1248 (ug/kg)	**340**	**J**	36	U
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0.07		0.0037	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-269B		SB-269C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.17**	**B**	**0.1**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**129**		**2.8**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	370	U	350	U
Benzo(a)pyrene (ug/kg)	370	U	350	U
Benzo(b)fluoranthene (ug/kg)	370	U	350	U
Dibenzo(a,h)anthracene (ug/kg)	370	U	350	U
Indeno(1,2,3-cd)pyrene (ug/kg)	370	U	350	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**37**	**J**	**95**	**J**
Pesticides/PCBs				
Dieldrin (ug/kg)	2.8	U	2.7	U
Aroclor 1248 (ug/kg)	36	U	35	U
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB-270B		SB-270C	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.26**		**0.11**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**78**		**5.9**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**310**	**J**	350	U
Benzo(a)pyrene (ug/kg)	**290**	**J**	350	U
Benzo(b)fluoranthene (ug/kg)	**240**	**J**	350	U
Dibenzo(a,h)anthracene (ug/kg)	**97**	**J**	350	U
Indeno(1,2,3-cd)pyrene (ug/kg)	**190**	**J**	350	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**1500**		350	U
Pesticides/PCBs				
Dieldrin (ug/kg)	27	U	2.6	U
Aroclor 1248 (ug/kg)	**360**		**12**	**J**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB271B		SB272B	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.24**		**0.17**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**118**		**8.2**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**390**	**J**	360	U
Benzo(a)pyrene (ug/kg)	1850	U	360	U
Benzo(b)fluoranthene (ug/kg)	1850	U	360	U
Dibenzo(a,h)anthracene (ug/kg)	1850	U	360	U
Indeno(1,2,3-cd)pyrene (ug/kg)	1850	U	360	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**12000**		360	U
Pesticides/PCBs				
Dieldrin (ug/kg)	**24**	**PJ**	27	U
Aroclor 1248 (ug/kg)	**3700**	**JD**	**110**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0.03			

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB272C		SB273B	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.07**	**B**	**0.13**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**2.2**		**4.6**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	**19**	**J**	350	U
Benzo(a)pyrene (ug/kg)	350	U	350	U
Benzo(b)fluoranthene (ug/kg)	350	U	350	U
Dibenzo(a,h)anthracene (ug/kg)	350	U	350	U
Indeno(1,2,3-cd)pyrene (ug/kg)	350	U	350	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**36**	**J**	**39**	**J**
Pesticides/PCBs				
Dieldrin (ug/kg)	2.6	U	26	U
Aroclor 1248 (ug/kg)	35	U	**27**	**J**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB273C		SB274B	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.12**	**B**	**0.27**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**2.6**		**268**	**E**
Semivolatiles				
Benzo(a)anthacene (ug/kg)	350	U	**190**	**J**
Benzo(a)pyrene (ug/kg)	350	U	**240**	**J**
Benzo(b)fluoranthene (ug/kg)	350	U	**270**	**J**
Dibenzo(a,h)anthracene (ug/kg)	350	U	750	UJ
Indeno(1,2,3-cd)pyrene (ug/kg)	350	U	**220**	**J**
Bis(2-ethylhexyl)phthalate (ug/kg)	350	U	**2400**	**JB**
Pesticides/PCBs				
Dieldrin (ug/kg)	2.6	U		
Aroclor 1248 (ug/kg)	34	U	**7100**	**D**
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB275B		SB276B	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)	**0.12**	**B**	**0.12**	**B**
Chromium (mg/kg)				
Lead (mg/kg)	**15.3**		**7.3**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	340	U	350	U
Benzo(a)pyrene (ug/kg)	340	U	350	U
Benzo(b)fluoranthene (ug/kg)	340	U	350	U
Dibenzo(a,h)anthracene (ug/kg)	340	U	350	U
Indeno(1,2,3-cd)pyrene (ug/kg)	340	U	350	U
Bis(2-ethylhexyl)phthalate (ug/kg)	**300**	**J**	**120**	**J**
Pesticides/PCBs				
Dieldrin (ug/kg)			26	U
Aroclor 1248 (ug/kg)	**1500**	**JD**	**72**	
Dioxins/Furans				
2,3,7,8-TCDD Equivalence			0.0042	

