

Table 2-1
Monitoring Well Construction Details
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Well ID	Well Depth (feet)	Installation Date	Ground Elevation (feet) ¹	Top of Casing Elevation (feet) ¹	Well Diameter (inches)	Riser Interval (feet bgs)	Screen Interval (feet bgs)
MW-1	13.0	11/30/94	5.70	5.32	2.0	0.0 - 3.0	3.0 - 13.0
MW-1A	13.0	01/13/04	5.42	7.83	2.0	0.0-2.0	2.0 - 13.0
MW-2	13.0	11/29/94	9.50	9.26	2.0	0.0 - 4.0	4.0 - 13.0
MW-3	17.0	11/28/94	15.00	14.59	2.0	0.0 - 7.0	7.0 - 17.0
MW-3A	17.0	01/13/04	14.33	16.55	2.0	0.0-5.0	5.0 - 17.0
MW-4	14.0	11/30/94	9.09	8.98	2.0	0.0 - 4.0	4.0 - 14.0
MW-5	13.0	11/30/94	9.80	9.48	2.0	0.0 - 3.0	3.0 - 13.0
MW-6*	13.0	11/30/94	---	---	---	---	---
MW-6A	15.0	06/01/98	8.60	12.39	4.0	0.0 - 2.5	2.5 - 15.0
MW-7	13.0	11/29/94	---	8.99	2.0	0.0 - 3.0	3.0 - 13.0
MW-8	14.0	11/30/94	8.30	7.92	---	---	---
MW-8A	14.0	06/02/98	8.27	8.01	4.0	0.0 - 2.0	2.0 - 14.0
MW-9	13.0	11/29/94	9.40	9.25	2.0	0.0 - 3.0	3.0 - 13.0
MW-10*	13.0	11/29/94	---	---	---	---	---
MW-10A	16.0	06/01/98	---	7.27	4.0	0.0 - 3.0	3.0 - 16.0
MW-11	14.0	12/01/94	7.00	7.97	2.0	0.0 - 4.0	4.0 - 14.0
MW-12	14.0	12/01/94	7.30	7.04	2.0	0.0 - 4.0	4.0 - 14.0
MW-13	12.0	06/02/98	6.90	6.66	4.0	0.0 - 1.0	1.0 - 12.0
MW-14	14.0	06/02/98	8.70	8.41	4.0	0.0 - 2.0	2.0 - 14.0
MW-15	14.0	06/02/98	8.80	8.54	4.0	0.0 - 2.0	2.0 - 14.0
MW-16	14.0	06/02/98	10.10	9.67	4.0	0.0 - 2.0	2.0 - 14.0
MW-17	14.0	06/01/98	---	4.88	4.0	0.0 - 2.0	2.0 - 14.0

Notes:

¹ All elevations measured by professional surveyor relative to bench mark located at the top of existing National Geodetic Survey Disk stamped R-21 1929 in the top east corner of the concrete base of the east leg of high tension line tower No. 8 CR 6822. Elevation 11.99 feet. Elevations were then converted to NAVD, 1988.

* Monitoring wells MW-6, MW-8, and MW-10 were destroyed and replaced with wells MW-6A, MW-8A, and MW-10A.

TABLE 3-1

Recovery Trench System Oil Sample PCB Analytical Results
October 24, 2001

AMTRAK Former Fueling Facility
Wilmington, Delaware

Sample Identification	Collection Date	Analytical Results (dry weight basis)						
		PCBs						
		PCB-1016 (mg/kg)	PCB-1221 (mg/kg)	PCB-1232 (mg/kg)	PCB-1242 (mg/kg)	PCB-1248 (mg/kg)	PCB-1254 (mg/kg)	PCB-1260 (mg/kg)
RW-3 Trench								
RW-3	10/24/2001	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SP-1	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	3.9
SP-2	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	4.2
RW-1/RW-4 Trench								
RW-1	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	5.2
RW-4	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	34.5
SP-3	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	8.1
SP-4	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	6.5
SP-5	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	22.4
SP-6	10/24/2001	<25	<25	<25	<25	<25	<25	69.0
Sump #1	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	2.8
RW-2 Trench								
RW-2	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	6.9
RW-5 Trench								
RW-5	10/24/2001	<25	<25	<25	<25	<25	<25	53.0
SP-7	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	9.7
SP-8	10/24/2001	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	23.2
SP-9	10/24/2001	<25	<25	<25	<25	<25	<25	65.0

NOTES:

PCBs = Polychlorinated Biphenyls

N/A = Not applicable, there was not enough oil in RW-3 for sample analyses

mg/kg = Milligrams per kilogram

TABLE 3-2

Test Pit Standpipe Oil Sample PCB Analytical Results
September 14, 2005

AMTRAK Former Fueling Facility
Wilmington, Delaware

Sample Identification	Collection Date	Analytical Results (dry weight basis)									
		PCBs									
		PCB-1016 (mg/kg)	PCB-1221 (mg/kg)	PCB-1232 (mg/kg)	PCB-1242 (mg/kg)	PCB-1248 (mg/kg)	PCB-1254 (mg/kg)	PCB-1260 (mg/kg)			
TP-101	9/14/2005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6			<0.6
TP-105	9/14/2005	<2.5	<2.5	<2.5	31	<2.5	61	75			
TP-106	9/14/2005	<5	<5	<5	69	<5	130	100			
TP-114	9/14/2005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	9.0			
TP-115	9/14/2005	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	16.0			

NOTES:

PCBs = Polychlorinated Biphenyls
mg/kg = Milligrams per kilogram
ND = Not Detected

TABLE 7-1

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Collection
Field Measurements

AMTRAK Former Fueling Facility
4001 Vandever Avenue Wilmington, DE

Location	Sample Collection Date	Water Depth (ft)	Width of Open Water Body (ft)	Depth to Clay Substrate (ft)
NED-1	4/18/2005	0.58	9	3
NED-2	4/18/2005	0.58	1.5	3.8 R
NED-3	4/19/2005	0.54	4	3.8 R
NED-4	4/19/2005	0.23	6	3.5 R
NED-5	4/19/2005	0.708	15	3.5 R
NED-6	4/20/2005	1.92	20.5	5.17 R
NED-7	4/21/2005	1.25	17	3.5
NED-8	6/22/2005	2.25	17	4
NED-9	6/22/2005	3.17	18	3.42
NED-10	6/16/2005	2.25	22	10
NED-11	6/15/2005	2.58	40	9.5
NED-12	6/13/2005	1.5	29	6
NED-13	4/25/2005	2.5	10	8.75
NED-14	4/25/2005	0.42	15 1	6.33
NED-15	7/11/2005	0.83	15 1	9

Notes:

- 1 = Channel becomes braided and meanders through a wet land area in this reach.
- R = Hand auger refusal encountered before encountering the clay substrate.

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	NED-1-A 04/18/05 0-3'		NED-1-D 04/18/05 0-3'		NED-1-B (0-3) 04/18/05 3"-2'5"		NED-1-C 04/18/05 2'5"-3'5"		NED-2-A 04/18/05 0-3'	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	25,300	17,900	45,300	22,200	107,000	5,780	1,240	1,170	54,400	18,600
TPH-DRO	93 J	38	230	54	110	93	ND	15	240	240
PCB-1016	ND	1,100	ND	760	ND	530	ND	21	ND	1,400
PCB-1221	ND	1,100	ND	760	ND	530	ND	21	ND	1,400
PCB-1232	ND	1,100	ND	760	ND	530	ND	21	ND	1,400
PCB-1242	ND	1,100	ND	760	ND	530	ND	21	ND	1,400
PCB-1248	ND	1,100	ND	760	ND	530	ND	21	ND	1,400
PCB-1254	ND	1,100	ND	760	ND	530	ND	21	ND	1,400
PCB-1260	7,400	1,100	6,400	760	3,600	530	91	21	7,500	1,400
Total PCB Aroclors	7,400	---	6,400	---	3,600	---	91	---	7,500	---
Total PCB Congeners	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 1 = Duplicate of NED-1A
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass_EPH analyzed by MA_EPH method 1688 and Mass_VPH analyzed by MADEP_VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A

P:\Client\Amtrak-API\DMREG DATA PACKAGE\Excel Summary Tables\Table 14 (New Table 1) (NED).xls

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Units	NED-2-B (0-3)		NED-3A		NED-3B (0-3)		NED-4A		NED-4B (0-3)	
		04/18/05 3"-3'3"	MDL	04/19/05 0-3"	MDL	04/19/05 3"-3'3"	MDL	04/19/05 0-3"	MDL	04/19/05 3"-3'3"	MDL
TOC	mg/kg	49,700	6,950	27,800	7,980	20,000	3,320	32,800	13,200	5,670	482
TPH-DRO	mg/kg	140	100	320 J	93	120	33	370	110	61	15
PCB-1016	ug/kg	ND	1,400	ND	990	ND	470	ND	770	ND	1,100
PCB-1221	ug/kg	ND	1,400	ND	990	ND	470	ND	770	ND	1,100
PCB-1232	ug/kg	ND	1,400	ND	990	ND	470	ND	770	ND	1,100
PCB-1242	ug/kg	ND	1,400	ND	990	ND	470	ND	770	ND	1,100
PCB-1248	ug/kg	ND	1,400	ND	990	ND	470	ND	770	ND	1,100
PCB-1254	ug/kg	ND	1,400	ND	990	ND	470	ND	770	ND	1,100
PCB-1260	ug/kg	11,000	1,400	13,000	990	6,400	470	10,000	770	16,000	1,100
Total PCB Aroclors	ug/kg	11,000	---	13,000	---	6,400	---	10,000	---	16,000	---
Total PCB Congeners	pg/kg	NA	---	NA	---	22,911	490,000	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass-EPH analyzed by NA EPH method 1/88 and Mass-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1688A

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	NED-5A 04/19/05 0-3"		NED-5B(0-3) 04/19/05 3"-2'9"		NED-6A 04/20/05 0-3"		NED-6B(0-3) 04/20/05 3"-3'3"		NED-7A 04/21/05 0-3"	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	67,000	19,400	11,000	3,160	41,100	7,220	16,100	3,010	36,600	7,800
TPH-DRO	1,200	310	270	110	960J	150	1,200	160	990 J	490
PCB-1016	ND	1500	ND	4,500	ND	730	ND	460	ND	460
PCB-1221	ND	1500	ND	4,500	ND	730	ND	460	ND	460
PCB-1232	ND	1500	ND	4,500	ND	730	ND	460	ND	460
PCB-1242	ND	1500	ND	4,500	ND	730	ND	460	ND	460
PCB-1248	ND	1500	ND	4,500	ND	730	ND	460	ND	460
PCB-1254	ND	1500	ND	4,500	ND	730	ND	460	ND	460
PCB-1260	17,000	1500	36,000	4,500	9,900	730	4,600	460	3,600	460
Total PCB Aroclors	17,000	---	36,000	---	9,900	---	4,600	---	3,600	---
Total PCB Congeners	42,385,575,000	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel

MDL = Method detection limit

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

pg/kg = picograms per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

NA = Not analyzed

UI = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit

is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Sample depths measured from top of sediment

TOC = Total Organic Carbon

TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B

Petroleum Hydrocarbons - Mass-EPH analyzed by MA EPH method 1198 and Mass-VPH analyzed by MADEP-VPH method modified 8021B

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1688A

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	NED-7B(0-3)		NED-7C		NED-8A		NED-8B(0-3)		NED-8C	
	Sample Date	Sample Depth								
TOC	04/21/05	3'-23"	04/21/05	2'-3'-33"	06/22/05	0-3"	06/22/05	3'-19"	06/22/05	19'-29"
TPH-DRO	30,800	4,700	8,740	2,730	19,600	6,600	21,700	8,610	9,830	4,670
PCB-1016	310 J	230	78	18	450	280	1,200	230	<19	19
PCB-1221	ND	250	ND	26	ND	170	ND	540	ND	27
PCB-1232	ND	250	ND	26	ND	170	ND	540	ND	27
PCB-1242	ND	250	ND	26	ND	170	ND	540	ND	27
PCB-1248	ND	250	ND	26	ND	170	ND	540	ND	27
PCB-1254	ND	250	ND	26	ND	170	ND	540	ND	27
PCB-1260	2,500	250	83	26	530	170	1,700	540	ND	27
Total PCB Aroclors	2,500	250	83	26	2,200	170	6,600	540	32	27
Total PCB Congeners	NA	---	241,333,900	---	2,730	---	8,300	---	32	---

NOTES:

Data has been validated by SECOR personnel

MDL = Method detection limit

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

pg/kg = picograms per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

NA = Not analyzed

UI = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Sample depths measured from top of sediment

TOC = Total Organic Carbon

TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8016B

Petroleum Hydrocarbons - Mass -EPH analyzed by MA EPH method 1/98 and Mass-VPH analyzed by MADEP-VPH method modified 8021B

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	NED-9A 06/22/05 0-3"		NED-9C 06/22/05 3'-13"		NED-10B(3-6) 06/16/05 5'6"-8'6"		NED-10B(6-9) 06/16/05 8'6"-10'		NED-10C 06/16/05 10'-11'	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	65,100	7,740	24,100	5,110	55,000	6,140	83,400	11,500	22,200	5,810
TPH-DRO	2,400	380	46	23	35,000	6,100	29,000	5,200	<21 UJ	21
PCB-1016	ND	890	ND	160	ND	920	ND	1,900	ND	30
PCB-1221	ND	890	ND	160	ND	920	ND	1,900	ND	30
PCB-1232	ND	890	ND	160	ND	920	ND	1,900	ND	30
PCB-1242	ND	890	ND	160	ND	920	ND	1,900	ND	30
PCB-1248	5,700	890	ND	160	ND	920	ND	1,900	ND	30
PCB-1254	3,800	890	200	160	5,600	920	ND	1,900	ND	30
PCB-1260	1,100	890	560	160	17,000	920	ND	1,900	200	30
Total PCB Aroclors	10,600	---	760	---	22,800	---	19,000	---	200	---
Total PCB Congeners	6,751,318,000	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
pg/kg = picograms per kilogram
ND = Not detected at or above the method detection limit
J = Estimated value
NA = Not analyzed
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
Sample depths measured from top of sediment
TOC = Total Organic Carbon
TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
Petroleum Hydrocarbons - Mass -EPH analyzed by MA EPH method 4/98 and Mass -VPH analyzed by MADEP-VPH method modified 8021B
PCB Aroclors analyzed by Method 8082
PCB congeners analyzed by USEPA Method 1688A

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	NED-11A 06/15/05 0-3'		NED-11B(0-3) 06/15/05 3"-3'3"		NED-11B(3-6) 06/15/05 3'3"-6'3"		NED-11B(6-9) 06/15/05 6'3"-6'11"		NED-11C 06/15/05 6'11"-7'11"	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	59,800	6,280	117,000	7,530	203,000	7,210	207,000	7,320	9,520	3,190
TPH-DRO	280	130	5,100	270	3,800	300	49,000	24,000	170	23
PCB-1016	ND	360	ND	1,500	ND	2,100	ND	1,000	ND	26
PCB-1221	ND	360	ND	1,500	ND	2,100	ND	1,000	ND	26
PCB-1232	ND	360	ND	1,500	ND	2,100	ND	1,000	ND	26
PCB-1242	ND	360	ND	1,500	ND	2,100	ND	1,000	ND	26
PCB-1248	ND	360	ND	1,500	ND	2,100	ND	1,000	ND	26
PCB-1254	1,500	360	5,800	1,500	ND	2,100	ND	1,000	ND	26
PCB-1260	4,700	360	20,000	1,500	25,000	2,100	13,000	1,000	ND	26
Total PCB Aroclors	6,200	---	25,800	---	25,000	---	13,000	---	44	---
Total PCB Congeners	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

- Data has been validated by SECOR personnel
- MDL = Method detection limit
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- pg/kg = picograms per kilogram
- ND = Not detected at or above the method detection limit
- J = Estimated value
- NA = Not analyzed
- UI = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- Sample depths measured from top of sediment
- TOC = Total Organic Carbon
- TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
- Petroleum Hydrocarbons - Mass -EPH analyzed by MA EPH method 1/38 and Mass -VPH analyzed by MADEP-VPH method modified 8021B
- PCB Aroclors analyzed by Method 8082
- PCB congeners analyzed by USEPA Method 1668A

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	NED-12-A		NED-12B(0-3)		NED-12B(3-6)		NED-12C		NED-13A	
	Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date	Sample Depth
TOC	06/13/05	0-3"	08/13/05	3'-33"	06/13/05	33"-46"	06/13/05	48"-56"	04/21/05	0-3"
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TPH-DRO	71,400	9,980	112,000	6,410	103,000	6,330	25,800	5,890	9,820	2,500
PCB-1016	630 J	320	5,900	460	37,000	6,200	100	20	6,100 J	1,600
PCB-1221	ND	460	ND	650	ND	300	ND	28	ND	230
PCB-1232	ND	460	ND	650	ND	300	ND	28	ND	230
PCB-1242	ND	460	ND	650	ND	300	ND	28	ND	230
PCB-1248	<460	460	ND	650	ND	300	ND	28	ND	230
PCB-1254	2,500	460	3,000	650	1,200	300	ND	28	ND	230
PCB-1260	7,700	460	8,700	650	3,700	300	ND	28	ND	230
Total PCB Aroclors	10,200	---	11,700	---	4,900	---	<28	---	2,900	---
Total PCB Congeners	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass -EPH analyzed by MA EPH method 1.99 and Mass -VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID		Sample Date		Sample Depth		Units	
	NED-13B(0-3)	NED-13B(3-6)	04/21/05	04/25/05	3'-3'3"	3'-6'3"	3'-3'3"	3'-6'3"
	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	7,160	2,590	123,000	11,000	24,900	4,180	23,600	4,560
TPH-DRO	1,500	160	86,000	5,900	<21 UJ	21	62 J	23
PCB-1016	ND	460	ND	5,900	ND	29	ND	29
PCB-1221	ND	460	ND	5,900	ND	29	ND	29
PCB-1232	ND	460	ND	5,900	ND	29	ND	29
PCB-1242	ND	460	ND	5,900	ND	29	ND	29
PCB-1248	ND	460	ND	5,900	ND	29	ND	29
PCB-1254	ND	460	ND	5,900	97 J	29	ND UJ	29
PCB-1260	3,700	460	100,000	5,900	310 J	29	110 J	29
Total PCB Aroclors	3,700	---	100,000	---	407 J	---	110 J	---
Total PCB Contingeners	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
pg/kg = picograms per kilogram
ND = Not detected at or above the method detection limit
J = Estimated value
NA = Not analyzed
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
Sample depths measured from top of sediment
2 = Duplicate of NED-13C
TOC = Total Organic Carbon
TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
Petroleum Hydrocarbons - Mass.-EPH analyzed by MA EPH method 1796 and Mass.-VPH analyzed by MADEP-VPH method modified 8021B
PCB Aroclors analyzed by Method 8082
PCB congeners analyzed by USEPA Method 1668A

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID		Sample Date		Sample Depth		NED-14B(3-6)		NED-14C		NED-15A		NED-15B(0-3)	
	Units	MDL	Result	MDL	3'3"-5'11"	MDL	Result	MDL	5'11"-6'11"	Result	MDL	0-3"	Result	MDL
TOC	mg/kg	14,100	131,000	16,500	344,000	17,000	24,300	4,850	270	25	102,000	12,000	284,000	12,300
TPH-DRO	mg/kg	3,200	29,000	3,200	210,000	17,000	270	25	8,100J	1,100	8,100J	1,100	65,000J	15,000
PCB-1016	ug/kg	6,700	ND	6,700	ND	20,000	ND	63	ND	63	ND	4,600	ND	16,000
PCB-1221	ug/kg	6,700	ND	6,700	ND	20,000	ND	63	ND	63	ND	4,600	ND	16,000
PCB-1232	ug/kg	6,700	ND	6,700	ND	20,000	ND	63	ND	63	ND	4,600	ND	16,000
PCB-1242	ug/kg	6,700	ND	6,700	ND	20,000	ND	63	ND	63	ND	4,600	ND	16,000
PCB-1248	ug/kg	6,700	ND	6,700	ND	20,000	ND	63	ND	63	ND	4,600	ND	16,000
PCB-1254	ug/kg	6,700	ND	6,700	ND	20,000	ND	63	ND	63	ND	4,600	ND	16,000
PCB-1260	ug/kg	6,700	35,000	210,000	20,000	1000	1000	63	21,000	4,600	21,000	4,600	150,000	16,000
Total PCB Aroclors	ug/kg	---	35,000	210,000	---	1000	1000	---	21,000	---	21,000	---	150,000	---
Total PCB Congeners	pg/kg	---	NA	---	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 LU = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass-EPH analyzed by MA EPH method 1/98 and Mass-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-2

Drainage Ditch North of Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	NED-30B(0-3)		NED-15B(3-6)		NED-15B(6-9)		NED15-C	
	Sample ID	Sample Date	Sample ID	Sample Date	Sample ID	Sample Date	Sample ID	Sample Date
Sample Depth	3"-3'3"		3'-3'6"		6'-3'-8'2"		8'2"-9'2"	
Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	201,000	11,900	221,000	15,500	49,500	4,410	18,100	5,380
TPH-DRO	71,000J	15,000	84,000J	15,000	660J	130	UJ	22
PCB-1016	ND	16,000	ND	1,300	ND	220	ND	31
PCB-1221	ND	16,000	ND	1,300	ND	220	ND	31
PCB-1232	ND	16,000	ND	1,300	ND	220	ND	31
PCB-1242	ND	16,000	ND	1,300	ND	220	ND	31
PCB-1248	ND	16,000	ND	1,300	ND	220	ND	31
PCB-1254	ND	16,000	ND	1,300	ND	220	ND	31
PCB-1260	140,000	16,000	7,700	1,300	350	220	<31	31
Total PCB Aroclors	140,000	---	7,700	---	350	---	<31	---
Total PCB Congeners	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel

MDL = Method detection limit

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

pg/kg = picograms per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

NA = Not analyzed

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Sample depths measured from top of sediment

3 = Duplicate of NED-15B(0-3)

TOC = Total Organic Carbon

TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B

Petroleum Hydrocarbons - Mass -EPH analyzed by MA EPH method 1/98 and Mass -VPH analyzed by MADEP-VPH method modified 8021B

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-3

Eastern Drainage Ditch
Sediment Sample Collection
Field Measurements

AMTRAK Former Fueling Facility
Wilmington, DE

Transect	Location	Sample		
		Collection Date	Water Depth (ft)	Depth to Clay (ft)
EDT-1		4/11/2005		
	I		1.42'	5.2'
	II		1.83'	4.08'
	III		1.17'	3.5'
EDT-2		4/11/2005		
	I		1.67'	6'
	II		2.12'	6.25'
	III		1.42'	4.67'
EDT-3		4/7/2005		
	I		2.58'	7.75'
	II		2.68'	5.08'
	III		1.58'	6.42'
EDT-4		4/7/2005		
	I		1.83'	7.67'
	II		1.92'	8.17'
	III		1.75'	7'
EDT-5	I	4/6-7/2005	0.92'	3.5'
	II		1.33'	5.5'
	III		2.17'	7.67'
	IV		2.08'	6.67'
EDT-6	I	4/5/2005	1.33'	5.33'
	II		1.75'	9'
	III		2.54'	9'
	IV		1.67'	6'
EDT-7		4/5/2005		
	I		2'	5.3'
	II		2'	5.3'
	III		1.33'	2.67'
EDT-8		4/14/2005		
	I		1.17'	3.83'
	II		2.25'	5.25'
	III		1.83'	5'
EDT-9		4/13/2005		
	I		2.33'	2.58'
	II		2.92'	3'
	III		1.29'	3'
EDT-10		4/13/2005		
	I		1'	2.25'
	II		1.54'	2.58'
	III		1.58'	2.58'
EDT-11		4/12/2005		
	I		1.54'	2'
	II		1'	3.08'
	III		0.83'	1.8'
EDT-12		4/12/2005		
	I		0.75'	3'
	II		1.08'	3.25'
	III		0.96'	3'
EDT-13	I	4/12/2005	0.92'	2.5'
	II		2.33'	2.42'
	III		2'	5.25'
	IV		1.42'	4.67'
EDT-14	I	4/11/2005	1.33'	4.25'
	II		2'	5.25'
	III		2.25'	3.33'
	IV		1.33'	1.33'

