APPENDIX F

ATTACHMENT A

Attachment A

Pre Excavation - Post Treatment PCB Result

Sample Location ID	Sample Depth (ft bgs)	Depth Interval Zones (VS, VD, WT, SI, SD)	PCB Concentration (mg/kg)	Area
A15	0.25	VS	0.44	Area 1
A16	0.25	VS	0.84	Area 1
B10_1992	0.25	VS	0.19	Area 1
G10	0.25	VS	<0.1	Area 1
JD-01	0.25	VS	0.000242	Area 1
K9	0.25	VS	0.72	Area 1
L14	0.25	VS	0.16	Area 1
P2	0.25	VS	0.51	Area 1
SO-EA-01	0.25	VS	<0.033	Area 1
SO-EA-02	0.25	VS	<0.033	Area 1
SO-EA-03	0.25	VS	<0.033	Area 1
SO-EA-04	0.25	VS	<0.033	Area 1
SO-EA-05	0.25	VS	<0.033	Area 1
SO-EA-06	0.25	VS	<0.033	Area 1
SO-EA-07	0.25	VS	<0.05	Area 1
SO-EA-08	0.25	VS	<0.05	Area 1
SO-EA-09	0.25	VS	<0.05	Area 1
SO-EA-10	0.25	VS	<0.05	Area 1
SO-EA-11	0.25	VS	<0.05	Area 1
SO-EA-12	0.25	VS	<0.05	Area 1
SO-EA-13	0.25	VS	<0.05	Area 1
SO-EA-14	0.25	VS	<0.05	Area 1
SO-EA-15	0.25	VS	<0.05	Area 1
PMP-11	0.5	VS	0.0059	Area 2
PMP-12	0.5	VS	0.06	Area 1
PMP-14	0.5	VS	0.091	Area 2
PMP-29	0.5	VS	<0.072	Area 1
PRA-P3NNW	0.5	VS	0.42	Area 1
PMP-4	0.75	VS	1	Area 2
PMP-7	0.75	VS	0.82	Area 1
PMP-8	0.75	VS	13	Area 2
SO-EA-01	0.75	VS	<0.033	Area 1
SO-EA-02	0.75	VS	<0.033	Area 1
SO-EA-03	0.75	VS	<0.033	Area 1
SO-EA-04	0.75	VS	<0.033	Area 1
SO-EA-05	0.75	VS	<0.033	Area 1
SO-EA-06	0.75	VS	<0.033	Area 1
SO-EA-07	0.75	VS	<0.05	Area 1
SO-EA-08	0.75	VS	<0.05	Area 1
SO-EA-09	0.75	VS	<0.05	Area 1
SO-EA-10	0.75	VS	<0.05	Area 1
SO-EA-11	0.75	VS	<0.05	Area 1
SO-EA-12	0.75	VS	<0.05	Area 1
SO-EA-13	0.75	VS	<0.05	Area 1
SO-EA-14	0.75	VS	<0.05	Area 1
SO-EA-15	0.75	VS	<0.05	Area 1
PMP-24A	1	VS	<0.02	Area 1
PMP-24A1	1	VS	0.17	Area 1
PMP-24A2	1	VS	0.21	Area 1
PMP-24B	1	VS	55	Area 1
PMP-24B1	1	VS	0.92	Area 1
PMP-24C	1	VS	24	Area 1
PMP-24C1	1	VS	8.8	Area 1
PMP-24C2	1	VS	9.3	Area 1
PMP-24D2	1	VS	0.405	Area 1

Attachment A

Pre Excavation - Post Treatment PCB Result

PMP-31	1	VS	0.091	Area 1
PMP-32	1	VS	<0.02	Area 1
PRA-B1	1	VS	<0.011	Area 1
PRA-B10	1	VS	<0.011	Area 1
PRA-B2	1	VS	<0.011	Area 1
PRA-B3	1	VS	<0.0097	Area 1
PRA-B4	1	VS	1.44	Area 1
PRA-B5	1	VS	0.269J	Area 2
PRA-B6	1	VS	2.39	Area 1
PRA-B7	1	VS	<0.0097	Area 1
PRA-B8	1	VS	<0.011	Area 1
PRA-B9	1	VS	<0.011	Area 1
A106	1.25	VS	<0.18	Area 1
DSB-108	1.25	VS	0.13	Area 1
DSB-109	1.25	VS	< 0.071	Area 1
DSB-110	1.25	VS	< 0.071	Area 1
DSB-110A	1.25	VS	> 0.078	Area 1
PMP-24D	1.25	VS	8.8	Area 1
PMP-24D1	1.25	VS	0.4	Area 1
PRA-S70	1.25	VS	0.1	Area 1
PRA-S13	1.25	VS	0.0096	Area 1
PRA-S70	1.25	VS	0.1	Area 1
S2C2-01	1.25	VS	<3.9	Area 1
S2C2-06	1.25	VS	<3.6	Area 1
S2C2-08	1.25	VS	<3.8	Area 1
S2C2-18	1.25	VS	<3.6	Area 1
S2C2-21	1.25	VS	<4.1	Area 1
S2C2-29	1.25	VS	<3.6	Area 1
S2C2-32	1.25	VS	<4	Area 1
S2C2-37	1.25	VS	<4.5	Area 1
S2C2-51	1.25	VS	<3.7	Area 2
S2C2-65	1.25	VS	<3.9	Area 1
S2C2-66	1.25	VS	<2.9	Area 1
S2C2-67	1.25	VS	13.8	Area 1
S2C2-68	1.25	VS	<4	Area 1
S2C2-69	1.25	VS	0.8	Area 1
S2C2-71	1.25	VS	<3.9	Area 1
S2C2-72	1.25	VS	<3.6	Area 1
S2C2-73	1.25	VS	<3.8	Area 1
S2C2-75	1.25	VS	1.9	Area 1
S2C2-76	1.25	VS	<4.1	Area 1
HB-5	1.5	VS	0.176	Area 1
PMP-22	1.5	VS	0.64	Area 2
DSB-101B	1.75	VS	0.14	Area 2
DSB-102B	1.75	VS	<0.071	Area 2
DSB-102C	1.75	VS	< 0.072	Area 2
DSB-102HS1	1.75	VS	< 0.071	Area 2
DSB-102IE	1.75	VS	< 0.069	Area 2
DSB-102IS2	1.75	VS	0.038	Area 2
DSB-104	1.75	VS	< 0.073	Area 2
DSB-105	1.75	VS	<0.072	Area 1
DSB-106	1.75	VS	<0.074	Area 1
DSB-108A 96	1.75	VS	0.243	Area 1
DSB-111	1.75	VS	<0.070	Area 1
DSB-112	1.75	VS	< 0.071	Area 1
DSB-113	1.75	VS	< 0.071	Area 1
HB-4	1.75	VS	1.2	Area 1
PMP-10 / PRA-10W	1.75	VS	<0.0096	Area 1
PMP-18 / PRA-18S	1.75	VS	<0.0096	Area 1