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB277B		SS278	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)	**0.09**	B		
Chromium (mg/kg)				
Lead (mg/kg)	**1.7**		**184**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)	340	U		
Benzo(a)pyrene (ug/kg)	340	U		
Benzo(b)fluoranthene (ug/kg)	340	U		
Dibenzo(a,h)anthracene (ug/kg)	340	U		
Indeno(1,2,3-cd)pyrene (ug/kg)	340	U		
Bis(2-ethylhexyl)phthalate (ug/kg)	340	U		
Pesticides/PCBs				
Dieldrin (ug/kg)	26	U		
Aroclor 1248 (ug/kg)	33	U		
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0.0035			

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS279		SS280	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)	5650		1210	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS281		SS282	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)	**4670**		**1630**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS283		SS284	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)	**901**		**852**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS285		SS286	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)	**1350**		**466**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SS287		SB288B	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)			**2.6**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence	0 07			

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB288C		SB288D	
	Concentration	**Qualifier**	**Concentration**	**Qualifier**
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)	**6**		**5.8**	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

	SB289B		SB289C	
	Concentration	Qualifier	Concentration	Qualifier
Metals				
Beryllium (mg/kg)				
Chromium (mg/kg)				
Lead (mg/kg)	2.7		4.4	
Semivolatiles				
Benzo(a)anthacene (ug/kg)				
Benzo(a)pyrene (ug/kg)				
Benzo(b)fluoranthene (ug/kg)				
Dibenzo(a,h)anthracene (ug/kg)				
Indeno(1,2,3-cd)pyrene (ug/kg)				
Bis(2-ethylhexyl)phthalate (ug/kg)				
Pesticides/PCBs				
Dieldrin (ug/kg)				
Aroclor 1248 (ug/kg)				
Dioxins/Furans				
2,3,7,8-TCDD Equivalence				

Shaded cells = Chemical not a selected analyte

U = Compound analyzed for but not detected
J = Estimated value
D = Compound identified at secondary dilution
E = Conc. exceeds calibration range
R = Unuseable data
P = >25% difference between 2 GC columns. Lower of the values reported

APPENDIX B

DATA VALIDATION REPORT

DATA VALIDATION REPORT

Site name: Organic Chemical Inc.

Number and Type of Samples: 76 soil samples

Laboratory: Southwest Laboratories of Oklahoma

76 soil samples were collected over the period 05/07 to 5/15/2001. All samples were shipped to Southwest Laboratories of Oklahoma (SWLO). The laboratory received groups of samples over the period 05/8/2001 to 5/17/2001. The samples were processed in four groups labeled SDG 46447, SDG 46448, SDG 46484, and SDB 46546.

All samples were reported to have been received in good condition. Sample jars submitted in one cooler from group SDG 46448 were received at a temperature of 12.8 Celsius, above the prescribed temperature of 4.0 Celsius. Sample labels were intact on all jars. One labeling discrepancy was noted after receipt of analytical data. This was that sample SS-261 was entered and analyzed by SWLO as sample FD-261. This transcription has been corrected on the data tables in Appendix A.

The samples were analyzed for a target list of three metals, six semivolatiles and two pesticide/PCB analytes. All samples were analyzed according to methodologies presented in the Quality Assurance Project Plan prepared for this work dated April 21, 2001.

A summary of the out-of-control audits and the possible effects on the data for this follows.

1. HOLDING TIME

With the exception of the following, no problems were found for this qualification:

SDG 46448
SS-226 had 2 base/neutral surrogates outside QC limits high and was re-extracted outside holding time and reanalyzed. Hits and non-detects for this sample are flagged J.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found for this qualification.

3. CALIBRATION

Initial Calibrations
'l criteria were within method limits.

Continuing Calibrations –

The following Aroclor samples are associated with a continuing calibration percent difference (%D) outside method limits.

SDG-46447
Aroclor 1260 analyzed on column DB-XLB on 5/23/01 at 2125 hours had a high average %D at 16.7 %. The %D was less than 25%, therefore, hits and non-detects are not flagged.