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	1-A 04/11/05 0-3"		1-B(0-3) 04/11/05 3"-3'3"		1-B(3-6) 04/11/05 3'-6'3"		11-C 04/11/05 6'3"-7'3"		2-A 04/11/05 0-3"	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	77,700	12,200	366,000	21,400	249,000	28,500	80,800	4,270	184,000	11,700
TPH-DRO	51000 J	25,000	160000 J	14,000	84000 J	16,000	4,400	1,400	86000 J	28,000
PCB-1016	ND	12,000	ND	34,000	ND	39,000	ND	670	ND	13,000
PCB-1221	ND	12,000	ND	34,000	ND	39,000	ND	670	ND	13,000
PCB-1232	ND	12,000	ND	34,000	ND	39,000	ND	670	ND	13,000
PCB-1242	ND	12,000	ND	34,000	ND	39,000	ND	670	ND	13,000
PCB-1248	ND	12,000	ND	34,000	ND	39,000	ND	670	ND	13,000
PCB-1254	ND	12,000	ND	34,000	ND	39,000	ND	670	ND	13,000
PCB-1260	79,000	12,000	200,000	34,000	140,000	39,000	5,900	670	70,000	13,000
Total PCB Aroclors	79,000	---	200,000	---	140,000	---	5,900	---	70,000	---
Total PCB Congeners	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel

MDL = Method detection limit

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

pg/kg = picograms per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

NA = Not analyzed

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Sample depths measured from top of sediment

TOC = Total Organic Carbon

TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B

Petroleum Hydrocarbons - Mass - EPH analyzed by MA.EPH method 196 and Mass .VPH analyzed by MADEP.VPH method modified 8021B

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	2-B(3-6)		2-III-C		3-A		3-B(0-3)		3-B(3-6)	
	Sample Date	Sample Depth								
Units	Result	MDL								
TOC	25,800	2,320	43,900	4,480	281,000	12,660	251,000	10,600	90,600	8,710
TPH-DRO	5,600	920	620	210	110,000	J	4,900	160,000	J	11,000
PCB-1016	ND	220	ND	150	ND	18,000	ND	31,000	ND	4,600
PCB-1221	ND	220	ND	150	ND	18,000	ND	31,000	ND	4,600
PCB-1232	ND	220	ND	150	ND	18,000	ND	31,000	ND	4,600
PCB-1242	ND	220	ND	150	ND	18,000	ND	31,000	ND	4,600
PCB-1248	ND	220	ND	150	ND	18,000	ND	31,000	ND	4,600
PCB-1254	ND	220	ND	150	ND	18,000	ND	31,000	ND	4,600
PCB-1260	1,400	220	1,100	150	130,000	18,000	220,000	31,000	24,000	4,600
Total PCB Aroclors	1,400	---	1,100	---	130,000	---	220,000	---	24,000	---
Total PCB Congeners	NA	---								

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass: EPH analyzed by NA EPH method 198 and Mass: VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1688A

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	3I-C 04/07/05 6'3"-7'3"		4-A 04/07/05 0-3'		4-B(0-3) 04/07/05 3'-3'3"		4-E(3-6) 04/07/05 3'3"-6'3"		4I1-C 04/07/05 6'3"-7'3"		
	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	mg/kg	55,600	8,290	146,000	11,000	275,000	17,400	134,000	15,000	15,400	3,600
TPH-DRO	mg/kg	5,100	790	45000 J	3,400	55000 J	3,000	9,600	1,500	43	22
PCB-1016	ug/kg	ND	250	ND	9,600	ND	21,000	ND	180	ND	190
PCB-1221	ug/kg	ND	250	ND	9,600	ND	21,000	ND	180	ND	190
PCB-1232	ug/kg	ND	250	ND	9,600	ND	21,000	ND	180	ND	190
PCB-1242	ug/kg	ND	250	ND	9,600	ND	21,000	ND	180	ND	190
PCB-1248	ug/kg	ND	250	ND	9,600	ND	21,000	ND	180	ND	190
PCB-1254	ug/kg	ND	250	ND	9,600	ND	21,000	ND	180	ND	190
PCB-1260	ug/kg	280	250	69000 J	9,600	180000 J	21,000	2,500	180	380	190
Total PCB Aroclors	ug/kg	260	250	69000 J	9,600	180000 J	21,000	2,500	180	380	190
Total PCB Congeners	ppb/kg	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 1096 and Mass -VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	5-A		5-B(0-3)		5-B(3-6)		5-1C		6-A	
	Sample ID	Sample Date								
Sample Depth	0-3"		3"-33"		33"-63"		63"-73"		0-3"	
Units	Result	MDL								
TOC	216,000	8,800	201,000	29,000	137,000	5,000	84,200	9,020	247,000	14,200
TPH-DRO	84,000 J	9,000	80,900 J	8,800	44,000	1,400	100	31	210,000 J	14,000
PCB-1016	ND	25,000	ND	19,000	ND	190	ND	220	ND	20,000
PCB-1221	ND	25,000	ND	19,000	ND	190	ND	220	ND	20,000
PCB-1232	ND	25,000	ND	19,000	ND	190	ND	220	ND	20,000
PCB-1242	ND	25,000	ND	19,000	ND	190	ND	220	ND	20,000
PCB-1248	ND	25,000	ND	19,000	ND	190	ND	220	ND	20,000
PCB-1254	ND	25,000	ND	19,000	ND	190	ND	220	ND	20,000
PCB-1260	320,000	25,000	160,000	19,000	1,400	190	1,100	220	240,000 J	20,000
Total PCB Aroclors	320,000	---	160,000	---	1,400	---	1,100	---	240,000 J	---
Total PCB Congeners	NA	---								

NOTES:

Data has been validated by SECOR personnel
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
pg/kg = picograms per kilogram
ND = Not detected at or above the method detection limit
J = Estimated value
NA = Not analyzed
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
Sample depths measured from top of sediment
TOC = Total Organic Carbon
TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
Petroleum Hydrocarbons - Mass-EPH analyzed by MA-EPH method 1758 and Mass-VPH analyzed by MADEP-VPH method modified 8021B
PCB Aroclors analyzed by Method 8082
PCB congeners analyzed by USEPA Method 1668A

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	6-D ¹		6-E(0-3)		6-E(0-3) ²		6-E(3-6)		6-E(6-9)	
	Sample ID	Sample Date	Sample ID	Sample Date	Sample ID	Sample Date	Sample ID	Sample Date	Sample ID	Sample Date
Sample Depth	0-3"		3"-33"		3"-33"		33"-63"		63"-93"	
Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	225,000	42,700	166,000	19,700	107,000	4,890	34,000	19,100	113,000	13,400
TPH-DRO	210,000 J	14,000	79,000 J	6,900	48,000 J	2,700	63,000 J	1,300	86,000 J	1,200
PCB-1016	ND	21,000	ND	1,600	ND	1,500	ND	370	ND	170
PCB-1221	ND	21,000	ND	1,600	ND	1,500	ND	370	ND	170
PCB-1232	ND	21,000	ND	1,600	ND	1,500	ND	370	ND	170
PCB-1242	ND	21,000	ND	1,600	ND	1,500	ND	370	ND	170
PCB-1248	ND	21,000	ND	1,600	ND	1,500	ND	370	ND	170
PCB-1254	ND	21,000	ND	1,600	ND	1,500	ND	370	ND	170
PCB-1260	170,000 J	21,000	6,600	1,600	7,200	1,500	2,200	370	740	170
Total PCB Aroclors	170,000 J	---	6,600	---	7,200	---	2,200	---	740	---
Total PCB Congeners	NA	---	12,218,600,000	---	NA	---	NA	---	NA	---

NOTES:

- Data has been validated by SECOR personnel
- MDL = Method detection limit
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- ug/kg = picograms per kilogram
- ND = Not detected at or above the method detection limit
- J = Estimated value
- NA = Not analyzed
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- Sample depths measured from top of sediment
- TOC = Total Organic Carbon
- TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 801.5B
- Petroleum Hydrocarbons - Mass.-EPH analyzed by MA EPH method 1/98 and Mass.-VPH analyzed by MADEP-VPH method modified 8021B
- PCB Aroclors analyzed by Method 8082
- PCB congeners analyzed by USEPA Method 1688A
- 1 = Duplicate of 6-A
- 2 = Duplicate of 6-E(0-3)

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	6-IC 04/06/05 9'3"-10'3"		7-A 04/05/05 0'-3"		7-B(0-3) 04/05/05 3'-3'3"		7-IC 04/05/05 3'3"-4'3"		8-A 04/04/05 0'-3"					
	Sample ID	Sample Date	Sample Depth	Units	Result	MDL	Result	MDL	Result	MDL				
TOC				mg/kg	89,400	7,570	147,000	9,780	232,000	7,040	24,700	5,420	230,000	8,560
TPH-DRO				ug/kg	130	34	160,000	7,800	98,000	4,000	51	47	430,000	4,000
PCB-1016				ug/kg	ND	48	ND	8,300	ND	4,400	ND	33	ND	2,800
PCB-1221				ug/kg	ND	48	ND	8,300	ND	4,400	ND	33	ND	2,800
PCB-1232				ug/kg	ND	48	ND	8,300	ND	4,400	ND	33	ND	2,800
PCB-1242				ug/kg	ND	48	ND	8,300	ND	4,400	ND	33	ND	2,800
PCB-1248				ug/kg	ND	48	ND	8,300	ND	4,400	ND	33	ND	2,800
PCB-1254				ug/kg	ND	48	ND	8,300	ND	4,400	ND	33	ND	2,800
PCB-1260				ug/kg	<48	48	82,000	8,300	26,000	4,400	ND	33	ND	2,800
Total PCB Aroclors				ug/kg	<48	48	82,000	8,300	26,000	4,400	ND	33	16,000	2,800
Total PCB Congeners				pg/kg	NA	---	NA	---	NA	---	9,673,080	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass.-EPH analyzed by MA-EPH method 1/98 and Mass.-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	8-B(0-3) 04/04/05 3" - 3"		8-IIC 04/04/05 3" - 43"		9-A 04/13/05 0-3"		9-B(0-3) 04/13/05 3" - 3"		9I-C 04/13/05 33" - 43"	
	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TOC	mg/kg	139,000	5,360	21,700	4,940	157,000	47,100	264,000	16,100	23,200
TPH-DRO	ug/kg	58,000 J	4,600	210	43	240,000	130,000	100,000	31,000	<40 UJ
PCB-1016	ug/kg	ND UJ	3,900	ND	31	ND	31,000	ND	16,000	ND
PCB-1221	ug/kg	ND	3,900	ND	31	ND	31,000	ND	16,000	ND
PCB-1232	ug/kg	ND	3,900	ND	31	ND	31,000	ND	16,000	ND
PCB-1242	ug/kg	ND	3,900	ND	31	ND	31,000	ND	16,000	ND
PCB-1248	ug/kg	ND	3,900	ND	31	ND	31,000	ND	16,000	ND
PCB-1254	ug/kg	ND	3,900	ND	31	ND	31,000	ND	16,000	ND
PCB-1260	ug/kg	23000 J	3,900	70	31	69,000	31,000	61,000	16,000	<29
Total PCB Aroclors	ug/kg	23000 J	---	70	---	69,000	---	61,000	---	<29
Total PCB Congeners	ug/kg	NA	---	NA	---	NA	---	NA	---	NA

NOTES:

- Data has been validated by SECOR personnel
- MDL = Method detection limit
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- ppb/kg = picograms per kilogram
- ND = Not detected at or above the method detection limit
- J = Estimated value
- NA = Not analyzed
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- Sample depths measured from top of sediment
- TOC = Total Organic Carbon
- TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
- Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 1/86 and Mass - VPH analyzed by MADEP-VPH method modified 8021B
- PCB Aroclors analyzed by Method 8082
- PCB congeners analyzed by USEPA Method 1668A

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	10-A		10-B(O-3)		10-I-C		11-A		11-B(O-3)	
	Sample Date	Sample Depth	Sample Date	Sample Depth						
TOC	04/13/05	0-3"	04/13/05	3'-3.3"	04/13/05	3.3'-4.3"	04/12/05	0-3"	04/12/05	3'-3.3"
	mg/kg		mg/kg		mg/kg		Result	MDL	Result	MDL
TPH-DRO	170,000	5,240	217,000	7,020	17,900	4.870	461,000	24,100	285,000	31,100
PCB-1016	170,000	38,000	120,000	15,000	44	40	170,000	17,000	190,000	18,000
PCB-1221	ND	35,000	ND	7,100	ND	280	ND	39,000	ND	42,000
PCB-1232	ND	35,000	ND	7,100	ND	280	ND	39,000	ND	42,000
PCB-1242	ND	35,000	ND	7,100	ND	280	ND	39,000	ND	42,000
PCB-1248	ND	35,000	ND	7,100	ND	280	ND	39,000	ND	42,000
PCB-1254	ND	35,000	ND	7,100	ND	280	ND	39,000	ND	42,000
PCB-1260	80,000	35,000	35,000	7,100	ND	280	110,000	39,000	140,000	42,000
Total PCB Aroclors	80,000	35,000	35,000	7,100	ND	280	110,000	39,000	140,000	42,000
Total PCB Congeners	NA	NA	NA	NA	NA	NA	NA	NA	139,623,730,000	NA

NOTES:
 Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass-EPH analyzed by MA-EPH method 1198 and Mass-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1688A

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	11-III-C		12-A		12-B(0-3)		12-C		13-A			
	Sample ID	Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date						
TOC	mg/kg	140,000	10,800	195,000	12,300	15,000	100,000 J	284,000	13,100	15,000	129,000	12,700
TPH-DRO	mg/kg	57,000 J	4,200	70,000 J	0-3"	0-3"	0-3"	3'-33"	3'-33"	3'-33"	0-3"	0-3"
PCB-1016	ug/kg	ND	400	ND	7,100	ND	34,000	ND	31	ND	ND	49,000
PCB-1221	ug/kg	ND	400	ND	7,100	ND	34,000	ND	31	ND	ND	49,000
PCB-1232	ug/kg	ND	400	ND	7,100	ND	34,000	ND	31	ND	ND	49,000
PCB-1242	ug/kg	ND	400	ND	7,100	ND	34,000	ND	31	ND	ND	49,000
PCB-1248	ug/kg	ND	400	ND	7,100	ND	34,000	ND	31	ND	ND	49,000
PCB-1254	ug/kg	ND	400	ND	7,100	ND	34,000	ND	31	ND	ND	49,000
PCB-1260	ug/kg	2,900	400	70,000	7,100	170,000	34,000	490	31	160,000	49,000	49,000
Total PCB Aroclors	ug/kg	2,900	400	70,000	7,100	170,000	34,000	490	31	160,000	49,000	49,000
Total PCB Congeners	pg/kg	NA	---	#####	---	---	---	---	---	---	---	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 1198 and Mass - VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8092
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-4

Eastern Drainage Ditch Sediment Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	13-B(0-3) 04/12/05 3"-3'3"		13-C 04/12/05 3"-4'3"		14-A 04/11/05 0-3'		14-B(0-3) 04/11/05 3"-3'3"		14-C 04/11/05 3'3"-4'3"	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	333,000	12,900	40,800	6,940	107,000	11,500	238,000	7,200	42,100	6,220
TPH-DRO	130,000	18,000	2,000	730	47,000 J	2,500	170,000 J	15,000	2,500	240
PCB-1016	ND	42,000	ND	34	ND	12,000	ND	36,000	ND	340
PCB-1221	ND	42,000	ND	34	ND	12,000	ND	36,000	ND	340
PCB-1232	ND	42,000	ND	34	ND	12,000	ND	36,000	ND	340
PCB-1242	ND	42,000	ND	34	ND	12,000	ND	36,000	ND	340
PCB-1248	ND	42,000	ND	34	ND	12,000	ND	36,000	ND	340
PCB-1254	ND	42,000	ND	34	ND	12,000	ND	36,000	ND	340
PCB-1260	200,000	42,000	71	34	66,000	12,000	160,000	36,000	2,900	340
Total PCB Aroclors	200,000	---	71	---	66,000	---	160,000	---	2,900	---
Total PCB Congeners	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 LJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass -EPH analyzed by MA EPH method 1/98 and Mass -VPH analyzed by MADEP-VPH method modified B021B
 PCB Aroclors analyzed by Method 8062
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-5

Western Drainage Ditch and Confluence Area
Sediment Sample Collection
Field Measurements

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Travsect	Location	Date	Water Depth (ft)	Width of Open Water Body (ft)	Depth to Clay (ft)
Western Drainage Ditch					
WD-1 (1)	NA	4/4/2001	NR	NR	3
WD-2 (1)	NA	4/4/2001	NR	NR	3
WD-3 (1)	NA	4/4/2001	NR	NR	3
WDT-1	NA	8/17/2005	0.67	30	7
WDT-2	NA	4/28/2005	0.17	10	3
WDT-3	NA	4/28/2005	0.92	20	3.83
WDT-4	NA	4/28/2005	0.62	30	3.75
WDT-5	NA	4/26/2005	0.25	25	3
WDT-6	NA	4/26/2005	0.25	11	1.75
WDT-7	NA	4/26/2005	0.25	12	2
WDT-8	NA	4/26/2005	1.75	24	5
Confluence Area					
CA-1		4/14/2005			
	I		0.5	NR	3.08
	II		1.67	NR	3.33
	III		0.58	NR	1.83
CA-2		4/14/2005			
	I		1.67	NR	3.5
	II		1.25	NR	2.42
	III		0.83	NR	2.5
CA-3		4/15/2005			
	I		1.46	NR	4.5
	II		0.96	NR	4
	III		2.58	NR	2.67

Notes:

(1) Samples collected prior to Phase II remedial investigations

NA = Not applicable

NR = Not Recorded

TABLE 7-6

Western Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	WDT-1-A 08/17/05 0-3"		WDT-1-B (0-3) 08/17/05 3"-3.3"		WDT-1B(3-6) 08/17/05 3.3"-5.3"		WDT-1C 08/17/05 6.3"-7.3"		WDT-2-A 04/28/05 0-3"		WDT-2-B(0-3) 04/28/05 3"-2.7"	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	110,000	13,300	186,000	12,300	73,800	2,550	25,500	2,000	87,100	21,300	45,300	8,400
TPH-DRO	4300 J	1,400	41,000	14,000	2,900	1,200	140	54	540	110	120	35
PCB-1016	ND	2,300	ND	6,000	ND	220	ND	32	ND	160	ND	200
PCB-1221	ND	2,300	ND	6,000	ND	220	ND	32	ND	160	ND	200
PCB-1232	ND	2,300	ND	6,000	ND	220	ND	32	ND	160	ND	200
PCB-1242	ND	2,300	ND	6,000	ND	220	ND	32	ND	160	ND	200
PCB-1248	ND	2,300	ND	6,000	ND	220	ND	32	ND	160	ND	200
PCB-1254	ND	2,300	ND	6,000	ND	220	ND	32	ND	160	ND	200
PCB-1260	17,000	2,300	94,000	6,000	1,300	220	130	32	2,400	160	1,800	200
Total PCB Aroclors	17,000	2,300	94,000	6,000	1,300	220	130	32	2,400	160	1,800	200
Total PCB Congeners	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 LU = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass-EPH analyzed by MA EPH method 1758 and Mass-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A

P:\Clients\Amtrak\APUD\FREC DATA PACKAGE\FREC Summary Tables\Table 7 - Sediment Data.docx

TABLE 7-6

Western Drainage Ditch Sediment Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	WDT-2-C 04/28/05 2.7"-3.7"		WDT-3-A 04/28/05 0-3"		WDT-3-B(0-3) 04/28/05 3"-2.9"		WDT-3-C 04/28/05 2.9"-3.9"		WDT-4-A 04/28/05 0-3"		WDT-4-B(0-3) 04/28/05 3"-3.1"	
	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TOC	mg/kg	949	264	53,100	17,200	217,000	9,760	27,200	4,690	188,000	11,200	93,600
TPH-DRO	ug/kg	2,000	720	3,600	750	120,000	12,000	2,100	230	5,800	2,800	55,000
PCB-1016	ug/kg	ND	20	ND	210	ND	2,700	ND	28	ND	390	ND
PCB-1221	ug/kg	ND	20	ND	210	ND	2,700	ND	28	ND	390	ND
PCB-1232	ug/kg	ND	20	ND	210	ND	2,700	ND	28	ND	390	ND
PCB-1242	ug/kg	ND	20	ND	210	ND	2,700	ND	28	ND	390	ND
PCB-1248	ug/kg	ND	20	ND	210	ND	2,700	ND	28	ND	390	ND
PCB-1254	ug/kg	ND	20	ND	210	ND	2,700	ND	28	ND	390	ND
PCB-1260	ug/kg	38	20	2,500	210	17000 J	2,700	45	28	3,900	390	8,500
Total PCB Aroclors	ug/kg	38	---	2,500	---	17000 J	---	45	---	3,900	---	8,500
Total PCB Congeners	ug/kg	NA	---	NA	---	NA	---	NA	---	8,059,031,000	---	17,166,200,000

NOTES:

Data has been validated by SECOR personnel

MDL = Method detection limit

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

pg/kg = picograms per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

NA = Not analyzed

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Sample depths measured from top of sediment

TOC = Total Organic Carbon

TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B

Petroleum Hydrocarbons - Mass.-EPH analyzed by MA EPH method 1/09 and Mass.-VPH analyzed by MADEP-VPH method modified 8021B

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-6

Western Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	WDT-4-C 04/28/05 3'1"-4'3"		WDT-5A 04/26/05 0-3"		WDT-5B(0-3) 04/26/05 3'-3'3"		WDT-5C 04/26/05 3'3"-4'3"		WDT-6A 04/26/05 0-3"	
	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TOC	mg/kg	21,100	5,060	9,300	1,900	114,000	8,380	17,800	3,340	78,300
TPH-DRO	mg/kg	170	44	9,300	1,900	15,000	4,000	36	21	24,000
PCB-1016	ug/kg	ND	30	ND	450	ND	280	ND	26	ND
PCB-1221	ug/kg	ND	30	ND	450	ND	280	ND	26	ND
PCB-1232	ug/kg	ND	30	ND	450	ND	280	ND	26	ND
PCB-1242	ug/kg	ND	30	ND	450	ND	280	ND	26	ND
PCB-1248	ug/kg	ND	30	ND	450	ND	280	ND	26	ND
PCB-1254	ug/kg	ND	30	ND	450	ND	280	ND	26	ND
PCB-1260	ug/kg	54	30	5,700	450	2,800	280	ND	26	ND
Total PCB Aroclors	ug/kg	54	---	5,700	---	2,800	---	<26	---	4,100
Total PCB Congeners	ug/kg	4,549,920	---	NA	---	NA	---	NA	---	NA

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UI = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass -GPH analyzed by MA EPH method 1998 and Mass-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-6

Western Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	WDT-6B(0-3)		WDT-6C		WDT-7A		WDT-7B(0-3)		WDT-7C	
	Sample ID	Sample Date	Sample ID	Sample Date	Sample ID	Sample Date	Sample ID	Sample Date	Sample ID	Sample Date
Sample Depth	3"-16"		16"-26"		0-3"		3"-17"		17"-27"	
Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	238.000	11,100	19,000	3,480	322,000	69,500	137,000	13,100	22,900	3,720
TPH-DRO	100,000	21,000	27	27	34,000	11,000	78,000	4,200	41 J	24
PCB-1016	ND	3,000	ND	28	ND	260	ND	3,000	ND	26
PCB-1221	ND	3,000	ND	28	ND	260	ND	3,000	ND	26
PCB-1232	ND	3,000	ND	28	ND	260	ND	3,000	ND	26
PCB-1242	ND	3,000	ND	28	ND	260	ND	3,000	ND	26
PCB-1248	ND	3,000	ND	28	ND	260	ND	3,000	ND	26
PCB-1254	ND	3,000	ND	28	ND	260	ND	3,000	ND	26
PCB-1260	9100 J	3,000	<28	28	4,100	260	12000 J	3,000	ND	26
Total PCB Aroclors	9100 J	---	<28	---	4,100	---	12000 J	---	61	---
Total PCB Congeners	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass -EPH analyzed by MA EPH method 1/8g and Mass -VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8062
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-6