Attachment A

Pre Excavation - Post Treatment PCB Result

PMP-23	1.75	VS	<0.0099	Area 2
PMP-24	1.75	VS	360	Area 1
PMP-25	1.75	VS	<0.02	Area 3
PMP-6 / PRA-6SE	1.75	VS	0.0096	Area 1
PRA-23NW	1.75	VS	<0.01	Area 1
PRA-25E	1.75	VS	0.472	Area 3
PRA-25EE	1.75	VS	0.0098	Area 3
S2C2-63	1.75	VS	<4	Area 1
S2C2-83	1.75	VS	<4.2	Area 2
S2C2-84	1.75	VS	<3.8	Area 2
S2C2-85	1.75	VS	<4.2	Area 3
S2C2-88	1.75	VS	<3.8	Area 3
S2C2-94	1.75	VS	36.7	Area 1
B111	2.25	VS	<0.17	Area 1
D123	2.25	VS	0.06	Area 1
D127	2.25	VS	<0.18	Area 1
S2C2-04	2.25	VS	<3.7	Area 1
PMP-11	2.5	VS	<0.020	Area 2
PMP-12	2.5	VS	0.024	Area 1
PMP-29	2.5	VD	<0.071	Area 1
PMP-8	2.5	VS	0.02	Area 2
PMP-8	2.5	VD	<0.02	Area 2
SB3	2.5	VD	ND	Area 3
DSB-108B	2.75	VD	ND	Area 1
DSB-108C	2.75	VD	ND	Area 1
DSB-109	2.75	VD	< 0.071	Area 1
DSB-110	2.75	VD	< 0.070	Area 1
DSB-110A	2.75	VD	< 0.076	Area 1
PMP-11	2.75	VD	<0.071	Area 2
PMP-12	2.75	VD	<0.07	Area 1
PMP-14	2.75	VD	<0.02	Area 2
PMP-4	2.75	VD	0.073	Area 2
PMP-18	3	VD	<0.2	Area 1
PMP-19	3	VD	0.12	Area 1
PMP-23	3	VD	0.094	Area 2
PMP-26	3	VD	<0.02	Area 1
PMP-28	3	VD	0.078	Area 1
PMP-31	3	VD	<0.02	Area 1
PMP-32	3	VD	<0.021	Area 1
PRA-B1	3	VD	<0.011	Area 1
PRA-B10	3	VD	<0.011	Area 1
PRA-B2	3	VD	<0.0098	Area 1
PRA-B3	3	VD	<0.011	Area 1
PRA-B4	3	VD	<0.011	Area 1
PRA-B5	3	VD	<0.011	Area 2
PRA-B6	3	VD	0.18	Area 1
PRA-B7	3	VD	<0.0097	Area 1
PRA-B8	3	VD	<0.010	Area 1
PRA-B9	3	VD	<0.0097	Area 1
A105	3.25	VD	<0.17	Area 1
A108	3.25	VD	0.32	Area 1
A109	3.25	VD	<0.2	Area 1
A118	3.25	VD	0.04	Area 1
C114	3.25	VD	10.09	Area 1
C115	3.25	VD	0.4	Area 1
C116	3.25	VD	0.21	Area 1
C117	3.25	VD	0.08	Area 1
D119	3.25	VD	<0.033	Area 1
D120	3.25	VD	0.1	Area 1

Attachment A

Pre Excavation - Post Treatment PCB Result

D128	3.25	VD	<0.033	Area 1
E129	3.25	VD	0.048	Area 1
E130	3.25	VD	0.14	Area 1
E131	3.25	VD	0.29	Area 1
S2C2-51	3.25	VD	<4	Area 1
S2C2-91	3.25	VD	<4.1	Area 3
S2C2-92	3.25	VD	<3.8	Area 3
S2C2-93	3.25	VD	<4.5	Area 1
PMP-1	3.5	VD	<0.070	Area 1
PMP-10	3.5	VD	0.055J	Area 1
PMP-15	3.5	VD	<0.02	Area 1
PMP-16	3.5	VD	<0.02	Area 1
PMP-17	3.5	VD	<0.020	Area 1
PMP-22	3.5	VD	<0.02	Area 2
PMP-27	3.5	VD	<0.02	Area 1
PMP-3	3.5	VD	0.044	Area 1
PMP-6	3.5	VD	0.19	Area 1
PMP-9	3.5	VD	0.48	Area 1
DSB-101A	3.75	VD	ND	Area 2
DSB-101B	3.75	VD	0.14	Area 2
DSB-102C	3.75	VD	<0.070	Area 2
DSB-102E	3.75	VD	0.2	Area 1
DSB-102F	3.75	VD	0.011	Area 1
DSB-102G	3.75	VD	ND	Area 2
DSB-102H	3.75	VD	ND	Area 2
DSB-102HS	3.75	VD	0.062	Area 2
DSB-102IE	3.75	VD	0.031	Area 2
DSB-104	3.75	VD	<0.070	Area 2
DSB-105	3.75	VD	<0.070	Area 1
DSB-106	3.75	VD	<0.070	Area 1
DSB-107	3.75	VD	<0.070	Area 1
DSB-111	3.75	VD	<0.69	Area 1
DSB-112	3.75	VD	<0.070	Area 1
DSB-113	3.75	VD	<0.070	Area 1
PMP-20	3.75	VD	<0.02	Area 1
PMP-20 / PRA-20N	3.75	VD	<0.0097	Area 1
PMP-21	3.75	VD	<0.02	Area 3
PMP-25	3.75	VD	<0.02	Area 3
PMP-5	3.75	VD	3.6	Area 1
PMP-7	3.75	VD	14.1	Area 1
PRA-18NE	3.75	VD	0.1	Area 1
PRA-18SE	3.75	VD	<0.0096	Area 1
PRA-25E	3.75	VD	3.68	Area 3
PRA-25EE	3.75	VD	0.0097	Area 3
PRA-2NW	3.75	VD	4.9	Area 1
PRA-5SE	3.75	VD	3.6	Area 1
PRA-P25E1	3.75	VD	<0.0099	Area 2
PRA-P25E2	3.75	VD	0.85	Area 2
PRA-P25E3	3.75	VD	0.13	Area 2
A102	4.25	VD	<0.18	Area 1
A106	4.25	VD	<0.18	Area 1
PMP-13	4.25	VD	<0.0098	Area 1
PRA-P7N	4.25	VD	0.0095	Area 1
PRA-P7S	4.25	VD	7.4	Area 1
PRA-P7W	4.25	VD	0.11	Area 1
S2C2-64	4.25	VD	<4	Area 1
S2C2-68	4.25	VD	<3.9	Area 1
S2C2-69	4.25	VD	<4	Area 1
S2C2-70	4.25	VD	0.76	Area 1