Aroclor 1016 and 1260 analyzed on columns DB-17MS and DB-XLB, on 5/24/01 at 0749 hours, had high average %Ds ranging from 48% to 54%. No data samples were run prior to the next in-control standard and, therefore, no data is flagged.

SDG-46484
Aroclor 1260 analyzed on column DB17 on 5/25/01 at 2328 hours had a high average %D at 17.5 %.
Aroclor 1260 analyzed on column PEST II on 5/20/01 at 0619 hours had a high average %D at 19.1 %. The %D was less than 25% in both cases, therefore, hits and non-detects are not flagged.

SDG-46546
Aroclor 1260 analyzed on column PEST II on 6/01/01 at 1632 hours had a high average %D at 26.7%. Hits and non-detects for samples run prior to the next in-control standard are flagged J. This includes SB-266CDL, SB-271BDL, and SB-275BDL.

Aroclor 1260 analyzed on column PEST II on 6/02/01 at 0041 hours had a high %D of 23.3. The %D was less than 25%, therefore, hits and non-detects are not flagged.

The following pesticide samples are associated with a continuing calibration percent difference (%D) outside method limits.

SDG-46447
CCV analyzed on column SPB-5 on 6/11/01 at 1522 hours had a high average %D at 16.6 %. The %D was less than 25%, therefore, hits and non-detects are not flagged.

SDG-46484
INDABL3 analyzed on column SPB-5 on 6/04/01 at 1929 hours had a high average %D at 15.8 %. The %D was less than 25%, therefore, hits and non-detects are not flagged.

SDG-46546
INDABL3 analyzed on column SPB-5 on 6/06/01 at 2301 hours had a high average %D at 24.5%. The %D was less than 25% therefore hits and non-detects are not flagged.
INDABL3 analyzed on column SPB-5 on 6/11/01 at 2134 hours had a high average %D at 32.0%. The % D was greater than 25%, therefore, hits and non-detects for samples run prior to the next in-control standard are flagged J. No analytical samples were run after this out of control calibration and, therefore, no data is qualified.
INDABL3 analyzed on column SPB-5 on 6/11/01 at 2155 hours had a high average %D at 26.8%. The % D was greater than 25%, therefore, hits and non-detects for samples run prior to the next in-control standard are flagged J. No analytical samples were run after this out of control calibration and, therefore, no data is qualified.

Inorganic Serial Dilution (ICP)

SDG-46484
The soil serial dilution was outside the control limits of 10% for lead. All associated samples were flagged with an E. This includes SS-256, SS-257, SS-258, SS-261, SB-262B, SB-262C, SB-263B, SB-263C, SB-264B, SB-264C, SB-265B, SB-265C, SB-266B, FD-266B, SB-267B, SB-267C, SB-268B, and SB-274B.

4. METHOD BLANKS

The target analyte bis2-ethylhexylphthalate was detected in the extraction blank for the following sample groups SDG-46447, SDG-46448, and SDG-46484. Associated detected concentrations flagged as "B" include samples SS-200 through SS217, samples SS200DL through SS217DL, SS-220 through SS-228, SS-234, SS-235, SS-243, SS-248, SS-249, SS-220DL through SS-224 DL, SS-226 DL, SS-234 DL, SS-235 DL, SS-249 DL, SS-256 through SS-261, SB-262B, SB262C, SB-263B, SB263C, SB-264B, SB264C, SB-265B, SB265C, SB-266B, FD266B, SB-267B, SB267C, SB-268B, SB-274B, SB-263CDL, SB-267CDL, FD-261DL, SB-265CDL, SB-266BDL, SB-267BDL, SS-268BDL, and FD-266BDL as well as all associated rerun samples.

The target inorganic analyte lead was detected in the calibration blanks for SDG-46447 and SDG46484 at a low concentrations below the Contract Required Detection Limit. As the concentrations were below the CRQL and less than 5x all reported sample concentrations, no action is required.

The target inorganic analyte beryllium was detected in the initial calibration blank for SDG-46546 . All associated hits for beryllium less than 5x the concentration detected in the blank were flagged B, non-detects were not flagged.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The following Arolcor samples have surrogate percent recoveries that exceed the upper limit of the criteria window. Hits are qualified "J" and non-detects are not flagged.