Western Drainage Ditch Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID	WDT-9A		WDT-8B(0-3)		WDT-8C	
		Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date	Sample Depth
		0-3'	3'-4.3'	0-3'	3'-4.3'	0-3'	3'-4.3'
Units	Units	Result	MDL	Result	MDL	Result	MDL
TOC	mg/kg	60,700	5,830	75,400	9,420	18,400	5,170
TPH-DRO	mg/kg	8,900	700	12,000	660	52	20
PCB-1016	ug/kg	ND	380	ND	370	ND	28
PCB-1221	ug/kg	ND	380	ND	370	ND	28
PCB-1232	ug/kg	ND	380	ND	370	ND	28
PCB-1242	ug/kg	ND	380	ND	370	ND	28
PCB-1248	ug/kg	ND	380	ND	370	ND	28
PCB-1254	ug/kg	ND	380	ND	370	ND	28
PCB-1260	ug/kg	3,800	380	3,300	370	<28	28
Total PCB Aroclors	ug/kg	3,800	---	3,300	---	<28	---
Total PCB Congeners	pg/kg	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 LU = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
 Sample depths measured from top of sediment
 TOC = Total Organic Carbon
 TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass-EPH analyzed by MA-EPH method 1/98 and Mass-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A

TABLE 7-7

Confluence Area Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID Sample Date Sample Depth	CAT-1A 04/14/05 0-3"		CAT-1B(0-3) 04/14/05 3"-3.3"		CAT-1D(0-3) 04/14/05 Duplicate of CAT-B(0-3)		CAT-1C 04/14/05 3.3"-4.3"		CAT-1D 04/14/05 Duplicate of CAT-1C		CAT-2A 04/14/05 0-3"	
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC		140,000	26,200	187,000	11,600	42,500	5,900	33,200	6,450	42,500	5,900	82,700	27,000
TPH-DRO		34000 J	2,600	120,000	35,000	120,000	35,000	270	46	840	49	20,000	4,100
PCB-1016		ND	1,200	ND	8,300	ND	8,200	ND	32	ND	35	ND	1,900
PCB-1221		ND	1,200	ND	8,300	ND	8,200	ND	32	ND	35	ND	1,900
PCB-1232		ND	1,200	ND	8,300	ND	8,200	ND	32	ND	35	ND	1,900
PCB-1242		ND	1,200	ND	8,300	ND	8,200	ND	32	ND	35	ND	1,900
PCB-1248		ND	1,200	ND	8,300	ND	8,200	ND	32	ND	35	ND	1,900
PCB-1254		ND	1,200	ND	8,300	ND	8,200	ND	32	ND	35	ND	1,900
PCB-1260		14,000	1,200	69,000	8,300	59,000	8,200	170	32	540 J	35	12,000	1,900
Total PCB Aroclors		14,000	1,200	69,000	8,300	59,000	8,200	170	32	540 J	35	12,000	1,900
Total PCB Congeners		NA	---	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel

MDL = Method detection limit

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

pg/kg = picograms per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

NA = Not analyzed

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit

is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Sample depths measured from top of sediment

TOC = Total Organic Carbon

TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B

Petroleum Hydrocarbons - Mass-EPH analyzed by MA EPH method 1/98 and Mass-VPH analyzed by MADEP-VPH method modified 8021B

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-7

Confluence Area Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Units	CAT-2B(0-3)		CAT-2C		CAT-3-A		CAT-3-B		CAT-3-C	
		04/14/05 3"-3'3"	MDL	04/14/05 3'3"-4'3"	MDL	04/15/05 0-3'	MDL	04/15/05 3"-3'3"	MDL	04/15/05 3'3"-4'3"	MDL
TOC	mg/kg	92,900	14,100	132,000	6,690	101,000	9,220	120,000	5,250	72,100	10,700
TPH-DRO	mg/kg	37,000 J	1,900	45,000	5,000	9100 J	2,600	16000 J	1,700	710 J	290
PCB-1016	ug/kg	ND	2,300	ND	1,800	ND	3,600	ND	4,700	ND	41
PCB-1221	ug/kg	ND	2,300	ND	1,800	ND	3,600	ND	4,700	ND	41
PCB-1232	ug/kg	ND	2,300	ND	1,800	ND	3,600	ND	4,700	ND	41
PCB-1242	ug/kg	ND	2,300	ND	1,800	ND	3,600	ND	4,700	ND	41
PCB-1248	ug/kg	ND	2,300	ND	1,800	ND	3,600	ND	4,700	ND	41
PCB-1254	ug/kg	ND	2,300	ND	1,800	ND	3,600	ND	4,700	ND	41
PCB-1260	ug/kg	17,000	2,300	9,900	1,800	47,000	3,600	41,000	4,700	110	41
Total PCB Aroclors	ug/kg	17,000	2,300	9,900	1,800	47,000	3,600	41,000	4,700	110	41
Total PCB Congeners	pg/kg	NA	---	NA	---	NA	---	NA	---	NA	---

NOTES:

Data has been validated by SECOR personnel

MDL = Method detection limit

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

pg/kg = picograms per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

NA = Not analyzed

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Sample depths measured from top of sediment

TOC = Total Organic Carbon

TPH-DRO (total petroleum hydrocarbons - diesel range organics) analyzed by Method 8015B

Petroleum Hydrocarbons - Mass.-EPH analyzed by MA EPH method 1998 and Mass.-VPH analyzed by MADEP-VPH method modified 8021B

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-8

Eastern Drainage Ditch Bank Surface Soil Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	Sample ID Sample Date Sample Depth	EDT-1E Grab 07/06/05		EDT-1W Grab 07/06/05		EDT-2E Grab 07/06/05		EDT-2W 06/06/05		EDT-3E Grab 07/06/05		URS for Protection Of Human Health
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
TPH-DRO	mg/kg	420 J	130	280 J	42	130 J	29	170	83	630 J	180	NS
C9-16 C18 Aliphatics	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	2,500
C19 to C36 Aliphatics	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	5,000
C11 to C22 Aromatics	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	2,000
C5-C8 Aliphatic Hydrocarbons	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	500
C9-C12 Aliphatic Hydrocarbons	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	2,500
C9-C10 Aromatic Hydrocarbons	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	500
Unadjusted C11 - C22 Aromatics	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	NS
Unadjusted C5-C8 Aliphatics	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	NS
Unadjusted C9-C12 Aliphatics	mg/kg	NA	---	NA	---	NA	---	NA	---	NA	---	NS
PCB-1016	ug/kg	ND	2,800	ND	300	ND	100	ND	300	ND	250	82,000
PCB-1221	ug/kg	ND	2,800	ND	300	ND	100	ND	300	ND	250	3,000
PCB-1232	ug/kg	ND	2,800	ND	300	ND	100	ND	300	ND	250	3,000
PCB-1242	ug/kg	ND	2,800	ND	300	ND	100	ND	300	ND	250	3,000
PCB-1248	ug/kg	ND	2,800	ND	300	ND	100	ND	300	ND	250	3,000
PCB-1254	ug/kg	ND	2,800	ND	300	ND	100	ND	300	ND	250	3,000
PCB-1260	ug/kg	ND	2,800	ND	300	ND	100	ND	300	ND	250	3,000
Total PCB Aroclors	ug/kg	12,000	2,800	3,800	300	860	100	4,600	300	2,200	250	3,000
Total PCB Congeners	ppb/kg	NA	---	3,800	---	600	---	4,600	---	2,200	---	NS

NOTES:
 Data validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 NS=No Standard
 Standards based on Delaware Uniform Risk Based Remediation Standards for non-critical water resource area.
 Samples collected at a depth of 0-5"
 TPH-DRO analyzed by Method 801.5B
 Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 198 and Mass - VPH analyzed by MADEP-VPH method modified 802.1B
 PCB Aroclors analyzed by Method 8092
 PCB congeners analyzed by USEPA Method 1681A

P:\Siter\Amtrak_ASD\MSDC\DATA\PACKAGE\Excel\Summary Tables\Table 11 (Raw Data 5) (1) (per Olson, released)

TABLE 7-8
 Eastern Drainage Ditch Bank Surface Soil Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	EDT-3W Grab 07/06/05		EDT-4E Grab 07/05/05		EDT-4W Grab 07/05/05		EDT-5E Grab 07/05/05		EDT-5W Grab 07/06/05		URS for Protection Of Human-Health	
	Sample ID Sample Date Sample Depth	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL		
TPH-DRO		mg/kg	310 J	63	830 J	150	1100 J	250	170 J	67	160	NS
C9 to C18 Aliphatics		mg/kg	NA	NA	NA	NA	NA	73	73	7	8	2,500
C19 to C26 Aliphatics		mg/kg	NA	NA	NA	NA	NA	380	380	13	16	5,000
C11 to C22 Aromatics		mg/kg	NA	NA	NA	NA	NA	160	160	13	16	2,000
C5-C8 Aliphatic Hydrocarbons		mg/kg	NA	NA	NA	NA	NA	5	ND	5	7	500
C9-C12 Aliphatic Hydrocarbons		mg/kg	NA	NA	NA	NA	NA	5	ND	5	7	2,500
C9-C10 Aromatic Hydrocarbons		mg/kg	NA	NA	NA	NA	NA	5	ND	5	7	500
Unadjusted C11 - C22 Aromatics		mg/kg	NA	NA	NA	NA	NA	51	13	170	16	NS
Unadjusted C5-C8 Aliphatics		mg/kg	NA	NA	NA	NA	NA	5	ND	5	7	NS
Unadjusted C9-C12 Aliphatics		mg/kg	NA	NA	NA	NA	NA	5	<7.13	7	7	NS
PCB-101B		ug/kg	ND	890	ND	420	ND	7,200	ND	180	1,100	82,000
PCB-1221		ug/kg	ND	890	ND	420	ND	7,200	ND	180	1,100	3,000
PCB-1232		ug/kg	ND	890	ND	420	ND	7,200	ND	180	1,100	3,000
PCB-1242		ug/kg	ND	890	ND	420	ND	7,200	ND	180	1,100	3,000
PCB-1248		ug/kg	ND	890	ND	420	ND	7,200	ND	180	1,100	3,000
PCB-1254		ug/kg	ND	890	ND	420	ND	7,200	ND	180	1,100	3,000
PCB-1260		ug/kg	9,400	890	5,800	420	77,000	7,200	2,100	190	1,100	3,000
Total PCB Aroclors		ug/kg	9,400	890	5,800	420	77,000	7,200	2,100	190	1,100	3,000
Total PCB Congeners		ppb/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS

NOTES:
 Data validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
 NS=No Standard
 Samples collected at a depth of 0.6'
 TPH-DRO analyzed by Method 8015B
 Petroleum Hydrocarbons - Misc.-EPH analyzed by MA-EFH method 199 and Misc.-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1631A

TABLE 7-8

Eastern Drainage Ditch Bank Surface Soil Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	Sample ID	EDT-4E Grab 07/05/05		EDT-6W 04/27/05		EDT-7E Grab 07/05/05		EDT-7W 04/27/05		EDT-8E 08/02/05		URS for Protection Of Human-Health
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
TPH-DRO	mg/kg	79 J	30	230	80	330 J	160	1,300	400	370 J	59	NS
C9 to C18 Aliphatics	mg/kg	ND	6	NA	---	NA	---	NA	---	41	7	2,500
C19 to C36 Aliphatics	mg/kg	57	15	NA	---	NA	---	NA	---	200	15	5,000
C11 to C22 Aromatics	mg/kg	26	15	NA	---	NA	---	NA	---	61	15	2,000
C5-C8 Aliphatic Hydrocarbons	mg/kg	ND	6	NA	---	NA	---	NA	---	ND	5	500
C9-C12 Aliphatic Hydrocarbons	mg/kg	ND	6	NA	---	NA	---	NA	---	ND	5	2,500
C9-C10 Aromatic Hydrocarbons	mg/kg	ND	6	NA	---	NA	---	NA	---	ND	5	500
Unadjusted C11 - C22 Aromatics	mg/kg	28	15	NA	---	NA	---	NA	---	61	15	NS
Unadjusted C5-C8 Aliphatics	mg/kg	ND	6	NA	---	NA	---	NA	---	ND	5	NS
Unadjusted C9-C12 Aliphatics	mg/kg	ND	6	NA	---	NA	---	NA	---	ND	5	NS
PCB-1016	ug/kg	ND	110	ND	230	ND	660	ND	38	ND	210	82,000
PCB-1221	ug/kg	ND	110	ND	230	ND	660	ND	38	ND	210	3,000
PCB-1232	ug/kg	ND	110	ND	230	ND	660	ND	38	ND	210	3,000
PCB-1242	ug/kg	ND	110	ND	230	ND	660	ND	38	ND	210	3,000
PCB-1248	ug/kg	ND	110	ND	230	ND	660	ND	38	ND	210	3,000
PCB-1254	ug/kg	ND	110	ND	230	ND	660	ND	38	ND	210	3,000
PCB-1260	ug/kg	1,500	110	2,000	230	4,100	660	280	38	3,300	210	3,000
Total PCB Aroclors	ug/kg	1,500	110	2,000	230	4,100	660	280	38	3,300	210	3,000
Total PCB Congeners	ug/kg	602,238,200	---	NA	---	NA	---	NA	---	NA	---	NS

NOTES:

Data validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area.
 RSEW Standard
 Samples collected at a depth of 0-6"
 TPH-DRO analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 108 and Mass VPH analyzed by MACEP-VPH method modified 9021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1688A

TABLE 7-8

Eastern Drainage Ditch Bank Surface Soil Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID Sample Date Sample Depth	EDT-3W 07/06/05		EDT-9E 06/19/05		EDT-9W 04/27/05		EDT-10E 07/07/05		EDT-10W 06/02/05		URS for Protection Of Human Health
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
TPH-DRO		3300 J	220	3,700	210	390	84	1500 J	300	960 J	140	NS
C9 to C18 Aliphatics		NA	---	270	210	NA	---	NA	---	460	87	2,500
C19 to C36 Aliphatics		NA	---	1,000	430	NA	---	NA	---	1,600	170	5,000
C11 to C22 Aromatics		NA	---	590	210	NA	---	NA	---	810	70	2,000
C5-C8 Aliphatic Hydrocarbons		NA	---	ND UJ	9	NA	---	NA	---	ND	14	500
C9-C12 Aliphatic Hydrocarbons		NA	---	ND UJ	9	NA	---	NA	---	ND	14	2,500
C9-C10 Aromatic Hydrocarbons		NA	---	ND UJ	9	NA	---	NA	---	ND	14	500
Unadjusted C11 - C22 Aromatics		NA	---	590	210	NA	---	NA	---	820	70	NS
Unadjusted C9-C12 Aliphatics		NA	---	ND UJ	9	NA	---	NA	---	ND	14	NS
PCB-1016		NA	---	ND UJ	9	NA	---	NA	---	ND	14	NS
PCB-1221		ND	630	ND	1,500	ND	4,000	ND	4,300	ND	2,500	82,000
PCB-1232		ND	630	ND	1,500	ND	4,000	ND	4,300	ND	2,500	3,000
PCB-1242		ND	630	ND	1,500	ND	4,000	ND	4,300	ND	2,500	3,000
PCB-1248		ND	630	ND	1,500	ND	4,000	ND	4,300	ND	2,500	3,000
PCB-1264		ND	630	ND	1,500	ND	4,000	ND	4,300	ND	2,500	3,000
PCB-1260		ND	630	19,000	1,500	24,000	4,000	ND	4,300	ND	2,500	3,000
Total PCB Aroclors		8,800	630	19,000	1,500	12,000	4,000	40,000	4,300	22,000	2,500	3,000
Total PCB Congeners		NA	---	18,066,112,000	---	36,000	---	NA	---	NA	---	NS

NOTES:
Data validated by SECOR personnel
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
ppkg = picograms per kilogram
ND = Not detected at or above the method detection limit
J = Estimated value
NA = Not analyzed
NS=No Standard
Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
Samples collected at a depth of 0-5'
TPH-DRO analyzed by Method 8015B
Petroleum Hydrocarbons - Mass - ECH analyzed by MA EPH method 196 and Mass - VPH analyzed by MADEP-VPH method modified 8021B
PCB Aroclors analyzed by Method 8082
PCB congeners analyzed by USEPA Method 1668A

TABLE 7-8

Eastern Drainage Ditch Bank Surface Soil Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID	Sample Date	Sample Depth	Units	EDT-11E 07/07/05		EDT-11W 06/02/05		EDT-12E 06/02/05		EDT-12W 06/02/05		EDT-53W 06/02/05		URS (for Protection Of Human Health)
					Result	MDL									
TPH-DRO					860 J	300	2100 J	310	1200 J	320	13000 J	3100	15000 J	3,000	NS
C9 to C18 Aliphatics				mg/kg	NA	---	NA	---	440	80	NA	---	NA	---	2,500
C19 to C28 Aliphatics				mg/kg	NA	---	NA	---	1,400	160	NA	---	NA	---	5,000
C11 to C22 Aromatics				mg/kg	NA	---	NA	---	560	64	NA	---	NA	---	2,000
C5-C8 Aliphatic Hydrocarbons				mg/kg	NA	---	NA	---	ND	13	NA	---	NA	---	500
C9-C12 Aliphatic Hydrocarbons				mg/kg	NA	---	NA	---	ND	13	NA	---	NA	---	2,500
C9-C10 Aromatic Hydrocarbons				mg/kg	NA	---	NA	---	ND	13	NA	---	NA	---	500
Unadjusted C11 - C22 Aromatics				mg/kg	NA	---	NA	---	800	64	NA	---	NA	---	NS
Unadjusted C5-C8 Aliphatics				mg/kg	NA	---	NA	---	ND	13	NA	---	NA	---	NS
Unadjusted C9-C12 Aliphatics				mg/kg	NA	---	NA	---	ND	13	NA	---	NA	---	NS
PCB-1016				ug/kg	ND	1,700	ND	2,200	ND	2,300	ND	2,200	ND	2,700	82,000
PCB-1221				ug/kg	ND	1,700	ND	2,200	ND	2,300	ND	2,200	ND	2,700	3,000
PCB-1232				ug/kg	ND	1,700	ND	2,200	ND	2,300	ND	2,200	ND	2,700	3,000
PCB-1242				ug/kg	ND	1,700	ND	2,200	ND	2,300	ND	2,200	ND	2,700	3,000
PCB-1248				ug/kg	ND	1,700	ND	2,200	ND	2,300	ND	2,200	ND	2,700	3,000
PCB-1254				ug/kg	ND	1,700	ND	2,200	ND	2,300	ND	2,200	ND	2,700	3,000
PCB-1260				ug/kg	20,000	1,700	30,000	2,200	30,000	2,300	33,000	2,200	20,000	2,200	3,000
Total PCB Aroclays				ug/kg	20,000	1,700	30,000	2,200	30,000	2,300	33,000	2,200	20,000	2,200	3,000
Total PCB Congeners				ug/kg	NA	---	NA	---	NA	---	NA	---	20,000	---	NS

NOTES:

Data validated by SECOR personnel
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
ppb/g = picograms per kilogram
ND = Not detected at or above the method detection limit
J = Estimated value
NA = Not analyzed
NS=No Standard
Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
Samples collected at a depth of 0-5"
TPH-DRO analyzed by Method 8015B
Polynuclear Hydrocarbons - Mass: EPH analyzed by NA EPH method 19B and Mass -YPH analyzed by MDC/EP-YPH method modified 9021B
PCB Aroclays analyzed by Method 8082
PCB congeners analyzed by USEPA Method 1668A

TABLE 7-8

Eastern Drainage Ditch Bank Surface Soil Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID Sample Date Sample Depth	EDT-13E 07/07/05		EDT-13W 07/07/05		EDT-14E 07/07/05		EDT-14W 07/07/05		URS for Protection Of Human-Health
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	
TPH-DRO		820 J	330	120 J	21	150,000 J	10,000	11000 J	1,800	NS
C9 to C18 Aliphatics		NA	---	NA	---	NA	---	NA	---	2,500
C19 to C35 Aliphatics		NA	---	NA	---	NA	---	NA	---	5,000
C11 to C22 Aromatics		NA	---	NA	---	NA	---	NA	---	2,000
C5-C8 Aliphatic Hydrocarbons		NA	---	NA	---	NA	---	NA	---	500
C9-C12 Aliphatic Hydrocarbons		NA	---	NA	---	NA	---	NA	---	2,500
C9-C10 Aromatic Hydrocarbons		NA	---	NA	---	NA	---	NA	---	500
Unadjusted C11 - C22 Aromatics		NA	---	NA	---	NA	---	NA	---	NS
Unadjusted C5-C8 Aliphatics		NA	---	NA	---	NA	---	NA	---	NS
Unadjusted C9-C12 Aliphatics		NA	---	NA	---	NA	---	NA	---	NS
PCB-1016		ND	460	ND	150	ND	4,300	ND	5,000	82,000
PCB-1221		ND	460	ND	150	ND	4,300	ND	5,000	3,000
PCB-1232		ND	460	ND	150	ND	4,300	ND	5,000	3,000
PCB-1242		ND	460	ND	150	ND	4,300	ND	5,000	3,000
PCB-1246		ND	460	ND	150	ND	4,300	ND	5,000	3,000
PCB-1254		ND	460	ND	150	ND	4,300	ND	5,000	3,000
PCB-1260		ND	460	ND	150	ND	4,300	ND	5,000	3,000
Total PCB Arochlor		5,700	460	1,400	150	77,000	4,300	54,000	5,000	3,000
Total PCB Congeners		NA	---	1,480	---	NA	---	54,000	---	NS

NOTES:
 Data validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area.
 NS=No Standard
 Sample collected at a depth of 0-6"
 TPH-DRO analyzed by Method 8015B
 Petroleum Hydrocarbons - Mass-EPH analyzed by MA-EPH method 158 and Mass-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Arochlor analyzed by Method 8062
 PCB congeners analyzed by USEPA Method 1631A

TABLE 7-9

Western Drainage Ditch Bank Surface Soil Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID Sample Date Sample Depth	WDT-1E 06/01/05		WDT-1W 06/01/05		WDT-2E 05/19/05		WDT-2W 05/19/05		WDT-3E 06/01/05		WDT-3W 06/01/05		URS for Protection Of Human-Health
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
TPH-DRO	mg/kg	320 J	160	7500 J	3,300	220	16	480	44	190 J	83	110 J	75	
C9 to C18 Aliphatics	mg/kg	NA	---	NA	---	16	8	47	11	23	10	NA	---	NS
C19 to C36 Aliphatics	mg/kg	NA	---	NA	---	130	16	210	22	130	21	NA	---	2,500
C11 to C22 Aromatics	mg/kg	NA	---	NA	---	52	16	68	22	83	21	NA	---	5,000
C5-C8 Aliphatic Hydrocarbons	mg/kg	NA	---	NA	---	ND	7.02	ND UJ	9	ND	8	NA	---	2,000
C9-C12 Aliphatic Hydrocarbons	mg/kg	NA	---	NA	---	ND	7.02	ND UJ	9	ND	8	NA	---	500
C9-C10 Aromatic Hydrocarbons	mg/kg	NA	---	NA	---	ND	7.02	ND UJ	9	ND	8	NA	---	2,500
Unadjusted C11 - C22 Aromatics	mg/kg	NA	---	NA	---	54	16	70	22	87	21	NA	---	500
Unadjusted C5-C8 Aliphatics	mg/kg	NA	---	NA	---	ND	7.02	ND UJ	9	ND	8	NA	---	NS
Unadjusted C9-C12 Aliphatics	mg/kg	NA	---	NA	---	ND	7.02	ND UJ	9	ND	8	NA	---	NS
PCB-1016	ug/kg	ND	220	ND	2,800	ND	230	ND	1,200	ND	150	ND	270	82,000
PCB-1221	ug/kg	ND	220	ND	2,800	ND	230	ND	1,200	ND	150	ND	270	3,000
PCB-1232	ug/kg	ND	220	ND	2,800	ND	230	ND	1,200	ND	150	ND	270	3,000
PCB-1242	ug/kg	ND	220	ND	2,800	ND	230	ND	1,200	ND	150	ND	270	3,000
PCB-1248	ug/kg	ND	220	ND	2,800	ND	230	ND	1,200	ND	150	ND	270	3,000
PCB-1254	ug/kg	ND	220	ND	2,800	ND	230	ND	1,200	ND	150	ND	270	3,000
PCB-1260	ug/kg	ND	220	ND	2,800	ND	230	ND	1,200	ND	150	ND	270	3,000
Total PCB Aroclors	ug/kg	2,900	220	26,000	2,800	3,200	230	7,700	1,200	1,900	150	2,100	270	3,000
Total PCB Congeners	ppb/kg	NA	---	26,000	---	3,200	---	3,362,004,000	---	1,900	---	2,100	---	NS