Attachment A

Pre Excavation - Post Treatment PCB Result

S2C2-73	4.25	VD	<3.8	Area 1
S2C2-76	4.25	VD	<3.6	Area 1
PMP-24A	4.5	VD	<0.02	Area 1
PMP-24A1	4.5	VD	0.021	Area 1
PMP-24A2	4.5	VD	<0.02	Area 1
PMP-24B	4.5	VD	69	Area 1
PMP-24B1	4.5	VD	<0.02	Area 1
PMP-24C	4.5	VD	0.676	Area 1
PMP-24C1	4.5	VD	13	Area 1
PMP-24C2	4.5	VD	<0.02	Area 1
PMP-24D	4.5	VD	9.8	Area 1
PMP-24D1	4.5	VD	3.05	Area 1
PMP-24D2	4.5	VD	<0.02	Area 1
S2C2-63	4.75	VD	<4.3	Area 1
A101	5.25	VD	2	Area 1
DSB-102ID1	5.25	VD	0.025	Area 2
PMP-24 / PRA-P24	5.25	VD	1500	Area 1
PMP-7	5.25	VD	6.8	Area 1
S2C2-38	5.75	VD	42.1	Area 1
D119	6.25	WT	0.28	Area 1
D121	6.25	WT	0.16	Area 1
PRA-C116W	6.25	WT	57	Area 1
PMP-23	6.5	WT	0.021	Area 2
PMP-24A	6.5	WT	0.8	Area 1
PMP-24A1	6.5	WT	47	Area 1
PMP-24A2	6.5	WT	3.86	Area 1
PMP-24B	6.5	WT	250	Area 1
PMP-24B1	6.5	WT	<0.021	Area 1
PMP-24C	6.5	WT	0.16	Area 1
PMP-24C1	6.5	WT	290	Area 1
PMP-24C2	6.5	WT	0.094	Area 1
PMP-24D	6.5	WT	810	Area 1
PMP-24D1	6.5	WT	830	Area 1
PMP-24D2	6.5	WT	3.6	Area 1
PMP-31	6.5	WT	<0.021	Area 1
PMP-32	6.5	WT	<0.022	Area 1
PMP-11	7	WT	0.05	Area 2
PMP-12	7	WT	0.32	Area 1
PMP-13	7	WT	130	Area 1
PMP-14	7	WT	<0.02	Area 2
PMP-22	7	WT	<0.021	Area 2
PMP-29	7	WT	<0.08	Area 1
PMP-4	7	WT	0.099	Area 2
PMP-8	7	WT	0.02	Area 2
A106	7.25	WT	31.8	Area 1
DSB-102C	7.25	WT	< 0.071	Area 2
DSB-102E	7.25	WT	0.193	Area 1
DSB-102F	7.25	WT	8.1	Area 1
DSB-104	7.25	WT	<0.070	Area 2
DSB-111	7.25	WT	0.13	Area 1
DSB-112	7.25	WT	<0.070	Area 1
DSB-113	7.25	WT	< 0.071	Area 1
E131	7.25	WT	33	Area 1
PMP-24	7.25	WT	380	Area 1

Attachment A

Pre Excavation - Post Treatment PCB Result

S2C2-21	7.25	WT	<3.9	Area 1
S2C2-58	7.25	WT	<5	Area 1
TP-3	7.25	WT	0.82	Area 1
B15	7.5	WT	12	Area 1
PMP-34	7.5	WT	0.16	Area 1
PRA-B1	7.5	WT	<0.010	Area 1
PRA-B2	7.5	WT	<0.011	Area 1
PRA-B6	7.5	WT	14	Area 1
PMP-10	7.75	WT	8.8	Area 1
PMP-15	7.75	WT	120	Area 1
PRA-P33	7.75	WT	0.16	Area 1
S2C2-18	7.75	WT	<3.9	Area 1
S2C2-56	7.75	WT	<5	Area 1
S2C2-82	7.75	WT	<4.3	Area 2
S2C2-88	7.75	WT	<3.8	Area 3
D5	7.85	WT	0.38	Area 1
D6	7.95	WT	0.086	Area 1
PMP-1	8	WT	<0.076	Area 1
PMP-3	8	WT	0.56	Area 1
PRA-B10	8	WT	<0.011	Area 1
PRA-B3	8	WT	<0.011	Area 1
PRA-B4	8	WT	2.3	Area 1
PRA-B5	8	WT	<0.011	Area 2
PRA-B7	8	WT	52.3	Area 1
PRA-B8	8	WT	59	Area 1
PRA-B9	8	WT	15.2	Area 1
D1	8.25	WT	3.3	Area 1
PMP-16	8.25	WT	22.9	Area 1
PMP-17	8.25	WT	68	Area 1
PMP-18	8.25	WT	52	Area 1
PMP-19	8.25	WT	9.6	Area 1
PMP-2	8.25	WT	241	Area 1
PMP-20	8.25	WT	44	Area 1
PMP-25	8.25	WT	0.085	Area 3
PMP-26	8.25	WT	17	Area 1
PMP-5	8.25	WT	56.9	Area 1
PMP-6	8.25	WT	83	Area 1
PMP-7	8.25	WT	130	Area 1
PMP-9	8.25	WT	130	Area 1
PRA-21N	8.25	WT	0.01	Area 3
PRA-25E	8.25	WT	0.12	Area 3
PRA-25E1	8.25	WT	1.54	Area 3
PRA-25S	8.25	WT	0.423	Area 3
PRA-P21	8.25	WT	< 0.011	Area 3
PRA-P21SE	8.25	WT	< 0.011	Area 3
PRA-P25E2	8.25	WT	< 0.01	Area 2
PRA-P25E3	8.25	WT	3.31	Area 2
PRA-P25E1	8.25	WT	1.54	Area 2
S2C2-06	8.25	WT	<4.1	Area 1
S2C2-08	8.25	WT	<3.9	Area 1
S2C2-85	8.25	WT	<4.6	Area 3
S2C2-90	8.25	WT	<4.6	Aera 2
S2C2-91	8.25	WT	<4.7	Area 3
S2C2-92	8.25	WT	<4.4	Area 3
S2C2-93	8.25	WT	<4.8	Area 1
TP-7	8.25	WT	10.76	Area 1

Total PCB Results	342
Highest	1500

UCL Statistics for Data Sets with Non-Detects

Pre Excavatioin Post Treatment PCB ProUCL Result

User Selected Options	
Date/Time of Computation	ProUCL 5.14/12/2019 4:33:20 PM
From File	WorkSheet_b.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

PCB Result

General Statistics			
Total Number of Observations	339	Number of Distinct Observations	123
		Number of Missing Observations	3
Number of Detects	154	Number of Non-Detects	185
Number of Distinct Detects	122	Number of Distinct Non-Detects	1
Minimum Detect	2.4200E-4	Minimum Non-Detect	0
Maximum Detect	1500	Maximum Non-Detect	0
Variance Detects	25687	Percent Non-Detects	54.57%
Mean Detects	40.8	SD Detects	160.3
Median Detects	0.6	CV Detects	3.928
Skewness Detects	6.68	Kurtosis Detects	51.57

Normal GOF Test on Detects Only		
Shapiro Wilk Test Statistic	0.295	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.4	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0718	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	18.54	KM Standard Error of Mean	5.971
KM SD	109.6	95% KM (BCA) UCL	29.34
95% KM (t) UCL	28.38	95% KM (Percentile Bootstrap) UCL	29.35
95% KM (z) UCL	28.36	95% KM Bootstrap t UCL	38.51
90% KM Chebyshev UCL	36.45	95% KM Chebyshev UCL	44.56
97.5% KM Chebyshev UCL	55.82	99% KM Chebyshev UCL	77.94

Gamma GOF Tests on Detected Observations Only		
A-D Test Statistic	10.99	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.919	Detected Data Not Gamma Distributed at 5% Significance Leve
K-S Test Statistic	0.202	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0839	Detected Data Not Gamma Distributed at 5% Significance Leve
Detected Data Not Gamma Distributed at 5% Significance Level		

Attachment A

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.2	k star (bias corrected MLE)	0.2
Theta hat (MLE)	204	Theta star (bias corrected MLE)	203.6
nu hat (MLE)	61.6	nu star (bias corrected)	61.74
Mean (detects)	40.8		

Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	18.54	SD (KM)	109.6
Variance (KM)	12006	SE of Mean (KM)	5.971
k hat (KM)	0.0286	k star (KM)	0.0303
nu hat (KM)	19.4	nu star (KM)	20.56
theta hat (KM)	647.7	theta star (KM)	611.1
80% gamma percentile (KM)	0.225	90% gamma percentile (KM)	11.1
95% gamma percentile (KM)	72.5	99% gamma percentile (KM)	477.2

Gamma Kaplan-Meier (KM) Statistics			
		Adjusted Level of Significance (β)	0.0493
Approximate Chi Square Value (20.56, α)	11.27	Adjusted Chi Square Value (20.56, β)	11.24
95% Gamma Approximate KM-UCL (use when n>=50)	33.83	95% Gamma Adjusted KM-UCL (use when n<50)	33.92

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	N/A	KM Geo Mean	N/A
KM SD (logged)	N/A	95% Critical H Value (KM-Log)	N/A
KM Standard Error of Mean (logged)	N/A	95% H-UCL (KM -Log)	N/A
KM SD (logged)	N/A	95% Critical H Value (KM-Log)	N/A
KM Standard Error of Mean (logged)	N/A		

DL/2 Statistics			
Mean in Original Scale	18.54	SD in Original Scale	109.7
95% t UCL (Assumes normality)	28.37		

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use			
99% KM (Chebyshev) UCL	77.94		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Attachment A

Pre Excavatioin Post Treatment Toxicity Calculation

	Aroclor % Onsite	EPC (mg/kg-day)	Industrial RSL for PCB	Intake (mg/kg-day)	Oral Risk	Inhalation Risk
Aroclor 1016	-	-	27	-	-	-
Aroclor 1221	-	-	0.83	-	-	-
Aroclor 1232	-	-	0.72	-	-	-
Aroclor 1242	95.2	**74.19888**	0.95	5672.003425	11344.00685	3.233041952
Aroclor 1248	0.4	0.31176	0.95	23.83194716	47.66389432	0.01358421
Aroclor 1254	-	-	0.97	-	-	-
Aroclor 1260	4.1	**3.19554**	0.99	244.2774584	488.5549168	0.139238151
Aroclor 5460	0.33	**0.257202**	0.044	19.66135641	39.32271282	0.011206973
Total EPC		**77.963382**				

EPC-Pre Remediiation	77.94	
Ingestion Rate (IR)	100	mg/day
Exposuure Duration (ED)	250	days/ye
Exposure Frequency (EF)	6250	250 days/yr for 25 yrs
Body Weight (BW)	80	kg
Averaging Time (AT)	25550	days

EPA Oral High Risk toxicity **2** /(mg/kg-day)

EPA Inhalation high risk toxicity **0.00057** /(ug/m3)

Attachment A

Post Excavation- Post Treatment PCB Result

Sample Location ID	Sample Depth (ft bgs)	Depth Interval Zones (VS, VD, WT, SI, SD)	PCB Concentration (mg/kg)	Area
A15	0.25	VS	0.44	Area 1
A16	0.25	VS	0.84	Area 1
B10_1992	0.25	VS	0.19	Area 1
G10	0.25	VS	<0.1	Area 1
JD-01	0.25	VS	0.000242	Area 1
K9	0.25	VS	0.72	Area 1
L14	0.25	VS	0.16	Area 1
P2	0.25	VS	0.51	Area 1
SO-EA-01	0.25	VS	<0.033	Area 1
SO-EA-02	0.25	VS	<0.033	Area 1
SO-EA-03	0.25	VS	<0.033	Area 1
SO-EA-04	0.25	VS	<0.033	Area 1
SO-EA-05	0.25	VS	<0.033	Area 1
SO-EA-06	0.25	VS	<0.033	Area 1
SO-EA-07	0.25	VS	<0.05	Area 1
SO-EA-08	0.25	VS	<0.05	Area 1
SO-EA-09	0.25	VS	<0.05	Area 1
SO-EA-10	0.25	VS	<0.05	Area 1
SO-EA-11	0.25	VS	<0.05	Area 1
SO-EA-12	0.25	VS	<0.05	Area 1
SO-EA-13	0.25	VS	<0.05	Area 1
SO-EA-14	0.25	VS	<0.05	Area 1
SO-EA-15	0.25	VS	<0.05	Area 1
PMP-11	0.5	VS	0.0059	Area 2
PMP-12	0.5	VS	0.06	Area 1
PMP-14	0.5	VS	0.091	Area 2
PMP-29	0.5	VS	<0.072	Area 1
PRA-P3NNW	0.5	VS	0.42	Area 1
PMP-4	0.75	VS	1	Area 2
PMP-7	0.75	VS	0.82	Area 1
PMP-8	0.75	VS	13	Area 2
SO-EA-01	0.75	VS	<0.033	Area 1
SO-EA-02	0.75	VS	<0.033	Area 1
SO-EA-03	0.75	VS	<0.033	Area 1
SO-EA-04	0.75	VS	<0.033	Area 1
SO-EA-05	0.75	VS	<0.033	Area 1
SO-EA-06	0.75	VS	<0.033	Area 1
SO-EA-07	0.75	VS	<0.05	Area 1
SO-EA-08	0.75	VS	<0.05	Area 1
SO-EA-09	0.75	VS	<0.05	Area 1
SO-EA-10	0.75	VS	<0.05	Area 1
SO-EA-11	0.75	VS	<0.05	Area 1
SO-EA-12	0.75	VS	<0.05	Area 1
SO-EA-13	0.75	VS	<0.05	Area 1
SO-EA-14	0.75	VS	<0.05	Area 1
SO-EA-15	0.75	VS	<0.05	Area 1
PMP-24A	1	VS	<0.02	Area 1
PMP-24A1	1	VS	0.17	Area 1

Attachment A

Post Excavation- Post Treatment PCB Result

PMP-24A2	1	VS	0.21	Area 1
PMP-24B	1	VS	55	Area 1
PMP-24B1	1	VS	0.92	Area 1
PMP-24C	1	VS	24	Area 1
PMP-24C1	1	VS	8.8	Area 1
PMP-24C2	1	VS	9.3	Area 1
PMP-24D2	1	VS	0.405	Area 1
PMP-31	1	VS	0.091	Area 1
PMP-32	1	VS	<0.02	Area 1
PRA-B1	1	VS	<0.011	Area 1
PRA-B10	1	VS	<0.011	Area 1
PRA-B2	1	VS	<0.011	Area 1
PRA-B3	1	VS	<0.0097	Area 1
PRA-B4	1	VS	1.44	Area 1
PRA-B5	1	VS	0.269J	Area 2
PRA-B6	1	VS	2.39	Area 1
PRA-B7	1	VS	<0.0097	Area 1
PRA-B8	1	VS	<0.011	Area 1
PRA-B9	1	VS	<0.011	Area 1
A106	1.25	VS	<0.18	Area 1
DSB-108	1.25	VS	0.13	Area 1
DSB-109	1.25	VS	< 0.071	Area 1
DSB-110	1.25	VS	< 0.071	Area 1
DSB-110A	1.25	VS	> 0.078	Area 1
PRA-S70	1.25	VS	0.1	Area 1
PRA-S13	1.25	VS	0.0096	Area 1
PRA-S70	1.25	VS	0.1	Area 1
S2C2-01	1.25	VS	<3.9	Area 1
S2C2-06	1.25	VS	<3.6	Area 1
S2C2-08	1.25	VS	<3.8	Area 1
S2C2-18	1.25	VS	<3.6	Area 1
S2C2-21	1.25	VS	<4.1	Area 1
S2C2-29	1.25	VS	<3.6	Area 1
S2C2-32	1.25	VS	<4	Area 1
S2C2-37	1.25	VS	<4.5	Area 1
S2C2-51	1.25	VS	<3.7	Area 2
S2C2-65	1.25	VS	<3.9	Area 1
S2C2-66	1.25	VS	<2.9	Area 1
S2C2-67	1.25	VS	13.8	Area 1
S2C2-68	1.25	VS	<4	Area 1
S2C2-69	1.25	VS	0.8	Area 1
S2C2-71	1.25	VS	<3.9	Area 1
S2C2-72	1.25	VS	<3.6	Area 1
S2C2-73	1.25	VS	<3.8	Area 1
S2C2-75	1.25	VS	1.9	Area 1
S2C2-76	1.25	VS	<4.1	Area 1
HB-5	1.5	VS	0.176	Area 1
PMP-22	1.5	VS	0.64	Area 2
DSB-101B	1.75	VS	0.14	Area 2
DSB-102B	1.75	VS	<0.071	Area 2
DSB-102C	1.75	VS	< 0.072	Area 2
DSB-102HS1	1.75	VS	< 0.071	Area 2