SDG-46447
DBC recoveries for all samples with the exception of extraction blanks and laboratory control spikes were outside of QC limits high on either one or both columns due to interference. All undiluted samples with qualified hits in this case group are flagged J (Samples SS-200 through SS-217). Samples SS-200DL through SS-217DL are not flagged due to sample dilution.

SDG-46448
DBC recoveries for all samples with the exception of extraction blanks and laboratory control spikes were outside of QC limits high on either one or both columns due to interference. All undiluted samples with qualified hits in this case group are flagged J (this includes SS-220, SS-221, SS-222, SS-223, SS-224, SS-225, SS-226, SS-227, SS-228, SS-234, SS-235, SS-243, SS-248, SS-249,). Samples SS-220DL, SS-221DL, SS-222 DL, SS-223 DL, SS-224 DL, SS-226 DL, SS-234 DL, SS-235 DL, SS-249 DL are not flagged due to sample dilution.

SDG-46484
DBC recoveries for many samples were outside of QC limits high on either one or both columns due to interference and/or dilutions. All undiluted samples with qualified hits in this case group are flagged J (this includes SB-265B and SB-274B). The remaining samples outside of QC limits high were diluted and are not flagged due to sample dilution.

SDG-46546
DBC recoveries for many samples were outside of QC limits high on either one or both columns due to interference and/or dilutions. All undiluted samples with qualified hits in this case group are flagged J (this includes SB-266C, SB-271B, and SB-275B). The remaining samples outside of QC limits high were diluted and are not flagged due to sample dilution.

e following pesticide samples have surrogate percent recoveries outside the QC limit of the criteria window.

SDG-46447
All surrogate results, with the exception of the extraction blanks and laboratory control spikes, are considered estimates due to dilutions. Many also had high recovery limits due to interference from high levels of extractable organics. Diluted samples outside QC limits are not flagged due to sample dilution.

SDG-46448
All surrogate results, with the exception of the extraction blanks and laboratory control spikes, are considered estimates due to dilutions. Many also had high recovery limits due to interference from high levels of extractable organics. Diluted samples outside QC limits are not flagged due to sample dilution. Sample OC-FD223 had low recovery on one column for TCX.

SDG-46484
All surrogate results, with the exception of the extraction blanks and laboratory control spikes, are considered estimates due to dilutions. Many also had high recovery limits due to interference from extractable organics. Diluted samples outside QC limits are not flagged due to sample dilution.

SDG-46546
Sample SB-268C had low recovery for TCX on one column at 46% with a lower limit of 52%. SB-268C was flagged UJ. Surrogate results on samples ran at 10-fold dilutions are considered estimates due to the dilutions.

The following Aroclor samples have surrogate percent recoveries outside the lower limit of the criteria window, but greater than 10%.

SDG-46447
TCX recoveries were low for samples SS204 and SS-210 (from 22% to 47%) but greater than 10%. Hits are qualified "J" and non-detects are qualified "UJ".

SDG-46484
TCX recoveries were low on both columns for samples SB-268B (41% to 42%) but greater than 10%. Hits are qualified "J" and non-detects are qualified "UJ".

The following semi-volatile samples have a base/neutral surrogate recovery outside of criteria. Note: acid surrogate recoveries were not considered relevant since the semi-volatile compounds of interest are all base/neutral.

SDG-46447
Several samples that had dilutions greater than 10-fold had 0% recovery of certain surrogates. These were SS-201DL, SS-202DL, and SS-203DL. Hits and non-detects are not flagged due to sample dilution. SS-209 and SS-211 had 2-Flourobiphenyl outside QC limits high at 120% and 116% respectively. Hits and non-detects are not flagged since the protocol allows one surrogate in the base/neutral fraction to be out of control before a reanalysis or qualification is required.