NOTES:

Data validated by SECOR personnel
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
ppb/kg = picograms per kilogram
ND = Not detected at or above the method detection limit
J = Estimated value

NA = Not analyzed

Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area

NS=No Standard

Samples collected at a depth of 0-6"

TPH-DRO analyzed by Method 8015B

Petroleum hydrocarbons - Mass-SEPA analyzed by MA EPH method 1098 and Mass- VPH analyzed by MADEP-VPH method modified 8021B

PCB Aroclors analyzed by Method 8062

PCB congeners analyzed by USEPA Method 1661A

D:\Data\Amtrak\AMTRAK Former Fueling Facility\Tables\Tables 7-9\Table 7-9\Western Ditch.xlsx

TABLE 7-9
 Western Drainage Ditch Bank Surface Soil Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	Sample ID Sample Date Sample Depth	WDI-4E 05/26/05		WDI-4W 05/28/05		WDI-5E 05/26/05		WDI-5W 05/28/05		WDI-5E 05/23/05		WDI-5W 05/23/05		URS for Protection Of Human-Health
		Result	MDL											
TPH-DRO		120	71	330	270	320	210	370	180	420	180	310	170	NS
C9 to C16 Aliphatics		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		NS
C19 to C36 Aliphatics		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		2,500
C11 to C22 Aromatics		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		5,000
C5-C8 Aliphatic Hydrocarbons		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		2,000
C9-C12 Aliphatic Hydrocarbons		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		500
C9-C10 Aromatic Hydrocarbons		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		2,500
Unadjusted C11 - C22 Aromatics		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		500
Unadjusted C5-C8 Aliphatics		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		NS
Unadjusted C9-C12 Aliphatics		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		NS
PCB-1016		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		NS
PCB-1221		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		NS
PCB-1232		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		82,000
PCB-1242		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		3,000
PCB-1248		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		3,000
PCB-1254		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		3,000
PCB-1260		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		3,000
Total PCB Aroclors		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		3,000
Total PCB Congeners		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		NS
		ppb/kg		ppb/kg		ppb/kg		ppb/kg		ppb/kg		ppb/kg		NS

NOTES:
 Data validated by SECOR personnel
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 NS=No Standard
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
 Samples collected at a depth of 0-6"
 TPH-DRO analyzed by Method 8015B
 Polycyclic Hydrocarbons - Ibaas - EPA method 1631 and Mass -VPH analyzed by MADEP-VPH method modifier 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1681A

TABLE 7-9

Western Drainage Ditch Bank Surface Soil Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID	Sample Date	Sample Depth	WDI-7E 05/23/05		WDI-7W 05/23/05		WDI-8E 05/19/05		WDI-8W 05/19/05		URS for Protection Of Human Health
				Result	MDL	Result	MDL	Result	MDL	Result	MDL	
TPH-DRO			mg/kg	420	250	280	190	580	190	250	19	NS
C9 to C18 Aliphatics			mg/kg	NA	NA	NA	NA	160 J	9.6	NA	NA	2,500
C19 to C38 Aliphatics			mg/kg	NA	NA	NA	NA	220 J	19.0	NA	NA	5,000
C11 to C22 Aromatics			mg/kg	NA	NA	NA	NA	65 J	19.0	NA	NA	2,000
C5-C8 Aliphatic Hydrocarbons			mg/kg	NA	NA	NA	NA	ND,UJ	7.7	NA	NA	500
C9-C12 Aliphatic Hydrocarbons			mg/kg	NA	NA	NA	NA	9.99 J	7.7	NA	NA	2,500
C9-C10 Aromatic Hydrocarbons			mg/kg	NA	NA	NA	NA	14.9 J	7.7	NA	NA	500
Unadjusted C11 - C22 Aromatics			mg/kg	NA	NA	NA	NA	89 J	19.0	NA	NA	NS
Unadjusted C5-C8 Aliphatics			mg/kg	NA	NA	NA	NA	ND,UJ	7.7	NA	NA	NS
Unadjusted C9-C12 Aliphatics			mg/kg	NA	NA	NA	NA	24.4 J	7.7	NA	NA	NS
PCB-1016			ug/kg	ND	350	ND	140	ND	270	ND	280	82,000
PCB-1221			ug/kg	ND	350	ND	140	ND	270	ND	280	3,000
PCB-1232			ug/kg	ND	350	ND	140	ND	270	ND	280	3,000
PCB-1242			ug/kg	ND	350	ND	140	ND	270	ND	280	3,000
PCB-1248			ug/kg	ND	350	ND	140	ND	270	ND	280	3,000
PCB-1254			ug/kg	530	350	590	140	ND	270	ND	280	3,000
PCB-1260			ug/kg	3,700	350	1,500	140	2,600	270	2,700	280	3,000
Total PCB Aroclors			ug/kg	4,230	—	2,090	—	2,800	—	2,700	—	3,000
Total PCB Congeners			ug/kg	NA	—	NA	—	1,198,200,100	—	2,700	—	NS

NOTES:

Data validated by SECOR personnel
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
ppkg = picograms per kilogram
ND = Not detected or above the method detection limit
J = Estimated value
NA = Not analyzed
Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area.
NS=No Standard
Samples collected at a depth of 0.9"
TPH-DRO analyzed by Method 9015B
Petroleum Hydrocarbons - Mass: EPA method 1631 and Mass: VPH analyzed by MADEP-VPH method modified 9021B
PCB Aroclors analyzed by Method 8062
PCB congeners analyzed by USEPA Method 1631A

TABLE 7-10

Confluence Area Bank Surface Soil Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID Sample Date	CAT-1E 05/31/05		CAT-1W 05/31/05		CAT-2E 05/31/05		CAT-2W 05/31/05		CAT-3E 05/31/05		CAT-3W 05/31/05		URS for Protection Of Human-Health
		Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
TPH-DRO		930 J	140	3700 J	320	680 J	260	1700 J	190	100 J	60	370 J	250	NS
C9 to C18 Aliphatics		1,400	71	NA	---	NA	---	NA	---	NA	---	67	13	2,500
C19 to C36 Aliphatics		2,200	140	NA	---	NA	---	NA	---	NA	---	380	25	5,000
C11 to C22 Aromatics		1,100	140	NA	---	NA	---	NA	---	NA	---	320	51	2,000
C5-C8 Aliphatic Hydrocarbons		ND	13.5	NA	---	NA	---	NA	---	NA	---	ND	10.1	500
C9-C12 Aliphatic Hydrocarbons		ND	13.5	NA	---	NA	---	NA	---	NA	---	ND	10.1	2,500
C9-C10 Aromatic Hydrocarbons		ND UJ	13.5	NA	---	NA	---	NA	---	NA	---	ND	10.1	500
Unadjusted C11 - C22 Aromatics		1,100	140	NA	---	NA	---	NA	---	NA	---	370	51	NS
Unadjusted C5-C8 Aliphatics		ND UJ	13.5	NA	---	NA	---	NA	---	NA	---	ND	10.1	NS
Unadjusted C9-C12 Aliphatics		ND UJ	13.5	NA	---	NA	---	NA	---	NA	---	ND	10.1	NS
PCB-1016		ND	2,400	ND	900	ND	740	ND	1,300	ND	110	ND	360	82,000
PCB-1221		ND	2,400	ND	900	ND	740	ND	1,300	ND	110	ND	360	3,000
PCB-1232		ND	2,400	ND	900	ND	740	ND	1,300	ND	110	ND	360	3,000
PCB-1242		ND	2,400	ND	900	ND	740	ND	1,300	ND	110	ND	360	3,000
PCB-1248		ND	2,400	ND	900	ND	740	ND	1,300	ND	110	ND	360	3,000
PCB-1254		ND	2,400	ND	900	ND	740	ND	1,300	ND	110	ND	360	3,000
PCB-1260		22,000	2,400	ND	900	9,400	740	ND	1,300	ND	110	ND	360	3,000
Total PCB Aroclors		22,000	---	8,100	---	9,400	---	14,000	---	1,200	---	4,200	---	3,000
Total PCB Congeners		NA	---	18,113,980,000	---	NA	---	NA	---	1,200	---	4,200	---	NS

NOTES:

Data validated by SECOR personnel

MDL = Method detection limit

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

pg/kg = picograms per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

NA = Not analyzed

NS=No Standard

Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area.

Samples collected at depth of 0-6"

TPH-DRO analyzed by Method 8015B

Petroleum Hydrocarbons - Mass -EPH analyzed by MA EPH method 198 and Mass -YPH analyzed by MADEP-YPH method modified 6021B

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1669A

TABLE 7-12

Eastern Drainage Ditch Supplemental Bank Soil Sample Results
AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Sample ID	EDT-1E-1A	EDT-1W-1A	EDT-1W-1B	EDT-1W-1B	EDT-1W-1B	EDT-2E-1A	EDT-2W-1A	EDT-2W-1B	EDT-2W-1B
Sample Date	04/27/06	05/01/06	05/01/06	05/01/06	05/01/06	04/27/06	04/29/06	04/29/06	04/29/06
Sample Depth	0-0.5'	0.5-3.5'	0.5-3.5'	3.5-6.5'	6.5-9.5'	0-0.5'	0-0.5'	0.5-3.5'	3.5-6.5'
Parameter	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	230	180	450	350	180	43	20	140	750
PCB-1016 (ug/kg)	N.D.	230	N.D.	230	26	N.D.	280	210	N.D.
PCB-1221 (ug/kg)	N.D.	230	N.D.	120	26	N.D.	280	210	N.D.
PCB-1232 (ug/kg)	N.D.	230	N.D.	120	26	N.D.	280	210	N.D.
PCB-1242 (ug/kg)	N.D.	230	N.D.	120	26	N.D.	280	210	N.D.
PCB-1248 (ug/kg)	N.D.	230	N.D.	120	26	N.D.	280	210	N.D.
PCB-1254 (ug/kg)	N.D.	230	N.D.	120	26	N.D.	280	210	N.D.
PCB-1260 (ug/kg)	2,400	230	430	120	26	1,000	280	210	270
EDT-1W-1B	4/26/2006	EDT-3E-1B	4/26/2006	EDT-3E-1B	4/26/2006	EDT-3W-1A	5/1/2006	EDT-4E-1B	4/27/2006
Sample Date	4/26/2006	Sample Date	4/26/2006	Sample Date	4/26/2006	Sample Date	5/1/2006	Sample Date	4/27/2006
Sample Depth	5.5-9.5'	Sample Depth	0.5-3.5'	Sample Depth	3.5-6.0'	Sample Depth	0.5-2.0'	Sample Depth	0.5-1.0'
Parameter	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	290	170	120	83	27,000	2,500	1,900	160	420
PCB-1016 (ug/kg)	N.D.	24	N.D.	52	N.D.	230	N.D.	4,000	N.D.
PCB-1221 (ug/kg)	N.D.	24	N.D.	52	N.D.	230	N.D.	4,000	N.D.
PCB-1232 (ug/kg)	N.D.	24	N.D.	52	N.D.	230	N.D.	4,000	N.D.
PCB-1242 (ug/kg)	N.D.	24	N.D.	52	N.D.	230	N.D.	4,000	N.D.
PCB-1248 (ug/kg)	N.D.	24	N.D.	52	N.D.	230	N.D.	4,000	N.D.
PCB-1254 (ug/kg)	N.D.	24	N.D.	52	N.D.	230	N.D.	4,000	N.D.
PCB-1260 (ug/kg)	<24	24	670	120	23	1,800	230	13,000	2,000
EDT-4W-1B	5/2/2006	EDT-4W-2A	5/2/2006	EDT-4W-2B	5/2/2006	EDT-4W-3A	5/2/2006	EDT-4W-3B	5/2/2006
Sample Date	5/2/2006	Sample Date	5/2/2006	Sample Date	5/2/2006	Sample Date	5/2/2006	Sample Date	5/2/2006
Sample Depth	0.5-2.0'	Sample Depth	0-0.5'	Sample Depth	0.5-3.5'	Sample Depth	0-0.5'	Sample Depth	3.5-6.5'
Parameter	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	980	710	800	350	29,000	2,500	1,100	1,700	10,000
PCB-1016 (ug/kg)	N.D.	100,000	N.D.	20,000	N.D.	5,500	14,000	1,600	480
PCB-1221 (ug/kg)	N.D.	100,000	N.D.	20,000	N.D.	5,500	14,000	1,600	480
PCB-1232 (ug/kg)	N.D.	100,000	N.D.	20,000	N.D.	5,500	14,000	1,600	480
PCB-1242 (ug/kg)	N.D.	100,000	N.D.	20,000	N.D.	5,500	14,000	1,600	480
PCB-1248 (ug/kg)	N.D.	100,000	N.D.	20,000	N.D.	5,500	14,000	1,600	480
PCB-1254 (ug/kg)	N.D.	100,000	N.D.	20,000	N.D.	5,500	14,000	1,600	480
PCB-1260 (ug/kg)	390,000	100,000	81,000	3,700	59,000	5,500	120,000	4,700	28,000
EDT-4W-4A	5/24/2006	EDT-4W-5A	5/24/2006	EDT-4W-5B	5/24/2006	EDT-4W-6A	6/19/2006	EDT-4W-6B	6/19/2006
Sample Date	5/24/2006	Sample Date	5/24/2006	Sample Date	5/24/2006	Sample Date	6/19/2006	Sample Date	6/19/2006
Sample Depth	0.5-3.0'	Sample Depth	0-0.5'	Sample Depth	0.5-3.5'	Sample Depth	0-0.5'	Sample Depth	6.5-8.5'
Parameter	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	2,300	290	1,300	310	2,900	4,000	230	88	28,000
PCB-1016 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1221 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1232 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1242 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1248 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1254 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1260 (ug/kg)	110,000	21,000	17,000	1,100	20,000	58,000	61,000	6,900	6,700
EDT-4W-7A	6/20/2006	EDT-4W-7B	6/20/2006	EDT-4W-7C	6/20/2006	EDT-4W-7D	6/20/2006	EDT-4W-7E	6/20/2006
Sample Date	6/20/2006	Sample Date	6/20/2006	Sample Date	6/20/2006	Sample Date	6/20/2006	Sample Date	6/20/2006
Sample Depth	0-0.5'	Sample Depth	0-0.5'	Sample Depth	0-0.5'	Sample Depth	0-0.5'	Sample Depth	0-0.5'
Parameter	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	2,300	290	1,300	310	2,900	4,000	230	88	28,000
PCB-1016 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1221 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1232 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1242 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1248 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1254 (ug/kg)	N.D.	21,000	N.D.	1,100	N.D.	1,300	9,600	500	N.D.
PCB-1260 (ug/kg)	110,000	21,000	17,000	1,100	20,000	58,000	61,000	6,900	6,700

NOTES:
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
ND = Not detected at or above the method detection limit
J = Estimated value
NA = Not analyzed
U = Analyte not detected above the reported sample quantitation limit
UI = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation to accurately and precisely measure the analyte in the sample.

TABLE 7-12

Eastern Drainage Ditch Supplemental Bank Soil Sample Results
 AHTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Sample ID	EDT-4W-188	EDT-4W-188	EDT-4W-188	EDT-4W-238	EDT-4W-244	EDT-4W-245	EDT-4W-246	EDT-4W-246	EDT-4W-25A
Sample Date	10/5/2006	10/5/2006	12/15/2006	12/15/2006	12/14/2006	12/14/2006	12/14/2006	12/14/2006	12/14/2006
Sample Depth	0.5-3.5'	3.5-6.5'	0-0.5'	0.5-3.5'	0-0.5'	0.5-3.5'	3.5-6.5'	3.5-6.5'	0-0.5'
Parameter/Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	650 J	150	410	750	440	220	61,000	100	3,700
PCB-1016 (ug/kg)	N.D. UJ	22,000	N.D. UJ	130,000	N.D. UJ	6,200	N.D. UJ	5,600	N.D. UJ
PCB-1221 (ug/kg)	N.D. UJ	1,400	N.D. UJ	130,000	N.D. UJ	6,200	N.D. UJ	5,600	N.D. UJ
PCB-1232 (ug/kg)	N.D. UJ	22,000	N.D. UJ	130,000	N.D. UJ	6,200	N.D. UJ	5,600	N.D. UJ
PCB-1242 (ug/kg)	N.D. UJ	22,000	N.D. UJ	130,000	N.D. UJ	6,200	N.D. UJ	5,600	N.D. UJ
PCB-1248 (ug/kg)	N.D. UJ	22,000	N.D. UJ	130,000	N.D. UJ	6,200	N.D. UJ	5,600	N.D. UJ
PCB-1254 (ug/kg)	N.D. UJ	22,000	N.D. UJ	130,000	N.D. UJ	6,200	N.D. UJ	5,600	N.D. UJ
PCB-1260 (ug/kg)	180,000 J	22,000	4,900 J	1,300,000 J	85,000	6,200	27,000	5,600	1,300,000
TPH-DRO (mg/kg)	1,700	180	3,700	190	280	200	760	38	430 J
PCB-1016 (ug/kg)	N.D. UJ	260,000	N.D. UJ	1,400	N.D. UJ	280	N.D. UJ	2,600	N.D. UJ
PCB-1221 (ug/kg)	N.D. UJ	260,000	N.D. UJ	1,400	N.D. UJ	280	N.D. UJ	2,600	N.D. UJ
PCB-1232 (ug/kg)	N.D. UJ	260,000	N.D. UJ	1,400	N.D. UJ	280	N.D. UJ	2,600	N.D. UJ
PCB-1242 (ug/kg)	N.D. UJ	260,000	N.D. UJ	1,400	N.D. UJ	280	N.D. UJ	2,600	N.D. UJ
PCB-1248 (ug/kg)	N.D. UJ	260,000	N.D. UJ	1,400	N.D. UJ	280	N.D. UJ	2,600	N.D. UJ
PCB-1254 (ug/kg)	N.D. UJ	260,000	N.D. UJ	1,400	N.D. UJ	280	N.D. UJ	2,600	N.D. UJ
PCB-1260 (ug/kg)	1,300,000	260,000	120,000	1,400	1,900	280	250 J	2,600	2,100
TPH-DRO (mg/kg)	1,200	330	530	500	450	340	250	170	400
PCB-1016 (ug/kg)	N.D. UJ	23,000	N.D. UJ	24,000	N.D. UJ	24,000	N.D. UJ	2,400	N.D. UJ
PCB-1221 (ug/kg)	N.D. UJ	23,000	N.D. UJ	24,000	N.D. UJ	24,000	N.D. UJ	2,400	N.D. UJ
PCB-1232 (ug/kg)	N.D. UJ	23,000	N.D. UJ	24,000	N.D. UJ	24,000	N.D. UJ	2,400	N.D. UJ
PCB-1242 (ug/kg)	N.D. UJ	23,000	N.D. UJ	24,000	N.D. UJ	24,000	N.D. UJ	2,400	N.D. UJ
PCB-1248 (ug/kg)	N.D. UJ	23,000	N.D. UJ	24,000	N.D. UJ	24,000	N.D. UJ	2,400	N.D. UJ
PCB-1254 (ug/kg)	N.D. UJ	23,000	N.D. UJ	24,000	N.D. UJ	24,000	N.D. UJ	2,400	N.D. UJ
PCB-1260 (ug/kg)	350,000 J	23,000	34,000 J	24,000	34,000	24,000	22,000 J	2,400	2,100
TPH-DRO (mg/kg)	250	170	180	92	88	70	310	69	310
PCB-1016 (ug/kg)	N.D. UJ	240	N.D. UJ	130	N.D. UJ	200	N.D. UJ	2,000	N.D. UJ
PCB-1221 (ug/kg)	N.D. UJ	240	N.D. UJ	130	N.D. UJ	200	N.D. UJ	2,000	N.D. UJ
PCB-1232 (ug/kg)	N.D. UJ	240	N.D. UJ	130	N.D. UJ	200	N.D. UJ	2,000	N.D. UJ
PCB-1242 (ug/kg)	N.D. UJ	240	N.D. UJ	130	N.D. UJ	200	N.D. UJ	2,000	N.D. UJ
PCB-1248 (ug/kg)	N.D. UJ	240	N.D. UJ	130	N.D. UJ	200	N.D. UJ	2,000	N.D. UJ
PCB-1254 (ug/kg)	N.D. UJ	240	N.D. UJ	130	N.D. UJ	200	N.D. UJ	2,000	N.D. UJ
PCB-1260 (ug/kg)	3,000	240	1,100	130	1,700	200	18,000	2,200	1,200

NOTES:
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 U = Analyte not detected above the reported sample quantification limit
 UJ = Analyte not detected above the reported sample limit. The reported quantification limit is approximate and may or may not represent the actual limit of quantification to accurately and precisely measure the analyte in the sample

TABLE 7-12

Eastern Drainage Ditch Supplemental Bank Soil Sample Results
AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Sample ID	EDT-7W-1B	EDT-8E-1B	EDT-9W-1A	EDT-9E-1A	EDT-9W-1B	EDT-9W-1A	EDT-9W-1B
Sample Date	4/24/2006	5/9/2006	4/24/2006	5/25/2006	4/25/2006	4/25/2006	4/25/2006
Sample Depth	3.5'-4.0'	0.5'-3.5'	0.5'-3.5'	0.5'-2.0'	0.5'-2.0'	0.5'-2.0'	0.5'-3.0'
Parameter/Units	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	50,000	280	130	220	8,500	140	37,000
PCB-1016 (ug/kg)	N.D.	N.D.	910	960	N.D.	96	120
PCB-1221 (ug/kg)	N.D.	N.D.	910	960	N.D.	96	120
PCB-1232 (ug/kg)	N.D.	N.D.	910	960	N.D.	96	120
PCB-1242 (ug/kg)	N.D.	N.D.	910	960	N.D.	96	120
PCB-1248 (ug/kg)	N.D.	N.D.	910	960	N.D.	96	120
PCB-1254 (ug/kg)	N.D.	N.D.	910	960	N.D.	96	120
PCB-1260 (ug/kg)	49	8,500	910	960	1,100	96	180
Sample ID	EDT-10E-1A	EDT-10W-1B	EDT-10W-1A	EDT-11E-1B	EDT-11W-1A	EDT-11W-1B	EDT-11E-1A
Sample Date	5/2/2006	6/2/2006	6/7/2006	06/07/06	5/20/2006	5/20/2006	5/20/2006
Sample Depth	0.5'-3.0'	0.5'-3.0'	0.5'-3.0'	0.5'-1.5'	0.0'-5'	0.5'-2.5'	0.0'-5'
Parameter/Units	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	1,300	600	4,000	510	720	180	340
PCB-1016 (ug/kg)	N.D.	N.D.	4,200	770	720	720	510
PCB-1221 (ug/kg)	N.D.	N.D.	4,200	770	720	720	510
PCB-1232 (ug/kg)	N.D.	N.D.	4,200	770	720	720	510
PCB-1242 (ug/kg)	N.D.	N.D.	4,200	770	720	720	510
PCB-1248 (ug/kg)	N.D.	N.D.	4,200	770	720	720	510
PCB-1254 (ug/kg)	N.D.	N.D.	4,200	770	720	720	510
PCB-1260 (ug/kg)	18,000	4,200	4,400	720	5,700	770	3,800
Sample ID	EDT-12W-1A	EDT-13E-1B	EDT-13W-1A	EDT-13E-1B	EDT-13W-1A	EDT-13W-1B	EDT-14E-1A
Sample Date	5/23/2006	5/18/2006	5/23/2006	5/23/2006	5/18/2006	5/18/2006	5/25/2006
Sample Depth	0.5'-3.0'	0.5'-3.5'	0.0'-5'	0.5'-3.5'	0.0'-5'	0.5'-3.5'	0.0'-5'
Parameter/Units	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	12,000	900	180	87	160	67	140
PCB-1016 (ug/kg)	N.D.	N.D.	250	23	N.D.	76	140
PCB-1221 (ug/kg)	N.D.	N.D.	250	23	N.D.	76	140
PCB-1232 (ug/kg)	N.D.	N.D.	250	23	N.D.	76	140
PCB-1242 (ug/kg)	N.D.	N.D.	250	23	N.D.	76	140
PCB-1248 (ug/kg)	N.D.	N.D.	250	23	N.D.	76	140
PCB-1254 (ug/kg)	N.D.	N.D.	250	23	N.D.	76	140
PCB-1260 (ug/kg)	11,000	1,600	3,100	310	630	77	140
Sample ID	EDT-14E-2A	EDT-14E-2B	EDT-14E-3A	EDT-14E-3B	EDT-14E-4A	EDT-14E-4B	EDT-14E-5A
Sample Date	5/25/2006	5/23/2006	5/23/2006	5/23/2006	5/23/2006	5/23/2006	7/11/2006
Sample Depth	0.5'-3.5'	0.5'-3.0'	0.0'-5'	0.5'-3.0'	0.0'-5'	0.5'-3.5'	0.0'-5'
Parameter/Units	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO (mg/kg)	39,000	13,000	6,500	880	79,000	6,100	12,000
PCB-1016 (ug/kg)	N.D.	N.D.	46,000	1,300	N.D.	8,700	16,000
PCB-1221 (ug/kg)	N.D.	N.D.	46,000	1,300	N.D.	8,700	16,000
PCB-1232 (ug/kg)	N.D.	N.D.	46,000	1,300	N.D.	8,700	16,000
PCB-1242 (ug/kg)	N.D.	N.D.	46,000	1,300	N.D.	8,700	16,000
PCB-1248 (ug/kg)	N.D.	N.D.	46,000	1,300	N.D.	8,700	16,000
PCB-1254 (ug/kg)	N.D.	N.D.	46,000	1,300	N.D.	8,700	16,000
PCB-1260 (ug/kg)	150,000	17,000	46,000	17,000	75,000	8,700	59,000

NOTES:
MDL = Method detection limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
ND = Not detected at or above the method detection limit
J = Estimated value
NA = Not analyzed
U = Analyte not detected above the reported sample quantitation limit
UI = Analyte not detected above the reported sample limit. The reported quantification limit is approximate and may or may not represent the actual limit of quantitation to accurately and precisely measure the analyte in the sample.