Attachment A

Post Excavation- Post Treatment PCB Result

DSB-102IE	1.75	VS	< 0.069	Area 2
DSB-102IS2	1.75	VS	0.038	Area 2
DSB-104	1.75	VS	< 0.073	Area 2
DSB-105	1.75	VS	<0.072	Area 1
DSB-106	1.75	VS	<0.074	Area 1
DSB-108A 96	1.75	VS	0.243	Area 1
DSB-111	1.75	VS	<0.070	Area 1
DSB-112	1.75	VS	< 0.071	Area 1
DSB-113	1.75	VS	< 0.071	Area 1
HB-4	1.75	VS	1.2	Area 1
PMP-10 / PRA-10W	1.75	VS	<0.0096	Area 1
PMP-18 / PRA-18S	1.75	VS	<0.0096	Area 1
PMP-23	1.75	VS	<0.0099	Area 2
PMP-25	1.75	VS	<0.02	Area 3
PMP-6 / PRA-6SE	1.75	VS	0.0096	Area 1
PRA-23NW	1.75	VS	<0.01	Area 1
PRA-25E	1.75	VS	0.472	Area 3
PRA-25EE	1.75	VS	0.0098	Area 3
S2C2-63	1.75	VS	<4	Area 1
S2C2-83	1.75	VS	<4.2	Area 2
S2C2-84	1.75	VS	<3.8	Area 2
S2C2-85	1.75	VS	<4.2	Area 3
S2C2-88	1.75	VS	<3.8	Area 3
S2C2-94	1.75	VS	36.7	Area 1
B111	2.25	VS	<0.17	Area 1
D123	2.25	VS	0.06	Area 1
D127	2.25	VS	<0.18	Area 1
S2C2-04	2.25	VS	<3.7	Area 1
PMP-11	2.5	VS	<0.020	Area 2
PMP-12	2.5	VS	0.024	Area 1
PMP-29	2.5	VD	<0.071	Area 1
PMP-8	2.5	VS	0.02	Area 2
PMP-8	2.5	VD	<0.02	Area 2
SB3	2.5	VD	ND	Area 3
DSB-108B	2.75	VD	ND	Area 1
DSB-108C	2.75	VD	ND	Area 1
DSB-109	2.75	VD	< 0.071	Area 1
DSB-110	2.75	VD	< 0.070	Area 1
DSB-110A	2.75	VD	< 0.076	Area 1
PMP-11	2.75	VD	<0.071	Area 2
PMP-12	2.75	VD	<0.07	Area 1
PMP-14	2.75	VD	<0.02	Area 2
PMP-4	2.75	VD	0.073	Area 2
PMP-18	3	VD	<0.2	Area 1
PMP-19	3	VD	0.12	Area 1
PMP-23	3	VD	0.094	Area 2
PMP-26	3	VD	<0.02	Area 1
PMP-28	3	VD	0.078	Area 1
PMP-31	3	VD	<0.02	Area 1
PMP-32	3	VD	<0.021	Area 1
PRA-B1	3	VD	<0.011	Area 1
PRA-B10	3	VD	<0.011	Area 1

Attachment A

Post Excavation- Post Treatment PCB Result

PRA-B2	3	VD	<0.0098	Area 1
PRA-B3	3	VD	<0.011	Area 1
PRA-B4	3	VD	<0.011	Area 1
PRA-B5	3	VD	<0.011	Area 2
PRA-B6	3	VD	0.18	Area 1
PRA-B7	3	VD	<0.0097	Area 1
PRA-B8	3	VD	<0.010	Area 1
PRA-B9	3	VD	<0.0097	Area 1
A105	3.25	VD	<0.17	Area 1
A108	3.25	VD	0.32	Area 1
A109	3.25	VD	<0.2	Area 1
A118	3.25	VD	0.04	Area 1
C114	3.25	VD	10.09	Area 1
C115	3.25	VD	0.4	Area 1
C116	3.25	VD	0.21	Area 1
C117	3.25	VD	0.08	Area 1
D119	3.25	VD	<0.033	Area 1
D120	3.25	VD	0.1	Area 1
D128	3.25	VD	<0.033	Area 1
E129	3.25	VD	0.048	Area 1
E130	3.25	VD	0.14	Area 1
E131	3.25	VD	0.29	Area 1
S2C2-51	3.25	VD	<4	Area 1
S2C2-91	3.25	VD	<4.1	Area 3
S2C2-92	3.25	VD	<3.8	Area 3
S2C2-93	3.25	VD	<4.5	Area 1
PMP-1	3.5	VD	<0.070	Area 1
PMP-10	3.5	VD	0.055J	Area 1
PMP-15	3.5	VD	<0.02	Area 1
PMP-16	3.5	VD	<0.02	Area 1
PMP-17	3.5	VD	<0.020	Area 1
PMP-22	3.5	VD	<0.02	Area 2
PMP-27	3.5	VD	<0.02	Area 1
PMP-3	3.5	VD	0.044	Area 1
PMP-6	3.5	VD	0.19	Area 1
PMP-9	3.5	VD	0.48	Area 1
DSB-101A	3.75	VD	ND	Area 2
DSB-101B	3.75	VD	0.14	Area 2
DSB-102C	3.75	VD	<0.070	Area 2
DSB-102E	3.75	VD	0.2	Area 1
DSB-102F	3.75	VD	0.011	Area 1
DSB-102G	3.75	VD	ND	Area 2
DSB-102H	3.75	VD	ND	Area 2
DSB-102HS	3.75	VD	0.062	Area 2
DSB-102IE	3.75	VD	0.031	Area 2
DSB-104	3.75	VD	<0.070	Area 2
DSB-105	3.75	VD	<0.070	Area 1
DSB-106	3.75	VD	<0.070	Area 1
DSB-107	3.75	VD	<0.070	Area 1
DSB-111	3.75	VD	<0.69	Area 1
DSB-112	3.75	VD	<0.070	Area 1
DSB-113	3.75	VD	<0.070	Area 1