SDG-46448
Several samples that had dilutions greater than 10-fold had two or more base/neutral surrogates outside QC limits. These were SS-223DL, FD-223DL, and SS-225DL. Hits and non-detects are not flagged due to sample dilution. SS-226 had 2-flourobiphenyl and terphenyl-d14 outside QC limits high at 124% and 210%, respectively. Hits and non-detects were flagged J and reanalysis of this sample was completed. The reanalyzed sample had one base/neutral surrogate outside QC limits. This sample was not flagged, since the protocol allows one surrogate in the base/neural fraction to be out of control before a reanalysis or qualification is required. Samples SS-225, SS-227 and SS-248 each had terphenyl-d14 outside recovery limits high. Since the protocol allows one surrogate in the base/neutral fraction to be out of control before a reanalysis or qualification is required, the samples were not flagged.

SDG-46484
One sample that had a dilution greater than 10-fold had two base/neutral surrogates outside QC limits. This was SB-264BRE. Hits and non-detects are not flagged due to sample dilution. The MS and MSD pair of samples, SS-256MS and SS-256MSD, had two base/neutral surrogates outside QC limits. The results from these samples are considered estimates. The following samples each had one base/neutral surrogate outside QC limits: SS-256, SB-267C, SB-267B, SB-266B, SB-265B, SB-263RE, SB-264BRE, SB-265BRE, SB-274B, SB-274BMS, SB-274MSD, SB-263B, SB-264B, SB-264BRE, and SB-274BMSD. Since the protocol allows one surrogate in the base/neutral fraction to be out of control before a reanalysis or qualification is required, the samples were not flagged.

SDG-46546

SB-271B had 2-flourobiphenyl outside QC limits high at 128%. Since the protocol allows one surrogate in the base/neutral fraction to be out of control before a reanalysis or qualification is required

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following Aroclor matrix spike and matrix spike duplicate have percent recovery outside criteria. Hits are qualified "J" and non-detects are qualified "UJ" for the unspiked sample.

SDG-46447
SS-217MS and SS-217MD had high recoveries for Aroclor 1016 at 164% and 191%.

SDG-46448
SS-221MS and SS-221MD had high recoveries for Aroclor 1016 (3.742% and 5.595%) and 1260 (758% and 1.204%).

SDG-46484
SS-256MS and SS-256MD had high recoveries for Aroclor 1016 (1.326% and 638%) and 1260 (187% and 187%).

SDG-46546
SB-266CMS and SB-266CMD had high recoveries for Aroclor 1016 (1.184% and 709%) and 1260 (285% and 220%).

The following pesticides matrix spike/matrix spike duplicate samples have percent recovery outside criteria. Hits are qualified "J" and non-detects are qualified "UJ" for the unspiked sample.

SDG-46447
SS-217MS and SS-217MD had high spike recoveries for Dieldrin at 246% and 223%, respectively.

SDG-46448
SS-221MS and SS-221MD had high spike recoveries for Dieldrin at 335% and 527%, respectively.

SDG-46484
SB-265BMS and SB-265MD spike recoveries for Dieldrin were within QC limits, however, a second spike, SS-256MS and SS-256MD, had low spike recoveries for Dieldrin at 0% and 0%, respectively.

The following semivolatile matrix spike/matrix spike duplicate samples have percent recovery outside criteria. Hits are qualified "J" and non-detects are not qualified for the unspiked sample.

SDG-46447
SS-217MS had 2,4-dinitrotoluene and pyrene outside QC limits high at 112% and 159%, respectively. The MSD had 2,4-dinitrotoluene outside QC limits high at 106%.

SDG-46448
SS-221MS had nine out of eleven matrix spike compounds outside QC limits low with recoveries ranging from 0 to 38%. SS-221MSD had six out of eleven matrix spike compounds outside QC limits low with recoveries ranging from 0 to 39%. The out of QC results are attributed to matrix affects.

SDG-46484
SB-274BMS had seven out of eleven matrix spike compounds outside QC limits high with recoveries ranging from 106 to 356%. SB-274B MSD had pyrene outside QC limits high at 274%. The out of QC results are attributed to matrix affects.

SDG 46546
SB-268CMSD had 2.4-dinitrotoluene outside QC limits high at 94%.

The following metal matrix spike/matrix spike duplicate samples have percent recovery outside of QC limits. Hits and non-detects are not flagged. Hits are qualified "J" and non-detects are qualified "UJ" for the unspiked sample.

SDG-46447
SS-217MS and SS-217MD had lead recoveries outside QC limits (63.7 and 444.7%, respectively).