TABLE 7-12

Eastern Drainage Ditch Supplemental Bank Soil Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Sample ID	EDT-21E-5A	EDT-14E-5B	EDT-14E-6A	EDT-14E-6B	EDT-14E-7A	EDT-14E-7B	EDT-14E-8A	EDT-14E-8B	EDT-14E-8B
Sample Date	7/11/2006	7/11/2006	7/11/2006	7/11/2006	7/11/2006	7/11/2006	10/3/2006	10/3/2006	10/3/2006
Sample Depth	EDT-14E-5A DUF	0.5-3.5'	0-0.5'	0.5-3.5'	0-0.5'	0.5-3.5'	0-0.5'	0.5-3.5'	3.5-6.5'
Parameter/Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO mg/kg	300 J	5,400 J	120 J	31	320 J	170	760	280	11,000
PCB-1016 ug/kg	N.D. UJ	N.D. UJ	N.D. UJ	870	N.D. UJ	470	N.D.	390	N.D.
PCB-1221 ug/kg	N.D. UJ	1,500	N.D. UJ	870	N.D. UJ	470	N.D.	390	N.D.
PCB-1232 ug/kg	N.D. UJ	1,500	N.D. UJ	870	N.D. UJ	470	N.D.	390	N.D.
PCB-1242 ug/kg	N.D. UJ	1,500	N.D. UJ	870	N.D. UJ	470	N.D.	390	N.D.
PCB-1248 ug/kg	N.D. UJ	1,500	N.D. UJ	870	N.D. UJ	470	N.D.	390	N.D.
PCB-1254 ug/kg	N.D. UJ	1,500	N.D. UJ	870	N.D. UJ	470	N.D.	390	N.D.
PCB-1260 ug/kg	11,000	16,000	8,600	870	6,400	470	3,600	390	2,700

Sample ID	EDT-14W-9A	EDT-14E-9B	EDT-14W-1A	EDT-14W-1B	EDT-14W-1B	EDT-14W-2A	EDT-14W-2B	EDT-14W-3A	EDT-14W-3B
Sample Date	9/27/2006	9/27/2006	5/10/2006	5/10/2006	5/10/2006	9/10/2006	5/10/2006	5/10/2006	5/10/2006
Sample Depth	0-0.5'	0.5-4.0'	0-0.5'	0.5-3.5'	3.5-4.5'	0-0.5'	0.5-3.0'	0-0.5'	0.5-3.5'
Parameter/Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result
TPH-DRO mg/kg	550 J	60,000 J	4,300	280	500	240	8,500	500	25,000
PCB-1016 ug/kg	N.D. UJ	N.D. UJ	N.D. UJ	2,000	N.D.	340	N.D.	2,100	N.D.
PCB-1221 ug/kg	N.D. UJ	2,600	N.D. UJ	2,000	N.D.	340	N.D.	2,100	N.D.
PCB-1232 ug/kg	N.D. UJ	2,600	N.D. UJ	2,000	N.D.	340	N.D.	2,100	N.D.
PCB-1242 ug/kg	N.D. UJ	2,600	N.D. UJ	2,000	N.D.	340	N.D.	2,100	N.D.
PCB-1248 ug/kg	N.D. UJ	2,600	N.D. UJ	2,000	N.D.	340	N.D.	2,100	N.D.
PCB-1254 ug/kg	N.D. UJ	2,600	N.D. UJ	2,000	N.D.	340	N.D.	2,100	N.D.
PCB-1260 ug/kg	9,000 J	20,000 J	16,000	2,000	1,500	340	21,000	2,100	32,000

Sample ID	Duplicate(EDT-14E-10A)
Sample Date	10/3/2006
Sample Depth	
Parameter/Units	Result
TPH-DRO mg/kg	980
PCB-1016 ug/kg	N.D.
PCB-1221 ug/kg	N.D.
PCB-1232 ug/kg	N.D.
PCB-1242 ug/kg	N.D.
PCB-1248 ug/kg	N.D.
PCB-1254 ug/kg	N.D.
PCB-1260 ug/kg	6,100

NOTES:
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 U = Analyte not detected above the reported sample quantitation limit
 UJ = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation to accurately and precisely measure the analyte in the sample.

TABLE 7-13

Confluence Area and Western Drainage Ditch Supplemental Bank Soil Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Sample ID Sample Date Sample Depth Parameter Units	CAT-1E-1A 04/21/06		CAT-1E-1B 04/21/06		CAT-1W-1A 05/17/06		WDT-1W-1A 04/21/06		WDT-1W-1B 04/21/06		WDT-1W-1B 04/21/06		WDT-1E-1A 04/20/06		WDT-1E-1B 04/20/06	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TPH-DRO mg/kg	< 13	13	2,700	310	6,900	1,100	380	1,800	1,100	19,000	1,100	14,000	340	270	500	270
PCB-1016 ug/kg	N.D.	18	N.D.	1,100	N.D.	1,600	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	1,100
PCB-1221 ug/kg	N.D.	18	N.D.	1,100	N.D.	1,600	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	1,100
PCB-1232 ug/kg	N.D.	18	N.D.	1,100	N.D.	1,600	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	1,100
PCB-1242 ug/kg	N.D.	18	N.D.	1,100	N.D.	1,600	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	1,100
PCB-1248 ug/kg	N.D.	18	N.D.	1,100	N.D.	1,600	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	1,100
PCB-1254 ug/kg	N.D.	18	N.D.	1,100	N.D.	1,600	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	N.D.	1,100	1,100
PCB-1260 ug/kg	110	18	14,000	1,100	25,000	1,600	1,100	5,500	1,100	38,000	1,100	14,000	1,100	190	190	190

NOTES:
 MDL = Method detection limit
 ng/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 U = Analyte not detected above the reported sample quantification limit
 UJ = Analyte not detected above the reported sample limit. The reported quantification limit is approximate and may or may not represent the actual limit of quantification to accurately and precisely measure the analyte in the sample.

P:\Clients\Amtrak\4107\Phase 2 RI Laboratory Data\Validated_Tables\PCB Cong Data 100\Confluence Area and Western Drainage Ditch Bank Soil Sample Results (2006).xls\Worksheet CAT-103

TABLE 7-14

Summary of Drainage Ditch

Ditch Bank Soil Sampling Depth to the Clay Substrate Measurements

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Transect	Location	Date	Depth to Clay	Location	Date	Depth to Clay
NED-13	NED-13W-1	5/11/2006	3.5'	NED-13E-1	5/9/2006	2.5'
	NED-13W-2	7/13/2006	3.1667'	NED-13E-2	7/13/2006	3.0'
				NED-13E-3	9/27/2006	2.5'
				NED-13E-4	9/27/2006	2.5'
NED-14	NED-14W-1	5/11/2006	5.5'	NED-14E-1	5/11/2006	7.5'
	NED-14W-2	6/22/2006	2.0'	NED-14E-2	6/22/2006	1.5'
NED-15	NED-15W-1	7/13/2006	4.0'	NED-15E-1	6/22/2006	3.5'
				NED-15E-2	7/13/2006	1.5'
EDT-1	EDT-1W	7/6/2005	6.5'	EDT-1E	7/6/2005	2.0'
	EDT-1W-1	5/1/2006	9.5' BC	EDT-1E-1	4/27/2006	0.5'
EDT-2	EDT-2W	6/6/2005	4.0'	EDT-2E	7/6/2005	1.0'
	EDT-2W-1	4/28/2006	9.5' BC	EDT-2E-1	4/27/2006	0.5'
EDT-3	EDT-3W	7/6/2005	6.0' R	EDT-3E	7/6/2005	6.5'
	EDT-3W-1	5/1/2006	2.0' R	EDT-3E-1	4/26/2006	6.0'
EDT-4	EDT-4W	7/5/2005	8.5' BC	EDT-4E	7/5/2005	2.5' R
	EDT-4W-1	5/2/2006	2.0' R	EDT-4E-1	4/27/2006	1.0' R
	EDT-4W-2	5/2/2006	7.5'			
	EDT-4W-3	5/2/2006	7.5'			
	EDT-4W-4	5/24/2006	3.0' R			
	EDT-4W-5	5/24/2006	6.0' R			
	EDT-4W-6	6/19/2006	8.5'			
	EDT-4W-7	6/20/2006	5.0' R			
	EDT-4W-8	6/20/2006	3.5' R			
	EDT-4W-9	10/5/2006	5.0' R			
	EDT-4W-10	10/4/2006	9.0'			
	EDT-4W-11	10/4/2006	9.5'			
	EDT-4W-12	10/4/2006	7.5' R			
	EDT-4W-13	9/26/2006	9.5'			
	EDT-4W-14	10/5/2006	5.0' R			
	EDT-4W-15	10/6/2006	6.5' R			
	EDT-4W-16	10/5/2006	5.0' R			
	EDT-4W-17	10/5/2006	7.0' R			
	EDT-4W-18	10/5/2006	8.5'			
	EDT-4W-19	10/5/2006	2.5' R			
	EDT-4W-20	9/26/2006	9.5'			
	EDT-4W-21	10/6/2006	10'			
	EDT-4W-22	10/6/2006	10.5'			
	EDT-4W-23	12/15/2006	3.5'			
	EDT-4W-24	12/14/2006	6.75'			
	EDT-4W-25	12/14/2006	6.5'			
	EDT-4W-26	12/14/2006	6.5'			
	EST-4W-27	12/15/2006	7.0'			
	EDT-4W-28	1/16/2007	3.75'			
EDT-4W-29	1/16/2007	6.0'				
EDT-5	EDT-5W	7/6/2005	2.0'	EDT-5E	7/5/2005	2.0'
	EDT-5W-1	4/25/2006	3.0'	EDT-5E-1	4/25/2006	0.75' R
EDT-6	EDT-6W	4/27/2005	2.1' R	EDT-6E	7/5/2005	1.0' R
	EDT-6W-1	4/25/2006	1.5' R	EDT-6E-1	5/9/2006	0.5' R
EDT-7	EDT-7W	4/27/2005	5.25'	EDT-7E	7/5/2005	7.0'
	EDT-7W-1	4/24/2006	4.0'	EDT-7E-1	4/26/2006	2.0' R
EDT-8	EDT-8W	7/6/2005	5.5'	EDT-8E	6/2/2005	1.0' R
	EDT-8W-1	4/24/2006	3.5'	EDT-8E-1	5/9/2006	3.5' R

TABLE 7-14

Summary of Drainage Ditch

Ditch Bank Soil Sampling Depth to the Clay Substrate Measurements

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Transect	Location	Date	Depth to Clay	Location	Date	Depth to Clay
EDT-9	EDT-9W	4/27/2005	4.5'	EDT-9E	5/19/2005	5.5'
	EDT-9W-1	4/25/2006	3.0'	EDT-9E-1	5/25/2006	2.0' R
EDT-10	EDT-10W	6/2/2005	3.33'	EDT-10E	7/7/2005	2.5'
	EDT-10W-1	6/21/2006	3.0'	EDT-10E-1	6/21/2006	3.0'
EDT-11	EDT-11W	6/2/2005	3.0'	EDT-11E	7/7/2005	1.0' R
	EDT-11W-1	6/21/2006	2.5'	EDT-11E-1	6/7/2006	1.5' R
EDT-12	EDT-12W	6/2/2005	3.0'	EDT-12E	6/2/2005	2.33'
	EDT-12W-1	5/18/2006	3.5'	EDT-12E-1	5/23/2006	3.0'
EDT-13	EDT-13W	7/7/2005	2.0'	EDT-13E	7/7/2005	2.5' R
	EDT-13W-1	5/18/2006	3.5'	EDT-13E-1	5/23/2006	4.0' R
EDT-14	EDT-14W	7/7/2005	3.0'	EDT-14E	7/7/2005	5.0'
	EDT-14W-1	5/10/2006	6.5'	EDT-14E-1	5/25/2006	3.5'
	EDT-14W-2	5/10/2006	3.0'	EDT-14E-2	5/23/2006	2.83'
	EDT-14W-3	5/10/2006	3.5'	EDT-14E-3	5/23/2006	3.0'
				EDT-14E-4	6/23/2006	3.5'
				EDT-14E-5	7/11/2006	3.5'
				EDT-14E-6	7/11/2006	3.5'
				EDT-14E-7	7/11/2006	3.5'
				EDT-14E-8	10/3/2006	6.5'
				EDT-14E-9	9/27/2006	4.0'
				EDT-14E-10	10/3/2006	4.0'
				EDT-14E-11	9/27/2006	4.0'
			EDT-14E-12	10/3/2006	6.5 R	
CAT-1	CAT-1W	5/31/2005	0.5' R	CAT-1E	5/31/2005	4.0'
	CAT-1W-1	5/17/2006	0.5' R	CAT-1E-1	4/21/2006	6.5'
CAT-2	CAT-2W	5/31/2005	0.416' R	CAT-2E	5/31/2005	1.0' R
CAT-3	CAT-3W	5/31/2005	0.33' R	CAT-3E	5/31/2005	1.0' R
WDT-1	WDT-1W	6/1/2005	4.0'	WDT-1E	6/1/2005	2.0' R
	WDT-1W-1	4/21/2006	6.5'	WDT-1E-1	4/20/2006	2.5' R
WDT-2	WDT-2W	5/19/2005	0.33'	WDT-2E	5/19/2005	0.416'
WDT-3	WDT-3W	6/1/2005	3.75'	WDT-3E	6/1/2005	0.83'
WDT-4	WDT-4W	5/26/2005	4.0'	WDT-4E	5/26/2005	1.0'
WDT-5	WDT-5W	5/26/2005	2.5'	WDT-5E	5/26/2005	2.75'
WDT-6	WDT-6W	5/23/2005	0.5'	WDT-6E	5/23/2005	0.25'
WDT-7	WDT-7W	5/23/2005	0.5'	WDT-7E	5/23/2005	3.5' R
WDT-8	WDT-8W	5/19/2005	3.0'	WDT-8E	5/19/2005	3.0' R

Notes:
BC = Borehole collapse before reaching clay substrate
R = Hand auger refusal encountered before encountering the clay substrate

TABLE 7-15

Stained Soil Areas
Surface Soil Sample Results
AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample ID	Sample Date	Sample Depth	SSA-1A 06/08/05		SSA-1B 05/08/05		SSA-1D 06/08/05		SSA-1C 06/08/05		SSA-2A 06/08/05		SSA-2B 06/08/05		SSA-2C 06/08/05		URS for Protection Of Human Health
				Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
C9 to C18 Aliphatics	19079	06/08/05	13000 J	830	18000 J	1700	5400 J	300	40000 J	1000	5000 J	360	8500 J	400	2500			2500
C19 to C36 Aliphatics	19080	06/08/05	31000 J	700	42000 J	3400	9300 J	610	10000 J	2000	1500 J	720	2400 J	790	5000			5000
C11 to C22 Aromatics	19081	06/08/05	6800 J	360	27000 J	1700	7500 J	610	23000 J	2000	1300 J	140	6600 J	400	2000			2000
C5-C8 Aliphatic Hydrocarbons	19082	06/08/05	ND	735	ND	866	ND	1420	ND	860	ND	598	ND	808	5000			5000
C9-C12 Aliphatic Hydrocarbons	19083	06/08/05	ND	735	ND	866	ND	1420	ND	744	ND	598	ND	808	5000			5000
C9-C10 Aromatic Hydrocarbons	19084	06/08/05	ND	735	ND	866	ND	1420	ND	744	ND	598	ND	808	5000			5000
Unadjusted C11 - C22 Aromatics	19085	06/08/05	8900 J	360	27000 J	1700	7600 J	610	23000 J	2000	1300 J	140	6600 J	400	2000			2000
Unadjusted C9-C8 Aliphatics	19086	06/08/05	ND	735	ND	866	ND	1420	ND	744	ND	598	ND	808	5000			5000
PCB-1016	19087	06/08/05	ND	800	ND	866	ND	1420	ND	744	ND	598	ND	808	5000			5000
PCB-1231	19088	06/08/05	ND	800	ND	710	ND	720	ND	640	ND	100	ND	170	82000			82000
PCB-1242	19089	06/08/05	ND	800	ND	710	ND	720	ND	640	ND	100	ND	170	3000			3000
PCB-1248	19090	06/08/05	ND	800	ND	710	ND	720	ND	640	ND	100	ND	170	3000			3000
PCB-1254	19091	06/08/05	ND	800	ND	710	ND	720	ND	640	ND	100	ND	170	3000			3000
PCB-1260	19092	06/08/05	2200	800	3400	710	3600	720	3500	640	850	340	730	100	3000			3000
Total PCB Aroclors	19093	06/08/05	2200	800	3400	710	3600	720	3500	640	850	340	730	100	3000			3000
Total PCB Compounds	19094	06/08/05	NA	--	NA	--	NA	--	NA	--	NA	--	NA	--	NA			NA

Parameter	Sample ID	Sample Date	Sample Depth	SSA-3A 06/08/05		SSA-3B 05/08/05		SSA-3C 06/08/05		URS for Protection Of Human Health
				Result	MDL	Result	MDL	Result	MDL	
C9 to C18 Aliphatics	19095	06/08/05	3700 J	410	1200 J	79	3600 J	340	2500	
C19 to C36 Aliphatics	19096	06/08/05	2200 J	910	890 J	160	1200 J	680	5000	
C11 to C22 Aromatics	19097	06/08/05	4200 J	410	1100 J	160	2000 J	340	2000	
C5-C8 Aliphatic Hydrocarbons	19098	06/08/05	ND	844	ND	642	ND	706	500	
C9-C12 Aliphatic Hydrocarbons	19099	06/08/05	ND	844	ND	642	ND	706	2500	
C9-C10 Aromatic Hydrocarbons	19100	06/08/05	ND	844	ND	642	ND	706	500	
Unadjusted C11 - C22 Aromatics	19101	06/08/05	4200 J	410	1100 J	160	2100 J	340	500	
Unadjusted C9-C8 Aliphatics	19102	06/08/05	ND	844	ND	642	ND	706	NS	
PCB-1016	19103	06/08/05	ND	350	ND	220	ND	150	NS	
PCB-1231	19104	06/08/05	ND	350	ND	220	ND	150	82000	
PCB-1242	19105	06/08/05	ND	350	ND	220	ND	150	3000	
PCB-1248	19106	06/08/05	ND	350	ND	220	ND	150	3000	
PCB-1254	19107	06/08/05	ND	350	ND	220	ND	150	3000	
PCB-1260	19108	06/08/05	2400	350	ND	220	ND	150	3000	
Total PCB Aroclors	19109	06/08/05	2400	350	1200	220	1100	150	3000	
Total PCB Compounds	19110	06/08/05	NA	--	1,631,307,000	--	NA	--	NS	

NOTES:
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 pg/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 NA = Not analyzed
 NS = No Standard
 Standards based on Delaware Uniform Risk Based Remediation Standards for non-critical water resource area.
 Analytical data validated by SECON personnel
 Petroleum Hydrocarbons - Meta, EFM analyzed by MA, EFM method 1058 and Meta, VPH analyzed by MADEP-VPH method modified B021B
 PCB Aroclors analyzed by Method B02
 PCB compounds analyzed by USEPA Method 1631A

TABLE 7-16

**Stained Soil Areas Surface Soil Sample
Petroleum Hydrocarbon Results - 2001 and 2005**

**Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE**

Parameter	SSA-1A 06/08/05		SSA-1B 06/08/05		SSA-1D 06/08/05		SSA-1C 06/08/05		Average for Northern 11/29/2001		URS for Protection Of Human-Health		
	Sample ID	Sample Date	Units	Result	MDL	Duplicate of SSA-1B	Result	MDL	Result	MDL	Result	MDL	
C9 to C18 Aliphatics			mg/kg	4900 J	380	13000 J	830	18000 J	1700	5400 J	300	23,000	2500
C19 to C36 Aliphatics			mg/kg	13000 J	750	31000 J	1700	42000 J	3400	9300 J	610	23,825	5000
C11 to C22 Aromatics			mg/kg	6800 J	380	27000 J	1700	29000 J	1700	7500 J	610	17,575	2000
C5-C8 Aliphatic Hydrocarbons			mg/kg	ND	735	ND	866	ND	1420	ND	744	ND	500
C9-C12 Aliphatic Hydrocarbons			mg/kg	ND	735	ND	866	ND	1420	ND	744	ND	487
C9-C10 Aromatic Hydrocarbons			mg/kg	ND	735	ND	866	ND	1420	ND	744	ND	500

Parameter	SSA-2A 06/08/05		SSA-2B 06/08/05		SSA-2C 06/08/05		Average for Middle 11/29/2001		URS for Protection Of Human-Health			
	Sample ID	Sample Date	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
C9 to C18 Aliphatics			mg/kg	40000 J	1000	5000 J	360	6800 J	400	17,267	32,000	2500
C19 to C36 Aliphatics			mg/kg	10000 J	2000	1500 J	720	2400 J	790	4,633	11,000	5000
C11 to C22 Aromatics			mg/kg	23000 J	2000	1300 J	140	6600 J	400	10,300	41,000	2000
C5-C8 Aliphatic Hydrocarbons			mg/kg	ND	860	ND	598	ND	808	ND	39 J	500
C9-C12 Aliphatic Hydrocarbons			mg/kg	ND	860	ND	598	ND	808	ND	750	2500
C9-C10 Aromatic Hydrocarbons			mg/kg	ND	860	ND	598	ND	808	ND	230	500

Parameter	SSA-3A 06/08/05		SSA-3B 06/08/05		SSA-3C 06/08/05		Average for Southern 11/29/2001		URS for Protection Of Human-Health			
	Sample ID	Sample Date	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
C9 to C18 Aliphatics			mg/kg	3700 J	410	1200 J	79	3800 J	340	2,900	20,000	2500
C19 to C36 Aliphatics			mg/kg	2200 J	810	880 J	160	1200 J	680	1,427	22,000	5000
C11 to C22 Aromatics			mg/kg	4200 J	410	1100 J	160	2000 J	340	2,433	30,000	2000
C5-C8 Aliphatic Hydrocarbons			mg/kg	ND	844	ND	642	ND	706	ND	58	500
C9-C12 Aliphatic Hydrocarbons			mg/kg	ND	844	ND	642	ND	706	ND	1,530	2500
C9-C10 Aromatic Hydrocarbons			mg/kg	ND	844	ND	642	ND	706	ND	221	500

NOTES:

MDL = Method detection limit

mg/kg = milligrams per kilogram

ND = Not detected at or above the method detection limit

J = Estimated value

Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area.