Attachment A

Post Excavation- Post Treatment PCB Result

PMP-20	3.75	VD	<0.02	Area 1
PMP-20 / PRA-20N	3.75	VD	<0.0097	Area 1
PMP-21	3.75	VD	<0.02	Area 3
PMP-25	3.75	VD	<0.02	Area 3
PMP-5	3.75	VD	3.6	Area 1
PMP-7	3.75	VD	14.1	Area 1
PRA-18NE	3.75	VD	0.1	Area 1
PRA-18SE	3.75	VD	<0.0096	Area 1
PRA-25E	3.75	VD	3.68	Area 3
PRA-25EE	3.75	VD	0.0097	Area 3
PRA-2NW	3.75	VD	4.9	Area 1
PRA-5SE	3.75	VD	3.6	Area 1
PRA-P25E1	3.75	VD	<0.0099	Area 2
PRA-P25E2	3.75	VD	0.85	Area 2
PRA-P25E3	3.75	VD	0.13	Area 2
A102	4.25	VD	<0.18	Area 1
A106	4.25	VD	<0.18	Area 1
PMP-13	4.25	VD	<0.0098	Area 1
PRA-P7N	4.25	VD	0.0095	Area 1
PRA-P7S	4.25	VD	7.4	Area 1
PRA-P7W	4.25	VD	0.11	Area 1
S2C2-64	4.25	VD	<4	Area 1
S2C2-68	4.25	VD	<3.9	Area 1
S2C2-69	4.25	VD	<4	Area 1
S2C2-70	4.25	VD	0.76	Area 1
S2C2-73	4.25	VD	<3.8	Area 1
S2C2-76	4.25	VD	<3.6	Area 1
PMP-24A	4.5	VD	<0.02	Area 1
PMP-24A1	4.5	VD	0.021	Area 1
PMP-24A2	4.5	VD	<0.02	Area 1
PMP-24B	4.5	VD	69	Area 1
PMP-24B1	4.5	VD	<0.02	Area 1
PMP-24C	4.5	VD	0.676	Area 1
PMP-24C1	4.5	VD	13	Area 1
PMP-24C2	4.5	VD	<0.02	Area 1
PMP-24D2	4.5	VD	<0.02	Area 1
S2C2-63	4.75	VD	<4.3	Area 1
A101	5.25	VD	2	Area 1
DSB-102ID1	5.25	VD	0.025	Area 2
PMP-7	5.25	VD	6.8	Area 1
S2C2-38	5.75	VD	42.1	Area 1
D119	6.25	WT	0.28	Area 1
D121	6.25	WT	0.16	Area 1
PRA-C116W	6.25	WT	57	Area 1
PMP-23	6.5	WT	0.021	Area 2
PMP-24A	6.5	WT	0.8	Area 1
PMP-24A1	6.5	WT	47	Area 1
PMP-24A2	6.5	WT	3.86	Area 1
PMP-24B	6.5	WT	250	Area 1
PMP-24B1	6.5	WT	<0.021	Area 1
PMP-24C	6.5	WT	0.16	Area 1
PMP-24C1	6.5	WT	290	Area 1

Attachment A

Post Excavation- Post Treatment PCB Result

PMP-24C2	6.5	WT	0.094	Area 1
PMP-24D2	6.5	WT	3.6	Area 1
PMP-31	6.5	WT	<0.021	Area 1
PMP-32	6.5	WT	<0.022	Area 1
PMP-11	7	WT	0.05	Area 2
PMP-12	7	WT	0.32	Area 1
PMP-13	7	WT	130	Area 1
PMP-14	7	WT	<0.02	Area 2
PMP-22	7	WT	<0.021	Area 2
PMP-29	7	WT	<0.08	Area 1
PMP-4	7	WT	0.099	Area 2
PMP-8	7	WT	0.02	Area 2
A106	7.25	WT	31.8	Area 1
DSB-102C	7.25	WT	< 0.071	Area 2
DSB-102E	7.25	WT	0.193	Area 1
DSB-102F	7.25	WT	8.1	Area 1
DSB-104	7.25	WT	<0.070	Area 2
DSB-111	7.25	WT	0.13	Area 1
DSB-112	7.25	WT	<0.070	Area 1
DSB-113	7.25	WT	< 0.071	Area 1
E131	7.25	WT	33	Area 1
S2C2-21	7.25	WT	<3.9	Area 1
S2C2-58	7.25	WT	<5	Area 1
TP-3	7.25	WT	0.82	Area 1
B15	7.5	WT	12	Area 1
PMP-34	7.5	WT	0.16	Area 1
PRA-B1	7.5	WT	<0.010	Area 1
PRA-B2	7.5	WT	<0.011	Area 1
PRA-B6	7.5	WT	14	Area 1
PMP-10	7.75	WT	8.8	Area 1
PMP-15	7.75	WT	120	Area 1
PRA-P33	7.75	WT	0.16	Area 1
S2C2-18	7.75	WT	<3.9	Area 1
S2C2-56	7.75	WT	<5	Area 1
S2C2-82	7.75	WT	<4.3	Area 2
S2C2-88	7.75	WT	<3.8	Area 3
D5	7.85	WT	0.38	Area 1
D6	7.95	WT	0.086	Area 1
PMP-1	8	WT	<0.076	Area 1
PMP-3	8	WT	0.56	Area 1
PRA-B10	8	WT	<0.011	Area 1
PRA-B3	8	WT	<0.011	Area 1
PRA-B4	8	WT	2.3	Area 1
PRA-B5	8	WT	<0.011	Area 2
PRA-B7	8	WT	52.3	Area 1
PRA-B8	8	WT	59	Area 1
PRA-B9	8	WT	15.2	Area 1
D1	8.25	WT	3.3	Area 1
PMP-16	8.25	WT	22.9	Area 1
PMP-17	8.25	WT	68	Area 1
PMP-18	8.25	WT	52	Area 1
PMP-19	8.25	WT	9.6	Area 1

Attachment A

Post Excavation- Post Treatment PCB Result

PMP-2	8.25	WT	241	Area 1
PMP-20	8.25	WT	44	Area 1
PMP-25	8.25	WT	0.085	Area 3
PMP-26	8.25	WT	17	Area 1
PMP-5	8.25	WT	56.9	Area 1
PMP-6	8.25	WT	83	Area 1
PMP-7	8.25	WT	130	Area 1
PMP-9	8.25	WT	130	Area 1
PRA-21N	8.25	WT	0.01	Area 3
PRA-25E	8.25	WT	0.12	Area 3
PRA-25E1	8.25	WT	1.54	Area 3
PRA-25S	8.25	WT	0.423	Area 3
PRA-P21	8.25	WT	< 0.011	Area 3
PRA-P21SE	8.25	WT	< 0.011	Area 3
PRA-P25E2	8.25	WT	< 0.01	Area 2
PRA-P25E3	8.25	WT	3.31	Area 2
PRA-P25E1	8.25	WT	1.54	Area 2
S2C2-06	8.25	WT	<4.1	Area 1
S2C2-08	8.25	WT	<3.9	Area 1
S2C2-85	8.25	WT	<4.6	Area 3
S2C2-90	8.25	WT	<4.6	Aera 2
S2C2-91	8.25	WT	<4.7	Area 3
S2C2-92	8.25	WT	<4.4	Area 3
S2C2-93	8.25	WT	<4.8	Area 1
TP-7	8.25	WT	10.76	Area 1