SDG-46448
SS-221MS and SS-221MD had lead recoveries outside QC limits high 634 and 603%, respectively).

7. FIELD BLANK AND FIELD DUPLICATE

None of the samples in this data set were identified as field blanks.

Field duplicate samples were run at a rate of one per twenty samples for all of the target analytes. A summary of the Relative Percent Difference (RPD), is presented on the attached data sheets entitled Duplicate Soil Sample Analysis. As seen on this sheet, %RPDs varied between the following for each target analyte:

Beryllium	(0% - 82%)
Chromium (hexavalent)	(0% - 31%)
Lead	(0% - 85%)
Benzo(a,h)anthracene	(0% - 15%)
Benzo(a)pyrene	(8% - 11%)
Benzo(b)fluoranthene	(No detects)
Dibenzo(a,h)anthracene	(No detects)
Indeno(1,2,3-cd)pyrene	(18%, one sample only)
Bis(2-ethylhexyl)phthalate	(0% - 58%)
Dieldrin	(8% - 61%)
Aroclor 1248	(16% - 67%)

The % RPD for duplicate soil samples is presented for informational purposes only.

8. INTERNAL STANDARDS

The following Aroclor samples had laboratory control spikes outside of QC limits.

SDG-46448
The laboratory control spike LC0518SA was slightly high for Aroclor 1260 at 136% with an upper limit of 125%. The duplicate Ldo518SA was within QC limits, therefore no corrective action was taken Q

The following Semivolatile samples had laboratory control spikes outside of QC limits:

SDG-46447
The LCSD had 4-nitrophenoloutside QC recovery limits high at 128%. No corrective action was taken since this is an acid and the compounds of interest are all base/neutrals.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that all SVOA, and Pesticide/PCB compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Many of the PNA samples have analyte concentrations below the QAPP specified quantitation limit (CRQL). All results below the CRQL are qualified "J" on Appendix A.

Many of the Beryllium samples have analyte concentrations below the QAPP specified quantitation limit (CRQL). All results below the CRQL are qualified "J" on Appendix A.

Many of the pesticide (Dieldrin) samples have analyte concentrations below the QAPP specified quantitation limit (CRQL). All results below the CRQL are qualified "J".

APPENDIX C

SITE SURVEY DATA

MOORE & BRUGGINK, INC.
Consulting Engineers
2020 Monroe Avenue, N.W.
Grand Rapids, Michigan 49505-6298

Organic Chemicals
Grandville, Michigan
Project #1059
M&B Project #013026.1

GRID ELEVATION CHART

GRID POINT	ELEVATION
AA 10	607.23
AA 13	614.55
AA 14	614.47
AA 15	614.24
BB 12	614.29
BB 13	614.28
BB 14	614.11
BB 15	614.36
CC 12	615.35
CC 13	615.45
CC 14	614.29
CC 15	613.33
I 10	604.01
I 11	604.49
I 12	604.91
I 13	604.87
I 14	607.47
I 15	604.17
I 16	604.28
I 17	604.77
I 18	605.83
I 19	607.25
J 10	603.51
J 11	603.85
J 12	604.47
J 13	604.92
J 14	605.15
J 15	604.08
J 16	604.64
J 17	605.10
J 18	606.02
J 19	607.36
K 10	603.65
K 11	603.88
K 12	604.46
K 13	605.29
K 14	605.24

GRID POINT	ELEVATION
K 15	605.16
K 16	605.44
K 17	605.37
K 18	605.98
K 19	607.65
L 10	604.07
L 11	604.10
L 12	606.13
L 13	607.22
L 14	606.75
L 15	605.36
L 16	605.88
L 17	606.04
L 18	606.23
L 19	608.30
M 10	604.71
M 11	605.97
M 12	607.74
M 13	608.78
M 14	609.05
M 15	607.37
M 16	608.41
M 17	608.63
M 18	607.69
M 19	609.34
N 10	606.14
N 11	608.39
N 12	608.96
N 15	610.68
N 16	610.78
N 17	610.27
N 18	609.79
N 19	611.79
O 10	607.97
O 11	609.49
O 12	609.77
O 14	611.08

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