Petroleum Hydrocarbons - Mass, EPH method 1/98 and Mass -VPH analyzed by MA EPH method 1/98 and Mass -VPH analyzed by MADEP -VPH method modified 8/02/18

PCB Aroclors analyzed by Method 8082

P:\Gleim\Amtrak\APV\Phase 2\RI\REPORT\table\table 3.xls#stained area.xls#tbl03

Table 7-17
 Upland (Subdrainage) Area Surface Soil Sample Results - Former Fueling Area
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	Sample Depth	Discrete Sample ID Sample Date	Area 1			Area 2			LPS for Protection Of Human-Health
			Area 1 Discrete Sample 1-6 03/25/04	Area 1 Composite Sample 03/25/04	Area 2 Discrete Sample 2-1 03/25/04	Area 2 Composite Sample 03/25/04			
			Result	MDL	Result	MDL	Result	MDL	
C9 to C18 Aliphatics	mg/kg		ND	85	16	6.5	ND	13	
C19 to C36 Aliphatics	mg/kg		750	130	160	13	ND	26	
C11 to C22 Aromatics	mg/kg		230	130	53	13	ND	26	
C5-C8 Aliphatic Hydrocarbons	mg/kg		3.21 J	2.74	5.27 J	2.73	ND	2.76	
C9-C12 Aliphatic Hydrocarbons	mg/kg		2.79 J	2.74	3.64 J	2.73	ND	2.76	
C9-C10 Aromatic Hydrocarbons	mg/kg		ND	2.74	ND	2.73	ND	2.76	
Unadjusted C11 - C22 Aromatics	mg/kg		260	130	56	13	ND	26	
Unadjusted C5-C8 Aliphatics	mg/kg		3.39 J	2.74	5.68	2.73	ND	2.76	
Unadjusted C9-C12 Aliphatics	mg/kg		4.55 J	2.74	6.57	2.73	ND	2.76	
PCB-1016	ug/kg		ND	920	ND	260	ND	1100	
PCB-1221	ug/kg		ND	1,600	ND	330	ND	950	
PCB-1232	ug/kg		ND	1,900	ND	180	ND	3,000	
PCB-1242	ug/kg		ND	800	ND	180	ND	730	
PCB-1248	ug/kg		ND	1,100	ND	180	ND	730	
PCB-1254	ug/kg		ND	1,600	4,500	200	ND	820	
PCB-1260	ug/kg		39,000	1,500	14,000	180	ND	3,000	
Total PCB Aroclors	ug/kg		39,000	--	18,500	--	34,000	730	
Total PCB Congeners	ug/kg		NA	NA	NA	NA	NA	NA	

NOTES:
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ug/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 J = Estimated value
 UJ = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may vary.
 NA = Not analyzed
 Petroleum Hydrocarbons - Mass, EPH analyzed by MA EPH method 138 and Mass-VPH analyzed by MADEP-VPH method modified 8021B
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1699A
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area.
 NS-No Standard
 Analytical data validated by SECOR personnel
 P:\Client\mtrk\AMTRAK\Phase 7 TR Laboratory Data\Tables\Upland Area Surface Soil Sample Results Validation\Upland PCB Sample Summary

Table 7-17

Upland (Subdrainage) Area Surface Soil Sample Results - Former Fueling Area
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	Sample Depth	Discrete Sample ID	Area 3			Area 4			UKS for Protection Of Human-Health
			Discrete Sample	Composite Sample	Discrete Sample	Composite Sample	Discrete Sample	Composite Sample	
			06/23/03	06/23/03	06/23/03	06/23/03	06/23/03		
		Units	Result	MDL	Result	MDL	Result	MDL	
C9 to C15 Aliphatics		mg/kg	15	6.3	6.6	6.3	7.5	6.9	2,500
C19 to C36 Aliphatics		mg/kg	57	13	69	13	130	14	5,000
C11 to C22 Aromatics		mg/kg	66	13	60	13	150	14	2,000
C5-C8 Aliphatic Hydrocarbons		mg/kg	5.31	2.61	3.24	2.65	6.04	2.94	500
C9-C12 Aliphatic Hydrocarbons		mg/kg	4.73	2.61	ND	2.65	6.05	2.88	2,500
C9-C10 Aromatic Hydrocarbons		mg/kg	2.98	2.61	ND	2.65	8.02	2.88	500
Unadjusted C11 - C22 Aromatics		mg/kg	79	13	74	13	180	14	NS
Unadjusted C5-C8 Aliphatics		mg/kg	5.75	2.61	3.43	2.65	6.75	3.13	NS
Unadjusted C9-C12 Aliphatics		mg/kg	8.74	2.61	5.18	2.65	16.5	4.81	NS
PCB-1016		ug/kg	ND	720	ND	1,800	ND	2,000	82,000
PCB-1221		ug/kg	ND	1,200	ND	3,100	ND	3,400	3,000
PCB-1232		ug/kg	ND	1,500	ND	3,800	ND	4,200	3,000
PCB-1242		ug/kg	ND	690	ND	1,700	ND	1,900	3,000
PCB-1246		ug/kg	ND	820	ND	2,100	ND	2,200	3,000
PCB-1234		ug/kg	ND	1,200	ND	3,100	ND	3,400	3,000
PCB-1260		ug/kg	15,000	1,100	31,000	2,900	5,100	340	3,000
Total PCB Aroclors		ug/kg	15,000	1,100	31,000	2,900	5,100	340	3,000
Total PCB Congeners		ppb/kg	NA	NA	NA	NA	NA	NA	NA

NOTES:

- MDL = Method detection limit
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- ppb/kg = picograms per kilogram
- ND = Not detected at or above the method detection limit
- UI = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may vary.
- J = Estimated value
- NA = Not analyzed
- Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 198 and Mass-VPH analyzed by NACREP-VPH method modified 80216
- PCB Aroclors analyzed by Method 8082
- PCB congeners analyzed by USEPA Method 1661A
- Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
- NS=NS Standard
- Analytical data validated by SECOR personnel

Table 7-17

Upland (Subdrainage) Area Surface Soil Sample Results - Former Fueling Area

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample Depth	Discrete Sample ID	Sample Date	Area 7			Area 8			Area 9		
				Area 7 Discrete Sample 7-D			Area 8 Discrete Sample 8-J			Area 9 Composite Sample		
				Result	MDL	URS	Result	MDL	URS	Result	MDL	URS
C9 to C18 Aliphatics		mg/kg	03/30/05	9.5	7.6	16	7.1	34 J	6.5	160	2,500	
C19 to C36 Aliphatics		mg/kg		55	15	73	14	130 J	13	2,500	5,000	
C11 to C22 Aromatics		mg/kg		54	15	170	14	57	13	740	2,000	
C5-C8 Aliphatic Hydrocarbons		mg/kg		ND	3.18	ND	2.95	ND	2.69	ND	500	
C9-C12 Aliphatic Hydrocarbons		mg/kg		ND	3.18	ND	2.95	ND	2.69	ND	2,500	
C9-C10 Aromatic Hydrocarbons		mg/kg		ND	3.18	ND	2.95	ND	2.69	3.02 J	500	
Unadjusted C11, C22 Aromatics		mg/kg		65	15	220	14	62	13	750	NS	
Unadjusted C5-C8 Aliphatics		mg/kg		ND	3.18	ND	2.95	ND	2.69	ND	NS	
PCB-1018		ug/kg		ND	3.18	ND	2.95	2.92 J	2.69	5.96	2.75	
PCB-1232		ug/kg		ND	310	ND	280	ND	520	ND	82,000	
PCB-1242		ug/kg		ND	270	ND	250	ND	460	ND	240	
PCB-1248		ug/kg		ND	210	ND	190	ND	350	ND	180	
PCB-1254		ug/kg		ND	210	ND	190	ND	350	ND	180	
PCB-1260		ug/kg		5,200	210	6,700	190	12,000	350	ND	3,000	
Total PCB Aroclors		ug/kg		6,200	210	5,700	190	12,000	350	5,900	180	
Total PCB Congeners		ppb/kg		NA	NA	5,700	NA	NA	NA	5,900	NA	

NOTES:
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected, sl or above the method detection limit
 UJ = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may be estimated value
 NA = Not analyzed
 Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 198 and Mass -VPH analyzed by MADEP-VPH method modified 80218
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
 NS-No Standard
 Analytical data validated by SECOR personnel

Table 7-17

Upland (Subdrainage) Area Surface Soil Sample Results - Former Fueling Area

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample Depth	Units	Area 9 Discrete Sample 9-D		Area 9 Composite Sample 9-C		Area 9 Duplicate for 9-D 9-L		Area 10 Discrete Sample 10-M		Area 10 Composite Sample 10-O		URS for Protection Of Human-Health	
			03/30/05		03/30-31/05		03/30/05		04/01/05		03/31/05-04/01/05			
			Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL		
C9 to C18 Aliphatics		mg/kg	35 J	34	39 J	36	36	36	34	3,000.00	84	190 J	83	2,500
C19 to C38 Aliphatics		mg/kg	350 J	69	280 J	72	280 J	280 J	28	2,200.00	170	1,800 J	140	5,000
C11 to C22 Aromatics		mg/kg	280	69	170	14	14	180	28	1,800.00	170	570 J	140	2,000
C5-C8 Aliphatic Hydrocarbons		mg/kg	ND	2.87	5.32 J	2.97	2.97	ND	2.89	ND	3.52	ND	2.82	500
C9-C12 Aliphatic Hydrocarbons		mg/kg	ND	2.87	5.76 J	2.97	2.97	ND	2.89	ND	3.52	ND	2.82	2,500
C9-C10 Aromatic Hydrocarbons		mg/kg	3.81 J	2.87	4.80 J	2.97	2.97	ND	2.89	ND	3.52	ND	2.82	500
Unadjusted C11- C22 Aromatics		mg/kg	300	69	190	14	14	200	28	1,800.00	170	620 J	140	NS
Unadjusted C5-C8 Aliphatics		mg/kg	ND	2.87	6	2.97	2.97	ND	2.89	ND	3.52	ND	2.82	NS
Unadjusted C9-C12 Aliphatics		mg/kg	7.29	2.87	12.6	2.97	2.97	4.51 J	2.89	ND	3.52	4.00 J	2.82	NS
PCB-1018		ug/kg	ND	280	ND	230	230	ND	220	ND	140	ND	110	82,000
PCB-1221		ug/kg	ND	250	ND	210	210	ND	200	ND	120	ND	97	3,000
PCB-1232		ug/kg	ND	190	ND	160	160	ND	150	ND	93	ND	74	3,000
PCB-1242		ug/kg	ND	190	ND	160	160	ND	150	ND	93	ND	74	3,000
PCB-1248		ug/kg	ND	190	ND	160	160	ND	150	ND	93	ND	74	3,000
PCB-1254		ug/kg	ND	210	ND	180	180	ND	170	ND	100	ND	83	3,000
PCB-1260		ug/kg	5,000	190	3,800	160	160	3,100	150	4,000	93	2,200 J	74	3,000
Total PCB Aroclors		ug/kg	5,000	190	3,800	160	160	3,100	150	4,000	93	2,200 J	74	3,000
Total PCB Congeners		ug/kg	NA	NA	NA	NA	NA	3,100	NA	807,764,200	NA	NA	NA	NS

NOTES:
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 LU = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may vary.
 J = Estimator value
 NA = Not analyzed
 Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 108 and Mass -VPH analyzed by MADEP-VPH method modified B0218
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
 NS=No Standard
 Analytical data validated by SECOF personnel

Table 7-17

Upland (Subdrainage) Area Surface Soil Sample Results - Former Fueling Area
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	Sample Depth	Discrete Sample ID	Sample Date	Area 11			Area 12			URS for Protection of Human Health
				Area 11 Discrete Sample	Area 11 Composite Sample	Area 12 Discrete Sample	Area 12 Composite Sample	Area 12 Composite Sample		
		11-C	04/01/05	04/01/05	04/01/05	03/31/05	03/31/05			
	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	
C8 to C18 Aliphatics	mg/kg	24	7.1	7.1	6.7	ND, UJ	14	ND, UJ	140	
C19 to C36 Aliphatics	mg/kg	95	14	250 J	13	250 J	28	1400 J	270	
C11 to C22 Aromatics	mg/kg	90	14	150	13	130	28	700 J	140	
C5-C8 Aliphatic Hydrocarbons	mg/kg	ND	2.94	2.92 J	2.81	ND	2.87	ND J	2.86	
C9-C12 Aliphatic Hydrocarbons	mg/kg	ND	2.94	3.91 J	2.81	ND	2.87	ND	2.86	
C9-C10 Aromatic Hydrocarbons	mg/kg	ND	2.94	ND	2.81	ND	2.87	ND	2.86	
Unadjusted C11 - C22 Aromatics	mg/kg	99	14	160	13	150	28	720	140	
Unadjusted C5-C9 Aliphatics	mg/kg	ND	2.94	3.10 J	2.81	ND	2.87	ND	2.86	
Unadjusted C9-C12 Aliphatics	mg/kg	ND	2.94	7.48	2.81	ND	2.87	ND	2.86	
PCB-1076	ug/kg	ND	56	ND	54	ND	280	ND	230	
PCB-1221	ug/kg	ND	51	ND	48	ND	250	ND	200	
PCB-1232	ug/kg	ND	39	ND	37	ND	190	ND	150	
PCB-1242	ug/kg	ND	39	ND	37	ND	190	ND	150	
PCB-1248	ug/kg	ND	39	ND	37	ND	190	ND	150	
PCB-1254	ug/kg	ND	44	ND	42	ND	210	ND	170	
PCB-1260	ug/kg	1,100	39	1,700	37	4,700	190	3,600	150	
Total PCB Aroclors	ug/kg	1,100	--	1,700	--	4,700	--	3,600	--	
Total PCB Congeners	ppb/kg	NA	NA	NA	NA	5,045,488,000	NA	NA	NA	

NOTES:
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 UJ = Analyte not detected above the reported sample limit. The reported quantification limit is approximate and may vary.
 J = Estimated value
 NA = Not analyzed
 Petroleum Hydrocarbons - Mass - EPH analyzed by MA EPH method 109 and Mass - VPH analyzed by MADEP-VPH method modified 80216
 PCB Aroclors analyzed by Method 8092
 PCB congeners analyzed by USEPA Method 1699A
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
 NS/No Standard
 Analytical data validated by SECOF personnel

Table 7-17

Upland (Subdrainage) Area Surface Soil Sample Results - Former Fueling Area
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	Sample Depth	Discrete Sample ID	Sample Date	Area 13		Area 14		Area 14 Discrete Sample 14-C	Area 14 Composite Sample	URS for Protection Of Human Health
				13-B	13-A	14-C	14-D			
				Result	MDL	Result	MDL	Result	MDL	
C9 to C18 Aliphatics				40	5.3	ND	6.5	35	6.9	2,500
C19 to C26 Aliphatics				87	13	85	13	160	14	5,000
C11 to C22 Aromatics				57	14	38	13	120	14	2,000
C5-C8 Aliphatic Hydrocarbons				ND	2.86	ND	2.7	ND	2.87	500
C9-C12 Aliphatic Hydrocarbons				ND	2.86	ND	2.7	ND	2.87	2,500
C8-C10 Aromatic Hydrocarbons				ND	2.86	ND	2.7	ND	2.87	500
Unadjusted C11 - C22 Aromatics				60	13	190	14	44	14	NS
Unadjusted C5-C8 Aliphatics				ND	2.86	ND	2.86	ND	2.87	NS
Unadjusted C9-C12 Aliphatics				2.81 J	2.86	ND	2.7	ND	2.87	NS
PCB-1016				ND	26	ND	110	ND	2.87	NS
PCB-1221				ND	23	ND	98	ND	2.87	82,000
PCB-1232				ND	16	ND	75	ND	2.87	3,000
PCB-1242				ND	18	ND	18	ND	2.87	3,000
PCB-1248				ND	18	ND	75	ND	2.87	3,000
PCB-1254				ND	18	ND	18	ND	2.87	3,000
PCB-1260				ND	20	ND	85	ND	2.87	3,000
Total PCB Aroclors				340	18	3,200	75	360	38	3,000
Total PCB Congeners				340	--	3,200	--	360	--	3,000
				745,076,000	--	NA	NA	NA	NA	NS

NOTES:
 MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/g = picograms per kilogram
 ND = Not detected at or above the method detection limit
 UJ = Analysis not detected above the reported sample limit. The reported quantitation limit is approximate and may be estimated value
 NA = Not analyzed
 Petroleum Hydrocarbons - Mass, EPH analyzed by MA EPH method 198 and Mass VPH analyzed by MADEP.VPH method modified 80215
 PCB Aroclors analyzed by Method 8082
 PCB congeners analyzed by USEPA Method 1668A
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area
 NS=No Standard
 Analytical data validated by SECOR personnel

Table 7-17

Upland (Subdrainage) Area Surface Soil Sample Results - Former Fueling Area

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	Sample Depth	Discrete Sample ID	Area 15		Area 16 Discrete Sample		Area 16 Composite Sample		URSL for Protection of Human Health
			15-C	15-D	16-A	16-B	05/24-28/05		
		Sample Date	Result	MDL	Result	MDL	Result	MDL	
C9 to C18 Aliphatics		04/04/05	ND	7.8	ND	7.2	ND	6.6	2,500
C19 to C26 Aliphatics			20	16	44	14	27 UJ	13	5,000
C11 to C22 Aromatics			ND	16	32	14	38 J	13	2,000
C5-C8 Aliphatic Hydrocarbons			ND	3.25	ND	2.81	ND	2.76	500
C9-C12 Aliphatic Hydrocarbons			ND	3.25	ND	2.81	ND	2.76	2,500
C9-C10 Aromatic Hydrocarbons			ND	3.25	ND	2.81	ND	2.76	500
Unadjusted C11 - C22 Aromatics			ND	16	41	14	40 J	26	NS
Unadjusted C5-C8 Aliphatics			ND	3.25	ND	2.81	ND	2.76	NS
Unadjusted C9-C12 Aliphatics			ND	3.25	ND	2.81	ND	2.76	NS
PCB-1016			ND	82	ND	29	ND	11	82,000
PCB-1221			ND	56	ND	26	ND	9.5	3,000
PCB-1232			ND	43	ND	20	ND	7.3	3,000
PCB-1242			ND	43	ND	20	ND	7.3	3,000
PCB-1248			ND	43	ND	20	ND	7.3	3,000
PCB-1254			ND	48	900	77	ND	7.3	3,000
PCB-1280			1,200	43	1,900	77	99	82	3,000
Total PCB Aroclors			1,200	--	2,500	--	370 J	7.3	3,000
Total PCB Congeners			3,242,026,000	--	NA	NA	1,383,337,400	--	NS

NOTES:

MDL = Method detection limit
 mg/kg = milligrams per kilogram
 ug/kg = micrograms per kilogram
 ppb/kg = picograms per kilogram
 ND = Not detected at or above the method detection limit
 UJ = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may vary.
 J = Estimated value
 NA = Not analyzed
 Petroleum Hydrocarbons - Miss - EPH analyzed by MA EPH method 1398 and Mass - YPH analyzed by MACEPH YPH method modified 80218
 PCB Aroclors analyzed by Method 8062
 PCB congeners analyzed by USEPA Method 1665A
 Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area.
 NS=No Standards
 Analytical data validated by SECOR personnel

TABLE 7-18

Upland (Subdrainage Area) Supplemental Surface Soil Sample Results - Former Fueling Area

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Sample ID	AREA 17A		AREA 17A-F		AREA 18A		AREA 18A-F		AREA 19A		AREA 19A-F		AREA 20A		AREA 20A-F		URS for Protection Of Human-Health
	Sample Date	Discrete (0-0.25)	Composite (0-0.25)	MDL	Result	Discrete (0-0.25)	Composite (0-0.25)	MDL	Result	Discrete (0-0.25)	Composite (0-0.25)	MDL	Result	Discrete (0-0.25)	Composite (0-0.25)	MDL	
TPH-DRO	mg/kg	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
PCB-1016	ug/kg	N.D. UJ	N.D. UJ	3,700	N.D. UJ	N.D. UJ	4,000	N.A.	N.D.	N.D.	400	N.D.	N.D.	N.D. UJ	N.D.	7,700	N.A.
PCB-1221	ug/kg	N.D. UJ	N.D. UJ	3,700	N.D. UJ	N.D. UJ	4,000	N.A.	N.D.	N.D.	400	N.D.	N.D.	N.D. UJ	N.D.	7,700	770
PCB-1232	ug/kg	N.D. UJ	N.D. UJ	3,700	N.D. UJ	N.D. UJ	4,000	N.A.	N.D.	N.D.	400	N.D.	N.D.	N.D. UJ	N.D.	7,700	770
PCB-1242	ug/kg	N.D. UJ	N.D. UJ	3,700	N.D. UJ	N.D. UJ	4,000	N.A.	N.D.	N.D.	400	N.D.	N.D.	N.D. UJ	N.D.	7,700	770
PCB-1248	ug/kg	N.D. UJ	N.D. UJ	3,700	N.D. UJ	N.D. UJ	4,000	N.A.	N.D.	N.D.	400	N.D.	N.D.	N.D. UJ	N.D.	7,700	770
PCB-1254	ug/kg	N.D. UJ	N.D. UJ	3,700	N.D. UJ	N.D. UJ	4,000	N.A.	N.D.	N.D.	400	N.D.	N.D.	N.D. UJ	N.D.	7,700	770
PCB-1260	ug/kg	14,000	14,000	23,000	490	23,000	490	4,000	4,800	4,800	400	5,800	32,000	7,700	7,600	7,700	3,000

NOTES:

- MDL = Method detection limit
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- ND = Not detected at or above the method detection limit
- J = Estimated value
- NA = Not analyzed
- U = Analyte not detected above the reported sample quantitation limit
- UJ = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation to accurately and precisely measure the analyte in the sample. Standards based on Delaware Uniform Risk-Based Remediation Standards for non-critical water resource area.
- NS=No Standard

TABLE 7-21

Unfiltered Storm Water Sample Results
November 12, 2004

Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Aroclor	Units	Location			
		Outfall 001	Outfall 005	Outfall 006	Railcar Avenue
TSS	mg/l	< 12.0	20.8	< 12.0	12.8
PCB-1016	ug/l	ND (0.53)	ND (0.48)	ND (0.49)	ND (0.51)
PCB-1221	ug/l	ND (0.53)	ND (0.48)	ND (0.49)	ND (0.51)
PCB-1232	ug/l	ND (0.53)	ND (0.48)	ND (0.49)	ND (0.51)
PCB-1242	ug/l	ND (0.53)	ND (0.48)	ND (0.49)	ND (0.51)
PCB-1248	ug/l	ND (0.53)	ND (0.48)	ND (0.49)	ND (0.51)
PCB-1254	ug/l	ND (0.53)	ND (0.48)	ND (0.49)	<0.51
PCB-1260	ug/l	ND (0.53)	<0.48	<0.49	<0.51
Total Congeners	pg/l	60,966.40	180,525.70	121,707.40	164,114.00