Total Number of Data	333
Total PCB Results	2339.992342
Highest	290
Min	0.000242

UCL Statistics for Data Sets with Non-Detects
Post Excavation PCB Result- ProUCL Result

User Selected Options	
Date/Time of Computation	ProUCL 5.14/12/2019 11:26:40 AM
From File	WorkSheet_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

PCB Result

General Statistics

Total Number of Observations	330	Number of Distinct Observations	116
		Number of Missing Observations	3
Number of Detects	145	Number of Non-Detects	185
Number of Distinct Detects	115	Number of Distinct Non-Detects	1
Minimum Detect	2.4200E-4	Minimum Non-Detect	0
Maximum Detect	290	Maximum Non-Detect	0
Variance Detects	1933	Percent Non-Detects	56.06%
Mean Detects	16.43	SD Detects	43.96
Median Detects	0.472	CV Detects	2.676
Skewness Detects	4.198	Kurtosis Detects	19.8

Normal GOF Test on Detects Only		
Shapiro Wilk Test Statistic	0.436	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.354	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.074	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	7.218	KM Standard Error of Mean	1.666
KM SD	30.16	95% KM (BCA) UCL	10.24
95% KM (t) UCL	9.966	95% KM (Percentile Bootstrap) UCL	10.16
95% KM (z) UCL	9.958	95% KM Bootstrap t UCL	10.89
90% KM Chebyshev UCL	12.22	95% KM Chebyshev UCL	14.48
97.5% KM Chebyshev UCL	17.62	99% KM Chebyshev UCL	23.8

Gamma GOF Tests on Detected Observations Only		
A-D Test Statistic	8.199	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.9	tected Data Not Gamma Distributed at 5% Significance Le
K-S Test Statistic	0.206	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.0858	tected Data Not Gamma Distributed at 5% Significance Le
Detected Data Not Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.237	k star (bias corrected MLE)	0.237
Theta hat (MLE)	69.33	Theta star (bias corrected MLE)	69.42
nu hat (MLE)	68.7	nu star (bias corrected)	68.62
Mean (detects)	16.43		

Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	7.218	SD (KM)	30.16
Variance (KM)	909.7	SE of Mean (KM)	1.666
k hat (KM)	0.0573	k star (KM)	0.0588
nu hat (KM)	37.79	nu star (KM)	38.78
theta hat (KM)	126	theta star (KM)	122.8
80% gamma percentile (KM)	1.642	90% gamma percentile (KM)	13.29
95% gamma percentile (KM)	40.26	99% gamma percentile (KM)	146.9

Gamma Kaplan-Meier (KM) Statistics			
		Adjusted Level of Significance (β)	0.0493
Approximate Chi Square Value (38.78, α)	25.52	Adjusted Chi Square Value (38.78, β)	25.47
95% Gamma Approximate KM-UCL (use when n>=50)	10.97	% Gamma Adjusted KM-UCL (use when n<50)	10.99

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	N/A	KM Geo Mean	N/A
KM SD (logged)	N/A	95% Critical H Value (KM-Log)	N/A
KM Standard Error of Mean (logged)	N/A	95% H-UCL (KM -Log)	N/A
KM SD (logged)	N/A	95% Critical H Value (KM-Log)	N/A
KM Standard Error of Mean (logged)	N/A		

DL/2 Statistics			
Mean in Original Scale	7.218	SD in Original Scale	30.21
95% t UCL (Assumes normality)	9.96		

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use			
99% KM (Chebyshev) UCL	23.8		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
lowever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticiar

Attachment A

Post Excavation Post Treatment Toxicity Assessment

	Aroclor % Onsite	EPC (mg/kg-day)	Industrial RSL for PCB	Intake (mg/kg-day)	Oral Risk	Inhalation Risk
Aroclor 1016	-	-	27	-	-	-
Aroclor 1221	-	-	0.83	-	-	-
Aroclor 1232	-	-	0.72	-	-	-
Aroclor 1242	95.2	**22.6576**	0.95	1732.020548	3464.041096	0.987251712
Aroclor 1248	0.4	0.0952	0.95	7.27739726	14.55479452	0.004148116
Aroclor 1254	-	-	0.97	-	-	-
Aroclor 1260	4.1	0.9758	0.99	74.59332192	149.1866438	0.042518193
Aroclor 5460	0.33	0.07854	0.044	-	-	-
Total EPC		**23.80714**				

EPC	23.8	mg/kg-day
Ingestion Rate (IR)	100	mg/day
Exposuure Duration (ED)	250	days/ye
Exposure Frequency (EF)	6250	250 days/yr for 25 yrs
Body Weight (BW)	80	kg
Averaging Time (AT)	25550	days

EPA Oral High Risk toxicity **2** /(mg/kg-day)

EPA Inhalation high risk toxicity **0.00057** /(ug/m3)

ProUCL= 95% sure that maximum mean will not exceed 23.8 mg/kg

APPENDIX F

ATTACHMENT B

Attachment B

TABLE 4.3.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

The Dean Company

Scenario Timeframe: Future

Medium: Soil

Exposure Medium: Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Soil at Site 1	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1991	CS x IR x FI x EF x ED x CF1 x 1/BW x 1/AT
				FI	Fraction Ingested	1		Professional Judgment	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				CF1	Conversion Factor	1E-06	kg/mg		
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989	
				AT-N	Averaging Time - Non-Cancer	8,760	days	EPA, 1989	
			Soil at Site 2	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1991	CS x IR x FI x EF x ED x CF1 x 1/BW x 1/AT
				FI	Fraction Ingested	1		Professional Judgment	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				CF1	Conversion Factor	1E-06	kg/mg		
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989	
				AT-N	Averaging Time - Non-Cancer	8,760	days	EPA, 1989	
		Child	Soil at Site 1	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	200	mg/day	EPA, 1991	CS x IR x FI x EF x ED x CF1 x 1/BW x 1/AT
				FI	Fraction Ingested	1		Professional Judgment	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor	1E-06	kg/mg		
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989	
				AT-N	Averaging Time - Non-Cancer	2,190	days	EPA, 1989	

TABLE 4.3.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

The Dean Company

Scenario Timeframe: Future

Medium: Soil

Exposure Medium: Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion (continued)	Resident (continued)	Child (continued)	Soil at Site 2	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	200	mg/day	EPA, 1991	CS x IR x FI x EF x ED x CF1 x 1/BW x 1/AT
				FI	Fraction Ingested	1		Professional Judgment	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor	1E-06	kg/mg		
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989	
				AT-N	Averaging Time - Non-Cancer	2,190	days	EPA, 1989	
Dermal	Resident	Adult	Soil at Site 1	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	Dermal Absorbed Dose (DAD) (mg/kg-day) =
				CF	Conversion Factor	1E-06	kg/mg		DA-event x EF x ED x EV x SA X 1/BW x 1/AT
				SA	Skin Surface Area Available for Contact	5,700	cm2	EPA, 2001	where
				AF	Soil to Skin Adherence Factor	0.07	mg/cm2-event	EPA, 2001	Absorbed Dose per Event (DA-event) (mg/cm2-event) =
				ABS-d	Dermal Absorption Factor	chemical-specific	unitless	EPA, 2001	CS x CF x AF x ABS-d
				EV	Event Frequency	1	events/day	EPA, 2001	
				EF	Exposure Frequency	350	days/year	EPA, 2001	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 2001	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 2001	
				AT-N	Averaging Time - Non-Cancer	8,760	days	EPA, 2001	