NOTES:

ug/l = micrograms per liter

mg/l = milligrams per liter

pg/L = Picograms per liter

ND (0.53) = Analyte not detected at or above this detection limit

<0.48 = Analyte detected at a concentration below the limit of quantitation but above the minimum detection level

Analytical data validated by SECOR personnel

Total Suspended Solids analyzed by USEPA Method 160.2

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-22

Filtered Storm Water Sample Results
November 12, 2004

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Aroclor	Units	Location			
		Outfall 001	Outfall 005	Outfall 006	Railcar Avenue
PCB-1016	ug/l	ND (0.54)	ND (0.61)	ND (0.50)	ND (0.53)
PCB-1221	ug/l	ND (0.54)	ND (0.61)	ND (0.50)	ND (0.53)
PCB-1232	ug/l	ND (0.54)	ND (0.61)	ND (0.50)	ND (0.53)
PCB-1242	ug/l	ND (0.54)	ND (0.61)	ND (0.50)	ND (0.53)
PCB-1248	ug/l	ND (0.54)	ND (0.61)	ND (0.50)	ND (0.53)
PCB-1254	ug/l	ND (0.54)	ND (0.61)	ND (0.50)	ND (0.53)
PCB-1260	ug/l	ND (0.54)	ND (0.61)	ND (0.50)	ND (0.53)
Total Congeners	pg/l	63,927.50	202,842.60	80,044.90	195,874.00

NOTES:

ug/l = micrograms per liter

pg/L = picograms per liter

ND (0.54) = Analyte not detected at or above this detection limit

Analytical data validated by SECOR personnel

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-23

Unfiltered Dry Weather Surface Water Sample Results
June 24, 2005

Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Aroclor	Units	Location					
		Outfall 001	Outfall 005	Outfall 050 (Duplicate of 005)	Outfall 006	Outfall 006 Incoming	Railcar Avenue
TSS	mg/l	34.0	18.4	23.6	12.8 J	ND(12.0)	13.6
PCB-1016	ug/l	ND(0.48)	ND(0.52)	ND(0.51)	ND(0.51)	ND(0.51)	ND(0.49)
PCB-1221	ug/l	ND(0.48)	ND(0.52)	ND(0.51)	ND(0.51)	ND(0.51)	ND(0.49)
PCB-1232	ug/l	ND(0.48)	ND(0.52)	ND(0.51)	ND(0.51)	ND(0.51)	ND(0.49)
PCB-1242	ug/l	ND(0.48)	ND(0.52)	ND(0.51)	ND(0.51)	ND(0.51)	ND(0.49)
PCB-1248	ug/l	ND(0.48)	ND(0.52)	ND(0.51)	ND(0.51)	ND(0.51)	ND(0.49)
PCB-1254	ug/l	ND(0.48)	ND(0.52)	ND(0.51)	ND(0.51)	ND(0.51)	ND(0.49)
PCB-1260	ug/l	<0.48	<0.52	ND(0.51)	<0.51	ND(0.51)	<0.49
Total Congeners	pg/l	138,864.39	38,751.32	98,624.72	108,818.17	2,873.81	865,728.61

NOTES:

ug/l = micrograms per liter

mg/l = milligrams per liter

pg/L = Picograms per liter

ND (0.48) = Analyte not detected at or above this detection limit

<0.48 = Analyte detected at a concentration below the limit of quantitation but above the minimum detection level

Analytical data validated by SECOR personnel

Total Suspended Solids analyzed by USEPA Method 160.2

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

TABLE 7-24

Filtered Dry Weather Surface Water Sample Results
June 24, 2005

Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Aroclor	Units	Location					
		Outfall 001	Outfall 005	Outfall 050 (Duplicate of 005)	Outfall 006	Outfall 006 Incoming	Railcar Avenue
PCB-1016	ug/l	ND(0.49)	ND(0.52)	ND(0.52)	ND(0.54)	ND(0.51)	ND(0.51)
PCB-1221	ug/l	ND(0.49)	ND(0.52)	ND(0.52)	ND(0.54)	ND(0.51)	ND(0.51)
PCB-1232	ug/l	ND(0.49)	ND(0.52)	ND(0.52)	ND(0.54)	ND(0.51)	ND(0.51)
PCB-1242	ug/l	ND(0.49)	ND(0.52)	ND(0.52)	ND(0.54)	ND(0.51)	ND(0.51)
PCB-1248	ug/l	ND(0.49)	ND(0.52)	ND(0.52)	ND(0.54)	ND(0.51)	ND(0.51)
PCB-1254	ug/l	ND(0.49)	ND(0.52)	ND(0.52)	ND(0.54)	ND(0.51)	ND(0.51)
PCB-1260	ug/l	ND(0.49)	ND(0.52)	ND(0.52)	ND(0.54)	ND(0.51)	ND(0.51)
Total Congeners	pg/l	10,866.05	2,336.01	2,292.13	8,198.63	1,260.73	13,984.39

NOTES:

ug/l = micrograms per liter

pg/L = Picograms per liter

ND (0.49) = Analyte not detected at or above this detection limit

Analytical data validated by SECOR personnel

PCB Aroclors analyzed by Method 8082

PCB congeners analyzed by USEPA Method 1668A

Table 7-25

Summary of Flow Measurements Recorded During Surface Water Sampling

AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Wet Weather Samples November 12, 2004 (1.30 inches of precipitation)					
Location	Number of Measurements	Monitoring Period	Minimum Flow (gpm)	Maximum Flow (gpm)	Flow at Approximately 09:45 (gpm)
Railcar Avenue	12	09:42 - 13:22	50	203	50
Outfall 001	12	09:25 - 13:05	114	325	133
Outfall 005	12	09:28 - 13:08	1.2	63	45
Outfall 006	6 (1)	09:15 - 10:55 (1)	274.3	522.5	522.5

Note (1): Measurements were not taken after 10:55 because water was coming back through Outfall 006 (tidal reversal)

Dry Weather Samples - June 25, 2005		
Location	Time of Measurement	Flow (gpm)
Railcar Avenue	12:40	122 (1)
Outfall 001	13:50	23.7
Outfall 005	14:50	6.8
Outfall 006	10:30	718

Note (1) - flow appears to be over estimated due large diameter of pipe and sensitivity of flow meter

Incoming (dry weather) - June 25, 2005		
Location	Time of Measurement	Flow (gpm)
Outfall 006	15:30	-830 (1)

Note (1) - rate of flow on to the site through Outfall 006

TABLE 7-26

Summary of 2004 through 2006 Wet Weather and Dry Weather
Sampling Event Results at Outfall 006
Total PCB Congeners (pg/L)

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Wet Weather Samples				
	Date	Outfall 006	Precipitation (in)	Outfall 006 Estimated Flow (MGD)
	Nov. 12, 2004	121,707.400	1.3	
	Sept. 26/27, 2005	160,773.595	0.19	0.467
	Oct. 7/8, 2005	92,419.960	0.72	0.026
	Oct. 21/22, 2005	77,365.600	0.21/0.81	0.15
	Average	113,066.639		0.214
	Dec 1/2, 2006	36,641.810	0.21	0.235

Dry Weather Samples				
	Date	Outfall 006	Precipitation (in)	Outfall 006 Estimated Flow (MGD)
	Jun. 24, 2005	12,351.900 108,818.170	NA	0.665
	Aug. 23, 2005	145,713.690	NA	0.011
	Oct. 6, 2005	51,174.820	NA	0.0272
	Average	79,514.645		0.234

Incoming (dry weather)				
	Date	Outfall 006	Precipitation (in)	Outfall 006 Estimated Flow (MGD)
	Jun. 24, 2005	2,873.810	NA	NA

Notes:

MGD = million gallons per day

Outfall 006 flow measurements are an average of 12 hourly field measurements at the outfall piping

TABLE 7-27

Abandoned Sewer
Surface Water Results
August 15, 2006

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Analysis Name	Units	Location		Upwelling Area UWA_SW1	Manhole 1		Manhole 2	
		Sample ID	Result		Sample ID	Result	Sample ID	Result
Total Suspended Solids	mg/l		29.6	< 12.0	12	36.8	12	13.2
PCB-1016	ug/l		N.D.	0.48	12	N.D.	10	0.48
PCB-1221	ug/l		N.D.	0.48	12	N.D.	10	0.48
PCB-1232	ug/l		N.D.	0.48	12	N.D.	10	0.48
PCB-1242	ug/l		N.D.	0.48	12	N.D.	10	0.48
PCB-1248	ug/l		N.D.	0.48	12	N.D.	10	0.48
PCB-1254	ug/l		4.3 JB	0.48	12	N.D.	10	0.48
PCB-1260	ug/l		4.5 JB	0.48	12	140 J	10	2.3
Total PCB Aroclors	ug/l		8.8	0.48	12	97	10	1.9
						237		N.D.

Analysis Name	Units	Vault 1		Vault 2		Vault 3		Vault 5		Vault 6		Vault 7	
		Sample ID	Result										
Total Suspended Solids	mg/l		27.2	12	17.6	12	31.70	60	32.4	12	1,240	60	129
PCB-1016	ug/l		N.D.	2.4	N.D.	N.D.	N.D.	13	N.D.	12	N.D.	13	N.D.
PCB-1221	ug/l		N.D.	2.4	N.D.	N.D.	N.D.	13	N.D.	12	N.D.	13	N.D.
PCB-1232	ug/l		N.D.	2.4	N.D.	N.D.	N.D.	13	N.D.	12	N.D.	13	N.D.
PCB-1242	ug/l		N.D.	2.4	N.D.	N.D.	N.D.	13	N.D.	12	N.D.	13	N.D.
PCB-1248	ug/l		N.D.	2.4	N.D.	N.D.	N.D.	13	N.D.	12	N.D.	13	N.D.
PCB-1254	ug/l		19 JB	2.4	N.D.	69 JB	N.D.	13	N.D.	12	N.D.	13	N.D.
PCB-1260	ug/l		19 JB	2.4	16 JB	63 JB	N.D.	13	N.D.	12	36 JB	13	N.D.
Total PCB Aroclors	ug/l		38	33	33	132	N.D.	13	N.D.	12	96	13	2.3 JB
											132		3.6

Notes:

- LOQ = Limit of quantitation
- ug/l = micrograms per liter
- N.D. = Not detected
- UJ = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation to accurately and precisely measure the analyte in the sample.
- J = Estimated value
- B = The analyte was detected in the method, field, and/or trip blank.

TABLE 7-28

Abandoned Sewer Sediment Results
August 16, 2006

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Analysis Name	Location Sample ID	Units	Lift Station LS_Sed_1		Upwelling Area Sed 1 UWA_Sed_1		Upwelling Area Sed 2 UWA_Sed_2		Manhole 1 MH_1_Sed_1		Manhole 2 MH_2_Sed_2		Vault 1 Vault_1_Sed_1		Vault 2 Vault_2_Sed_1	
			Result	LOQ	Result	LOQ	Result	LOQ	Result	LOQ	Result	LOQ	Result	LOQ	Result	LOQ
TPH-DRO by 80155		mg/kg	660	120	190	170	210	170	7,500	540	1,500	110	470	150	20,000	3,300
PCB-1016		ug/kg	N.D.	33,000	N.D.	1,200	N.D.	2,400	N.D.	3,800	N.D.	15,000	N.D.	2,100	N.D.	9,400
PCB-1221		ug/kg	N.D.	33,000	N.D.	1,200	N.D.	2,400	N.D.	3,800	N.D.	15,000	N.D.	2,100	N.D.	9,400
PCB-1232		ug/kg	N.D.	33,000	N.D.	1,200	N.D.	2,400	N.D.	3,800	N.D.	15,000	N.D.	2,100	N.D.	9,400
PCB-1242		ug/kg	N.D.	33,000	N.D.	1,200	N.D.	2,400	N.D.	3,800	N.D.	15,000	N.D.	2,100	N.D.	9,400
PCB-1248		ug/kg	N.D.	33,000	N.D.	1,200	N.D.	2,400	N.D.	3,800	N.D.	15,000	N.D.	2,100	N.D.	9,400
PCB-1254		ug/kg	150,000	J	2,700	1,200	N.D.	2,400	20,000	3,800	79,000	J	17,000	2,100	55,000	9,400
PCB-1260		ug/kg	140,000	J	12,000	1,200	N.D.	2,400	29,000	3,800	89,000	J	24,000	2,100	54,000	9,400
TOTAL PCB Aroclors		ug/kg	290,000	33,000	14,700	23,000	23,000	23,000	49,000	3,800	168,000	15,000	41,000	2,100	109,000	9,400

Analysis Name	Location Sample ID	Units	Brick Sewer BS_Sed_1		Vault 3 Vault_3_Sed_1		Vault 5 Vault_5_Sed_1		Vault 5 (DUP) Vault_5 (DUP)_Sed_1		Vault 6 Vault_6_Sed_1		Vault 7 Vault_7_Sed_1	
			Result	LOQ	Result	LOQ	Result	LOQ	Result	LOQ	Result	LOQ	Result	LOQ
TPH-DRO by 80155		mg/kg	910	290	67,000	45,000	83,000	50,000	520	1,800	390	1,400	1,400	
PCB-1016		ug/kg	N.D.	10,000	N.D.	3,200	N.D.	1,800	N.D.	18,000	N.D.	1,400	1,400	
PCB-1221		ug/kg	N.D.	10,000	N.D.	3,200	N.D.	1,800	N.D.	18,000	N.D.	1,400	1,400	
PCB-1232		ug/kg	N.D.	10,000	N.D.	3,200	N.D.	1,800	N.D.	18,000	N.D.	1,400	1,400	
PCB-1242		ug/kg	N.D.	10,000	N.D.	3,200	N.D.	1,800	N.D.	18,000	N.D.	1,400	1,400	
PCB-1248		ug/kg	N.D.	10,000	N.D.	3,200	N.D.	1,800	N.D.	18,000	N.D.	1,400	1,400	
PCB-1254		ug/kg	12,000	J	4,200	J	8,500	J	24,000	J	7,700	J	1,400	
PCB-1260		ug/kg	39,000	10,000	14,000	3,200	12,000	1,800	54,000	18,000	12,000	1,400	1,400	
TOTAL PCB Aroclors		ug/kg	51,000	16,200	16,200	20,500	20,500	78,000	18,000	19,700	1,400	1,400	1,400	

Notes:
LOQ = Limit of quantitation
ug/l = micrograms per liter
N.D. = Not detected
UJ = Analyte not detected above the reported sample limit. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation to accurately and precisely measure the analyte in the sample.
J = Estimated value

TABLE 7-29

Western Drainage Ditch
Vegetative Enhancement Test - Baseline Surface Water Monitoring Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Sample ID Analysis	WD-SW1 (upstream location)			WD-SW2 (downstream location)		
	7/24/2006	8/9/2006	8/22/2006	7/24/2006	8/9/2006	8/22/2006
Iron total	7.87	6.46	8.18	220	980	35.8
Iron Dissolved	< 0.200	< 0.200	< 0.200	< 0.200	0.632	< 0.200
Ferrous Iron	4.1	4.4	3.2	30.4	107	35.6
Alkalinity to pH 8.3	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Alkalinity to pH 4.5	449	535	536	451	1,140	517
pH	7.12	6.74	7.23	7.2	7.24	7.53
ORP	-74.7	-85	-106	-105.9	-118	-54
DO	10.69	0.86	5.81	2	2.04	4.08
Temp	23.53	24.7	26.92	25.73	27.4	29.27
Conductivity	1,006	1,59	1,26	1,02	1,55	1,24
EPH C9 to C18 Aliphatics	NA	680	62	NA	27,000	19,000
EPH C19 to C36 Aliphatics	NA	400	110	NA	11,000	200
EPH C11 to C22 Aromatics	NA	340	140	NA	9,700	13,000
EPH Unadjusted C11-C22 Aromatics	NA	340	140	NA	9,700	13,000
VPH C5-C8 Aliphatic Hydrocarbons	NA	< 100	< 100	NA	< 100	< 100
VPH C9-C12 Aliphatic Hydrocarbons	NA	< 100	< 100	NA	< 100	< 100
VPH C9-C10 Aromatic Hydrocarbons	NA	< 100	< 100	NA	< 100	< 100
VPH Unadjusted C5-C8 Aliphatics	NA	< 100	< 100	NA	< 100	< 100
VPH Unadjusted C9-C12 Aliphatics	NA	< 100	< 100	NA	< 100	< 100

Flow at Dam C	Units
Date Sampled	gpm
7/24/2006	14.63
8/9/2006	10.81
8/22/2006	6.36
10/18/2006	10.47

NOTES:
 mV = millivolts
 °C = Degrees Celsius
 mS/cm = milli siemens per centimeter
 mg/l = milligrams per liter
 ug/l = micrograms per liter
 NA = Not analyzed

TABLE 8-1

City Ditch Sediment Sample Results
12/8/2004

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Sample Depth (Inches) Analyte	CD-1(Surface)		CD-2(Surface)		CD-3(Surface)		CD-2(18-24)		CD-3(16-22)		CD-4(Surface)		CD-4(9-15)		CD-5(Surface)		CD-5(3-23)		CD-5(3-23)	
	0-3	0-3	0-3	18-24	0-3	16-22	16-22	0-3	0-3	9-15	0-3	0-3	9-15	0-3	3-23	3-23	Duplicate of CD-5(3-23)			
TOC	mg/kg	87,500	134,000	83,600	129,000	53,300	96,400	49,900	21,100	9,620	9,820	9,820	9,820	9,820	9,820	9,820	9,820	9,820	9,820	9,820
PCB-1016	ug/kg	ND (130)	ND (120)	ND (380)	ND (83)	ND (50)	ND (12)	ND (42)	ND (6.1)	ND (6.4)	ND (32)	ND (32)	ND (32)	ND (32)	ND (32)	ND (32)	ND (32)	ND (32)	ND (32)	ND (32)
PCB-1221	ug/kg	ND (120)	ND (100)	ND (340)	ND (74)	ND (45)	ND (11)	ND (38)	ND (5.4)	ND (5.7)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)	ND (29)
PCB-1232	ug/kg	ND (92)	ND (79)	ND (260)	ND (57)	ND (34)	ND (8.3)	ND (29)	ND (4.2)	ND (4.4)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)
PCB-1242	ug/kg	ND (92)	ND (79)	ND (260)	ND (57)	ND (34)	ND (8.3)	ND (29)	ND (4.2)	ND (4.4)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)
PCB-1248	ug/kg	490	840	860 J	780	170 J	350	150 J	99	120 J	140	140	140	140	140	140	140	140	140	140
PCB-1254	ug/kg	1,200	900	4,600 J	520	500	250	260	48	78	140	140	140	140	140	140	140	140	140	140
PCB-1260	ug/kg	3,900	2,300	15,000 J	910	1,900	590	880	100	270	490	490	490	490	490	490	490	490	490	490
Total Aroclors	ug/kg	5590	4040	20460	2210	2570	1190	1290	247	468	670	670	670	670	670	670	670	670	670	670
Total Congeners	pg/kg	NA	NA	NA	2,485,125,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

- TOC = Total Organic Carbon
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- ND (6.6) = Analyte not detected at or above this detection limit
- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
- NA = Not analyzed
- TOC analyzed by Method 5310B
- PCB Aroclors analyzed by Method 8082
- PCB congeners analyzed by USEPA Method 1668A
- Data validated by SECOR personnel
- pg/kg = picograms per kilogram

Table 8-2

Adjacent Drainage Ditches Sediment Sample Results
 AMTRAK Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, DE

Parameter	DD-1 Grab 07/11/05 0-3"		DD-5 Grab 07/11/05 Duplicate of DD-1 Grab		DD-1(0-2) 07/11/05 3"-2'3"		DD-1(2-4) 07/11/05 2'3"-4'3"		DD-1(4-6) 07/11/05 4'3"-6'3"		DD-2 Surface 4/13/2005 0-3"	
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TOC	23,000	3,260	27,500	3,680	35,600	6,090	80,900	3,890	94,500	6,180	48,800	12,200
TPH-DRO	46.3	0.50	45.0	0.50	NA	---	NA	---	NA	---	1,900 J	520
PCB-1016	ND	950	ND	1,900	ND	1,700	ND	3,800	ND	4,300	ND	120
PCB-1221	ND	950	ND	1,900	ND	1,700	ND	3,800	ND	4,300	ND	120
PCB-1232	ND	950	ND	1,900	ND	1,700	ND	3,800	ND	4,300	ND	120
PCB-1242	ND	950	ND	1,900	ND	1,700	ND	3,800	ND	4,300	ND	120
PCB-1248	ND	950	ND	1,900	ND	1,700	ND	3,800	ND	4,300	ND	120
PCB-1254	ND	950	ND	1,900	ND	1,700	ND	3,800	ND	4,300	ND	120
PCB-1260	8,600	950	18,000	1,900	19,000J	1,700	27,000	3,800	47,000	4,300	2,000	120
Total PCB Aroclors	8,600	950	18,000	1,900	19,000J	1,700	27,000	3,800	47,000	4,300	2,000	120
Total PCB Congeners	10,216,963,000	---	8,025,540,000	---	NA	---	NA	---	47,000	---	NA	---

NOTES:

- MDL = Method detection limit
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- pg/kg = picograms per kilogram
- ND = Not detected at or above the method detection limit
- J = Estimated value
- NA = Not analyzed
- TOC analyzed by Method 5310B
- PCB Aroclors analyzed by Method 8082
- PCB congeners analyzed by USEPA Method 1668A

Table 8-2

Adjacent Drainage Ditches Sediment Sample Results

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, DE

Parameter	DD Sed 2A		DD Sed 2B		DD Pipe							
	Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date	Sample Depth	Sample Date	Sample Depth
TOC	4/13/2005	3'-2'2"	03/23/07	0-3'	03/23/07	3'-2'3"	03/23/07	2'3"-4'3"	03/23/07	4'3"-5'0"	03/23/07	Composite
	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
TPH-DRO	174,000	7,640	7,550	3,480	8,040	6,150	48,900	4,700	34,800	3,760	30,000	5,270
PCB-1016	1600	710	690	240	600	260	4900 J	240	8,300	1,100	770	250
PCB-1221	ND	170	N.D. UJ	3,400	N.D. UJ	3,700	N.D. UJ	3,400	N.D. UJ	3,100	N.D. UJ	3,500
PCB-1232	ND	170	N.D. UJ	3,400	N.D. UJ	3,700	N.D. UJ	3,400	N.D. UJ	3,100	N.D. UJ	3,500
PCB-1242	ND	170	N.D. UJ	3,400	N.D. UJ	3,700	N.D. UJ	3,400	N.D. UJ	3,100	N.D. UJ	3,500
PCB-1248	ND	170	N.D. UJ	3,400	N.D. UJ	3,700	N.D. UJ	3,400	N.D. UJ	3,100	N.D. UJ	3,500
PCB-1254	ND	170	N.D. UJ	3,400	N.D. UJ	3,700	N.D. UJ	3,400	N.D. UJ	3,100	N.D. UJ	3,500
PCB-1260	1,700	170	9,500	3,400	11,000	3,700	16,000	3,400	14,000	3,100	N.D. UJ	3,500
Total PCB Aroclors	1,700	---	9,500	3,400	11,000	3,700	16,000	3,400	14,000	3,100	11,000	3,500
Total PCB Congeners	11,108,400,000	---	NA	---	NA	---	16,000	---	14,000	---	11,000	---

NOTES:

- MDL = Method detection limit
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- pg/kg = picograms per kilogram
- ND = Not detected at or above the method detection limit
- J = Estimated value
- NA = Not analyzed
- TOC analyzed by Method 5310B
- PCB Aroclors analyzed by Method 8082
- PCB congeners analyzed by USEPA Method 1668A

TABLE 8-3

Brandywine Creek Tidal Area Sediment Sample Results
November 3 and 5, 2004

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Analyte	Date Collected	BC SED-1 11/03/04	BC SED-2 11/03/04	BC SED-3 11/03/04	BC SED-4 11/03/04	BC SED-5 11/03/04	BC SED-6 11/03/04	BCT-1A 11/05/04	BCT-1B 11/05/04
TOC	mg/kg	30,900 J	34,300 J	4,510 J	7,140 J	7,810 J	461 J	4,360 J	841 J
PCB-1016	ug/kg	ND (370) UJ	ND (40) UJ	ND (22) UJ	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (22)	ND (22)
PCB-1221	ug/kg	ND (370) UJ	ND (40) UJ	ND (22) UJ	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (22)	ND (22)
PCB-1232	ug/kg	ND (370) UJ	ND (40) UJ	ND (22) UJ	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (22)	ND (22)
PCB-1242	ug/kg	ND (370) UJ	ND (40) UJ	ND (22) UJ	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (22)	ND (22)
PCB-1248	ug/kg	1,200 J	< 40 J	< 22 J	ND (23) UJ	ND (23) UJ	ND (23) UJ	< 22	39
PCB-1254	ug/kg	1,200 J	80 J	< 22 J	ND (23) UJ	ND (23) UJ	ND (23) UJ	< 22	< 22
PCB-1260	ug/kg	1,200 J	180 J	< 22 J	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (22)	24 J
Total Aroclors	ug/kg	3600 J	260 J	< 22 J	ND (23) UJ	ND (23) UJ	ND (23) UJ	< 22	63
Total Congeners	pg/kg	1,051,035,000	342,195,000	14,459,210	2,286,210	20,049,990	3,572,790	NA	59,435,200

NOTES:

TOC = Total Organic Carbon
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
pg/kg = picograms per kilogram

ND (370) = Analyte not detected at or above this detection limit

<40 = Analyte detected at a concentration below the limit of quantitation but above the minimum detection level

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and

may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

TOC analyzed by Method 5310B.