TABLE 4.3.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

The Dean Company

Scenario Timeframe: Future

Medium: Soil

Exposure Medium: Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (continued)	Resident (continued)	Adult (continued)	Soil at Site 2	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	DAD (mg/kg-day) =
				CF	Conversion Factor	1E-06	kg/mg		DA-event x EF x ED x EV x SA X 1/BW x 1/AT
				SA	Skin Surface Area Available for Contact	5,700	cm2	EPA, 2001	where
				AF	Soil to Skin Adherence Factor	0.07	mg/cm2-event	EPA, 2001	DA-event (mg/cm2-event) =
				ABS-d	Dermal Absorption Factor	chemical-specific	unitless	EPA, 2001	CS x CF x AF x ABS-d
				EV	Event Frequency	1	events/day	EPA, 2001	
				EF	Exposure Frequency	350	days/year	EPA, 2001	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 2001	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 2001	
				AT-N	Averaging Time - Non-Cancer	8,760	days	EPA, 2001	
		Child	Soil at Site 1	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	DAD (mg/kg-day) =
				CF	Conversion Factor	1E-06	kg/mg		DA-event x EF x ED x EV x SA X 1/BW x 1/AT
				SA	Skin Surface Area Available for Contact	2,800	cm2	EPA, 2001	where
				AF	Soil to Skin Adherence Factor	0.2	mg/cm2-event	EPA, 2001	DA-event (mg/cm2-event) =
				ABS-d	Dermal Absorption Factor	chemical-specific	unitless	EPA, 2001	CS x CF x AF x ABS-d
				EV	Event Frequency	1	events/day	EPA, 2001	
				EF	Exposure Frequency	350	days/year	EPA, 2001	
				ED	Exposure Duration	6	years	EPA, 2001	
				BW	Body Weight	15	kg	EPA, 2001	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 2001	
				AT-N	Averaging Time - Non-Cancer	2,190	days	EPA, 2001	

TABLE 4.3.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

The Dean Company

Scenario Timeframe: Future

Medium: Soil

Exposure Medium: Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (continued)	Resident (continued)	Child (continued)	Soil at Site 2	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	DAD (mg/kg-day) =
				CF	Conversion Factor	1E-06	kg/mg		DA-event x EF x ED x EV x SA X 1/BW x 1/AT
				SA	Skin Surface Area Available for Contact	2,800	cm2	EPA, 2001	where
				AF	Soil to Skin Adherence Factor	0.2	mg/cm2-event	EPA, 2001	DA-event (mg/cm2-event) =
				ABS-d	Dermal Absorption Factor	chemical-specific	unitless	EPA, 2001	CS x CF x AF x ABS-d
				EV	Event Frequency	1	events/day	EPA, 2001	
				EF	Exposure Frequency	350	days/year	EPA, 2001	
				ED	Exposure Duration	6	years	EPA, 2001	
				BW	Body Weight	15	kg	EPA, 2001	
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 2001	
				AT-N	Averaging Time - Non-Cancer	2,190	days	EPA, 2001	

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EPA 1995: Assessing Dermal Exposure from Soil, Technical Guidance Manual, Region III, EPA/903-K-95-003.

EPA 1997: Exposure Factors Handbook, Volume 1. EPA/600/P-95/002Fa.

EPA 2001: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim.

APPENDIX F

ATTACHMENT C

Site-specific
Construction Worker Equation Inputs for Soil - Other Construction Activities

*** Inputted values different from Construction Worker defaults are highlighted.**

Variable	Construction Worker Soil - Other Default Value	Form-input Value
A_{excav} (area of excavation site) m^2	.	290
A (PEF Dispersion Constant)	2.4538	2.4538
B_{l-doz} (dozing blade length) m	.	2.337
$B_{l-grade}$ (grading blade length) m	.	1.524
B (PEF Dispersion Constant)	17.5660	17.5660
C (PEF Dispersion Constant)	189.0426	189.0426
d_{excav} (average depth of excavation site) m	.	2.5908
F_D Unitless Dispersion Correction Factor	0.185837208	0.1915598018707
F(x) (function dependant on U_m/U_t derived using Cowherd et al. (1985))	0.194	0.194
M_{m-doz} (Gravimetric soil moisture content) %	7.9	7.9
$M_{m-excav}$ (Gravimetric soil moisture content) %	12	12
M_{wind} (dust emitted by wind erosion) g	51288.84717	51288.84717
N_{A-dump} (number of times soil is dumped)	2	1
N_{A-till} (number of times soil is tilled)	2	0
Q/C_{sa} (inverse of the ratio of the geometric mean air concentration to the emission flux at the center of a square source) g/m^2-s per kg/m^3	14.31407	14.31407
p_{soil} (density) g/cm^3 - chemical-specific	1.68	1.68
A_c (acres)	0.5	0.5
s_{doz} (soil silt content) %	6.9	6.9
AF_{cw} (skin adherence factor - construction worker) mg/cm^2	0.3	0.3
AT_{cw} (averaging time - construction worker) days	365	35
BW_{cw} (body weight - construction worker) kg	80	80
ED_{cw} (exposure duration - construction worker) yr	1	1
EF_{cw} (exposure frequency - construction worker) day/yr	250	10
ET_{cw} (exposure time - construction worker) hr/day	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{cw} (soil ingestion rate - construction worker) mg/day	330	330
LT (lifetime) yr	70	70
SA_{cw} (surface area - construction worker) cm^2/day	3527	3527

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Site-specific
Construction Worker Equation Inputs for Soil - Other Construction Activities

*** Inputted values different from Construction Worker defaults are highlighted.**

Variable	Construction Worker Soil - Other Default Value	Form-input Value
TR (target cancer risk) unitless	1.0E-06	1.0E-06
S_{doz} (dozing speed) kph	11.4	11.4
S_{grade} (grading speed) kph	11.4	11.4
s_{till} (soil silt content) %	18	18
t_c (overall duration of construction) hours	8400	840
T_c (overall duration of construction) s	30240000	3024000
T (time over which traffic occurs) s	7200000	288000
T_t (overall duration of traffic) s	7200000	288000
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value) m/s	11.32	11.32
V (fraction of vegetative cover)	0	0

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Site-specific
Construction Worker Regional Screening Levels (RSL) for Soil - Other Construction Activities

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = DWSHA; W = TEF applied; E = RPF applied; G = see user's guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Polychlorinated Biphenyls (high risk)	1336-36-3	No	Yes	Organics	2.00E+00	I	5.71E-04	I	-		-		1	0.14	1	-

Chemical	S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature TC (K)	TC Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)
Polychlorinated Biphenyls (high risk)	7.00E-01	7.81E+04	4.69E+02	4.15E-04	1.70E-02	PHYSPROP	632.66	EPI	-		PCB	2.43E-02	6.27E-06	4.70E-08

Chemical	Particulate Emission Factor (m^3/kg)	Volatilization Factor (m^3/kg)	Ingestion SL TR=1E-06 (mg/kg)	Dermal SL TR=1E-06 (mg/kg)	Inhalation SL TR=1E-06 (mg/kg)	Carcinogenic SL TR=1E-06 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
Polychlorinated Biphenyls (high risk)	8.46E+05	5.81E+01	3.10E+02	6.90E+02	7.80E-01	7.77E-01	-	-	-	-	7.77E-01 ca

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