PCB Aroclors analyzed by Method 8082.

PCB congeners analyzed by USEPA Method 1668A

Analytical data validated by SECOR personnel

TABLE 8-3

Brandywine Creek Tidal Area Sediment Sample Results
November 3 and 5, 2004

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Analyte	Date Collected	BCT-1C 11/05/04	BCT-2A 11/03/04	BCT-2B 11/03/04	BCT-2D 11/03/04	BCT-2C 11/03/04	BCT-3A 11/05/04	BCT-3B 11/05/04	BCT-3C 11/05/04
TOC	mg/kg	3,540 J	4,830 J	2,500 J	702 J	21,000 J	34,700 J	14,000 J	1,610 J
PCB-1016	ug/kg	ND (21) UJ	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (39) UJ	ND (41)	ND (22)	ND (21)
PCB-1221	ug/kg	ND (21) UJ	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (39) UJ	ND (41)	ND (22)	ND (21)
PCB-1232	ug/kg	ND (21) UJ	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (39) UJ	ND (41)	ND (22)	ND (21)
PCB-1242	ug/kg	ND (21) UJ	ND (23) UJ	ND (23) UJ	ND (23) UJ	ND (39) UJ	ND (41)	ND (22)	ND (21)
PCB-1248	ug/kg	49 J	29 J	52 J	48 J	ND (39) J	ND (41)	< 22	86
PCB-1254	ug/kg	27 J	< 23 J	< 23 J	25 J	< 39 J	ND (41)	< 22	28
PCB-1260	ug/kg	< 21 J	< 23 J	< 23 J	< 23 J	< 39 J	ND (41)	< 22	< 21
Total Aroclors	ug/kg	76 J	29 J	52 J	48 J	< 39 J	ND (41)	< 22	114
Total Congeners	pg/kg	NA	NA	7,276,000	32,481,780	NA	NA	NA	478,260,000

NOTES:

TOC = Total Organic Carbon
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
pg/kg = picograms per kilogram

ND (370) = Analyte not detected at or above this detection limit

<40 = Analyte detected at a concentration below the limit of quantitation but above the minimum detection level

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and

may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

TOC analyzed by Method 5310B.

PCB Aroclors analyzed by Method 8082.

PCB congeners analyzed by USEPA Method 1668A

Analytical data validated by SECOR personnel

TABLE 8-4

Brandywine Creek Nontidal Area Sediment Sample Results
12/6/2004

AMTRAK Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Sample Depth (Inches) Analyte	BCNT-1 0-3		BCNT-10 (duplicate of BCNT-1)		BCNT-1 (3-8) 3-8		BCNT-2 0-3		BCNT-2 (3-12) 3-12		BCNT-2 (12-18) 12-18		BCNT-3 0-3		BCNT-3 (3-12) 3-12		BCNT-3 (12-24) 12-24	
	mg/kg	ug/kg	mg/kg	ug/kg	mg/kg	ug/kg	mg/kg	ug/kg	mg/kg	ug/kg	mg/kg	ug/kg	mg/kg	ug/kg	mg/kg	ug/kg	mg/kg	ug/kg
TOC	1,560	1,280	1,280	1,280	2,800	J	5,770	18,800	7,480	591	9,570	81,500						
PCB-1016	ND (6.6)	ND (6.7)	ND (6.7)	ND (6.7)	ND (6.7)		ND (7.2)	ND (8.4)	ND (7.3)	ND (6.5)	ND (7.0)	ND (70)						
PCB-1221	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)		ND (6.4)	ND (7.5)	ND (6.5)	ND (5.8)	ND (6.3)	ND (63)						
PCB-1232	ND (4.6)	ND (4.6)	ND (4.6)	ND (4.6)	ND (4.6)		ND (4.9)	ND (5.8)	ND (5.0)	ND (4.5)	ND (4.8)	ND (48)						
PCB-1242	ND (4.6)	ND (4.6)	ND (4.6)	ND (4.6)	ND (4.6)		ND (4.9)	ND (5.8)	ND (5.0)	ND (4.5)	ND (4.8)	ND (48)						
PCB-1248	ND (4.6)	ND (4.6)	ND (4.6)	ND (4.6)	ND (4.6)		ND (4.9)	ND (5.8)	ND (5.0)	ND (4.5)	ND (4.8)	ND (48)						
PCB-1254	ND (5.1)	ND (5.2)	ND (5.2)	ND (5.2)	ND (5.1)		ND (5.5)	ND (6.5)	ND (5.6)	ND (4.5)	17	ND (48)						
PCB-1260	ND (4.6)	ND (4.6)	ND (4.6)	ND (4.6)	ND (4.6)		5.8	22	17	ND (4.5)	61	ND (54)						
Total Aroclors	ND	ND	ND	ND	ND		5.8	22	17	ND	96	100						
Total Congeners	2,678,430	2,126,030	2,126,030	2,126,030	NA		NA	NA	NA	1,144,340	NA	NA						

NOTES:

- TOC = Total Organic Carbon
- mg/kg = milligrams per kilogram
- ug/kg = micrograms per kilogram
- ND (6.6) = Analyte not detected at or above this detection limit
- J = Estimated value - the result is greater than the method detection limit but less than the limit of quantitation
- NA = Not analyzed
- TOC analyzed by Method 5310B.
- PCB Aroclors analyzed by Method 8082.
- PCB congeners analyzed by USEPA Method 1668A
- Analytical data validated by SECOR personnel
- pg/kg = picograms per kilogram

Table 10-1
Summary Statistics: Soil Site-wide All Depths

CHEMICAL	Number of Samples	Number of Detects	Frequency of Detection	Minimum SQL mg/kg	Maximum SQL mg/kg	Minimum Detected mg/kg	Maximum Detected mg/kg	Arithmetic Mean mg/kg	Standard Deviation mg/kg	95% UCL mg/kg	Distribution	RME EPC mg/kg
PCBs												
PCB-1016	94	1	1%	0.026	1.5	0.8	0.8	1.1E-01	1.8E-01	1.4E-01	Standard Bootstrap	1.4E-01
PCB-1221	94	1	1%	0.023	1.6	0.8	0.8	1.1E-01	1.8E-01	1.4E-01	Standard Bootstrap	1.4E-01
PCB-1232	94	1	1%	0.018	1.5	0.8	0.8	1.1E-01	1.8E-01	1.4E-01	Standard Bootstrap	1.4E-01
PCB-1248	94	3	3%	0.018	1.9	0.31	5.4	1.6E-01	5.7E-01	2.7E-01	Standard Bootstrap	2.7E-01
PCB-1254	97	4	4%	0.018	1.5	0.8	14	3.6E-01	1.7E+00	6.5E-01	Standard Bootstrap	6.5E-01
PCB-1260	104	82	79%	0.02	1.9	0.17	9.3	2.0E-01	9.6E-01	3.6E-01	Standard Bootstrap	3.6E-01
TPH Diesel												
C9-C18 aliphatics	66	61	92%	0.17	340	5.6	40000	3.7E+03	6.7E+03	5.1E+03	Standard Bootstrap	5.1E+03
C19 to C36 Aliphatics	31	30	97%	670	670	6.5	42000	4.1E+03	9.3E+03	6.7E+03	Standard Bootstrap	6.7E+03
C11-C22 aromatics	67	64	96%	0.34	670	8.4	33600	4.5E+03	7.8E+03	6.1E+03	Standard Bootstrap	6.1E+03
TPH Gas												
C5-C8 Aliphatic Hydrocarbons (unadjusted)	31	7	23%	0.64	10	2.86	50	2.6E+01	1.8E+01	2.0E+02	Student's-t	3.9E+01
C9-C12 Aliphatic Hydrocarbons (unadjusted)	31	10	32%	2.39	1420	3.47	1900	2.7E+02	4.3E+02	4.0E+02	Standard Bootstrap	4.0E+02
C9-C10 Aromatic Hydrocarbons	31	7	23%	2.39	866	3.81	630	1.8E+02	2.2E+02	2.4E+02	Standard Bootstrap	2.4E+02

Notes:

95% UCL - 95% Upper Confidence Limit of the Arithmetic Mean, estimated from the USEPA ProUCL program (USEPA, 2004)
RME EPC - Reasonable maximum exposure point concentration, is the lesser of the maximum detect or 95% UCL.

Table 10-2
 Summary Statistics: Soil Site-wide (0 - 2 feet below ground surface)

CHEMICAL	Number of Samples	Number of Detects	Frequency of Detection	Minimum SQL mg/kg	Maximum SQL mg/kg	Minimum Detected mg/kg	Maximum Detected mg/kg	Arithmetic Mean mg/kg	Standard Deviation mg/kg	95% UCL mg/kg	Distribution	RME EPC mg/kg
PCBs												
PCB-1016	58	1	2%	0.026	1.5	0.8	0.8	1.5E-01	2.2E-01	1.9E-01	Standard Bootstrap	1.9E-01
PCB-1221	58	1	2%	0.023	1.6	0.8	0.8	1.5E-01	2.2E-01	2.0E-01	Standard Bootstrap	2.0E-01
PCB-1232	58	1	2%	0.018	1.5	0.8	0.8	1.4E-01	2.2E-01	1.9E-01	Standard Bootstrap	1.9E-01
PCB-1242	58	2	3%	0.018	1.9	0.8	5.4	2.3E-01	7.2E-01	3.9E-01	Standard Bootstrap	3.9E-01
PCB-1248	58	4	7%	0.018	1.5	0.8	14	5.6E-01	2.2E+00	1.0E+00	Standard Bootstrap	1.0E+00
PCB-1254	58	3	5%	0.02	1.9	0.17	9.3	3.1E-01	1.2E+00	5.7E-01	Standard Bootstrap	5.7E-01
PCB-1260	67	64	96%	0.074	0.083	0.15	33	3.1E+00	5.6E+00	4.1E+00	Gamma	4.1E+00
TPH Diesel												
C9-C18 aliphatics	45	39	87%	0.17	340	9.5	40000	3.6E+03	6.9E+03	6.2E+03	Gamma	6.2E+03
C19 to C36 Aliphatics	25	25	100%	670	670	20	42000	4.8E+03	1.0E+04	8.2E+03	Standard Bootstrap	8.2E+03
C11-C22 aromatics	45	43	96%	0.34	670	22	29000	4.4E+03	7.4E+03	7.2E+03	Gamma	7.2E+03
TPH Gas												
C5-C8 Aliphatic Hydrocarbons (unadjusted)	25	4	16%	0.64	10	2.86	50	2.4E+01	2.3E+01	5.1E+01	Student's-t	5.0E+01
C9-C12 Aliphatic Hydrocarbons (unadjusted)	25	4	16%	2.39	10	3.47	66	2.8E+01	3.0E+01	6.3E+01	Student's-t	6.3E+01
C9-C10 Aromatic Hydrocarbons	25	3	12%	2.39	10	3.81	18	8.9E+00	NA	NA	NA	1.8E+01

Notes:
 95% UCL - 95% Upper Confidence Limit of the Arithmetic Mean, estimated from the USEPA ProUCL program (USEPA, 2004)
 RME EPC - Reasonable maximum exposure point concentration, is the lesser of the maximum detect or 95% UCL.

Table 10-3
 Summary Statistics: Soil in the Former Roundhouse Area, All Depths

CHEMICAL	Number of Samples	Number of Detects	Frequency of Detection	Minimum SQL mg/kg	Maximum SQL mg/kg	Minimum Detected mg/kg	Maximum Detected mg/kg	Arithmetic Mean mg/kg	Standard Deviation mg/kg	95% UCL mg/kg	Distribution	RME EPC mg/kg
PCBs												
PCB-1248	123	3	2%	0.07	8	0.55	5.2	9.7E-01	1.2E+00	1.1E+00	Standard Bootstrap	1.1E+00
PCB-1254	127	19	15%	0.07	40	0.5	37	3.4E+00	6.9E+00	4.4E+00	Standard Bootstrap	4.4E+00
PCB-1260	131	112	85%	0.071	0.083	0.12	1400	6.1E+01	1.8E+02	1.0E+02	Standard Bootstrap	1.0E+02
TPH Diesel												
C9-C18 aliphatics	16	15	94%	65	65	16	1900	2.9E+02	6.3E+02	5.4E+02	Standard Bootstrap	5.4E+02
C19 to C36 Aliphatics	16	16	100%	---	---	83	3300	5.6E+02	7.9E+02	8.8E+02	Standard Bootstrap	8.8E+02
C11-C22 aromatics	16	15	94%	19	19	25	350	1.1E+02	9.4E+02	1.5E+02	Standard Bootstrap	1.5E+02
TPH Gas												
C5-C8 Aliphatic Hydrocarbons (unadjusted)	17	14	82%	0.41	40	3.21	50	2.4E+01	1.4E+01	2.9E+01	Standard Bootstrap	2.9E+01
C9-C12 Aliphatic Hydrocarbons (unadjusted)	16	13	81%	0.13	15	2.79	580	1.2E+02	2.1E+02	2.0E+02	Standard Bootstrap	2.0E+02
C9-C10 Aromatic Hydrocarbons	16	6	38%	0.13	17	17	230	4.5E+01	8.0E+01	7.7E+01	Standard Bootstrap	7.7E+01

Notes:

95% UCL - 95% Upper Confidence Limit of the Arithmetic Mean, estimated from the USEPA ProUCL program (USEPA, 2004)
 RME EPC - Reasonable maximum exposure point concentration, is the lesser of the maximum detect or 95% UCL.

Table 10-4
 Summary Statistics: Soil in the Former Roundhouse Area (0-2 feet below ground surface)

COMPOUNDS	Number of Samples	Number of Detects	Frequency of Detection	Minimum SQL mg/kg	Maximum SQL mg/kg	Minimum Detected mg/kg	Maximum Detected mg/kg	Arithmetic Mean mg/kg	Standard Deviation mg/kg	95% UCL mg/kg	Distribution	RME EPC mg/kg
PCBs												
PCB-1248	24	1	4%	0.071	0.75	0.55	0.55	1.7E-01	1.5E-01	2.1E+01	Standard Bootstrap	2.1E+01
PCB-1254	61	3	5%	0.071	20	5.4	12	1.8E+00	2.5E+00	2.4E+00	Gamma	2.4E+00
PCB-1260	65	63	97%	0.077	0.08	0.18	1400	8.4E+01	2.1E+02	1.3E+02	Standard Bootstrap	1.3E+02
TPH Diesel												
C9-C18 aliphatics	5	4	80%	65	65	28	54	4.0E+01	1.1E+01	4.7E+01	Standard Bootstrap	4.7E+01
C19 to C36 Aliphatics	5	5	100%	---	---	260	750	4.2E+02	1.9E+02	6.0E+02	Student's-t	6.0E+02
C11-C22 aromatics	5	5	100%	---	---	99	230	1.7E+02	5.6E+01	2.0E+02	Standard Bootstrap	2.0E+02
TPH Gas												
C5-C8 Aliphatic Hydrocarbons (unadjusted)	5	5	100%	---	---	3.21	50	3.0E+01	1.7E+01	4.1E+01	Standard Bootstrap	4.1E+01
C9-C12 Aliphatic Hydrocarbons (unadjusted)	5	5	100%	---	---	2.79	580	1.3E+02	2.5E+02	3.0E+02	Standard Bootstrap	3.0E+02
C9-C10 Aromatic Hydrocarbons	4	1	25%	0.14	16	230	230	4.8E+01	1.0E+02	1.2E+02	Standard Bootstrap	1.2E+02

Notes:
 95% UCL - 95% Upper Confidence Limit of the Arithmetic Mean, estimated from the USEPA ProUCL program (USEPA, 2004)
 RME EPC - Reasonable maximum exposure point concentration, is the lesser of the maximum detect or 95% UCL.

TABLE 10-5a
Exposure and Risk Estimates for Youth Trespasser to Site-wide Soil (0-2 feet bgs)
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Receptor:	Youth Trespasser (age 12 to 18)
Exposure Point:	Soil
Exposure Route:	Incidental ingestion
Risk Equation:	CANCER RISK = Exposure (oral) · CSF(oral)
	CANCER RISK = (CS · EF · ED · IR · CF · CSF(oral)) / (BW · ATc)
Hazard Index Equation:	HAZARD INDEX = Exposure (oral) · 1/RfD(oral)
	HAZARD INDEX = (CS · EF · ED · IR · CF · 1/RfD(oral)) / (BW · ATnc)

Parameter	Description	Units	Values	Source
CS	soil concentration	mg/kg	see below	RME EPC
IR	ingestion rate	mg/day	50	USEPA, 1997
EF	exposure frequency	days/year	24	DNREC, 1998
ED	exposure duration	years	7	DNREC, 1998
CF	conversion factor	kg/mg	1.00E-06	DNREC, 1998
ATc	averaging time carcinogen	days	25550	DNREC, 1998
ATnc	averaging time noncarcinogen	days	2555	DNREC, 1998
BW	body weight	kg	57	USEPA, 1997
CSFs doral	oral cancer slope factor	(mg/kg-day) ⁻¹	see below	DNREC, 1998
RfD doral	oral reference dose	mg/kg/day	see below	DNREC, 1998
RISK	cancer risk	unitless	see below	DNREC, 1998
HI	hazard index	unitless	see below	DNREC, 1998

Chemical	CS RME	Oral RfD	Notes	EPA Cancer Class	Oral CSF	Notes	RME Cancer Risk	RME Hazard Index
PCBs								
PCB-1248	1.0E+00				2.00E+00	i	1.15E-08	---
PCB-1254	5.7E-01	2.00E-05			2.00E+00	i	6.58E-09	1.64E-03
PCB-1260	4.1E+00				2.00E+00	i	4.73E-08	---
TPH Diesel (a)								
C9-C18 aliphatics	6.2E+03	1.00E-01	TPHCWG				---	3.58E-03
C19 to C36 Aliphatics	8.2E+03	2.00E+00	TPHCWG				---	2.36E-04
C11-C22 aromatics	7.2E+03	3.00E-02	TPHCWG				---	1.38E-02
TPH Gas (a)								
C5-C8 Aliphatic Hydrocarbons (unadjusted)	5.0E+01	5.00E+00	TPHCWG				---	5.77E-07
C9-C12 Aliphatic Hydrocarbons (unadjusted)	6.6E+01	1.00E-01	TPHCWG				---	3.81E-05
C9-C10 Aromatic Hydrocarbons	1.8E+01	4.00E-02	TPHCWG				---	2.60E-05
TOTAL RISK							7E-08	0.019

Notes:

(a) Toxicity values for TPH gas and TPH diesel fractions are from TPH Criteria Working Group (TPHCWG, 1997).

TABLE 10-5b
Exposure and Risk Estimates for Adult Trespasser to Site-wide Soil (0-2 feet bgs)
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Receptor:	Adult Trespasser
Exposure Point:	Soil
Exposure Route:	Incidental Ingestion
Risk Equation:	CANCER RISK = Exposure (oral) · CSF(oral)
	CANCER RISK = (CS · EF · ED · IR · CF · CSF(oral)) / (BW · ATc)
Hazard Index Equation:	HAZARD INDEX = Exposure (oral) · 1/RfD(oral)
	HAZARD INDEX = (CS · EF · ED · IR · CF · 1/RfD(oral)) / (BW · ATnc)

Parameter	Description	Units	Values	Source
CS	soil concentration	mg/kg	see below	RME EPC
IR	ingestion rate	mg/day	50	USEPA, 1997
EF	exposure frequency	days/year	24	DNREC, 1998
ED	exposure duration	years	30	DNREC, 1998
CF	conversion factor	kg/mg	1.00E-06	DNREC, 1998
ATc	averaging time carcinogen	days	25550	DNREC, 1998
ATnc	averaging time noncarcinogen	days	10950	DNREC, 1998
BW	body weight	kg	70	DNREC, 1998
CSFs doral	oral cancer slope factor	(mg/kg-day) ⁻¹	see below	DNREC, 1998
RfD doral	oral reference dose	mg/kg/day	see below	DNREC, 1998
RISK	cancer risk	unitless	see below	DNREC, 1998
HI	hazard index	unitless	see below	DNREC, 1998

Chemical	CS RME	Oral RfD	Notes	EPA Cancer Class	Oral CSF	Notes	RME Cancer Risk	RME Hazard Index
PCBs								
PCB-1248	1.0E+00				2.00E+00		4.03E-08	---
PCB-1254	5.7E-01	2.00E-05			2.00E+00		2.29E-08	1.34E-03
PCB-1260	4.1E+00				2.00E+00		1.65E-07	---
TPH Diesel (a)								
C9-C18 aliphatics	6.2E+03	1.00E-01	TPHCWG				---	2.91E-03
	8.2E+03	2.00E+00	TPHCWG				---	1.93E-04
C11-C22 aromatics	7.2E+03	3.00E-02	TPHCWG				---	1.13E-02
TPH Gas (a)								
C5-C8 Aliphatic Hydrocarbons (unadjusted)	5.0E+01	5.00E+00	TPHCWG				---	4.70E-07
C9-C12 Aliphatic Hydrocarbons (unadjusted)	6.8E+01	1.00E-01	TPHCWG				---	3.10E-05
C9-C10 Aromatic Hydrocarbons	1.8E+01	2.00E-01	TPHCWG				---	4.23E-06
TOTAL RISK							2E-07	0.016

Notes:

- (a) Toxicity values for TPH gas and TPH diesel fractions are from TPH Criteria Working Group (TPHCWG, 1997).
- (b) Did not quantify risks as currently there are no toxicity values available for lead, however, 95% UCL concentration is below DNREC URS values for direct contact 400 mg/kg for
- (d) Oral RfD for manganese in non-food matrix (e.g., soil) is 1/3 value of oral RfD for manganese in food
- (d) No toxicity value for elemental mercury; assumed toxicity value for mercuric chloride.

TABLE 10-6a
Exposure and Risk Estimates for Youth Trespasser to Former Roundhouse Soil (0-2 feet bgs)
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Receptor:	Youth Trespasser (age 12 to 18)							
Exposure Point:	Soil							
Exposure Route:	Incidental Ingestion							
Risk Equation:	CANCER RISK = Exposure (oral) · CSF(oral)							
	CANCER RISK = (CS · EF · ED · IR · CF · CSF(oral)) / (BW · ATc)							
Hazard Index Equation:	HAZARD INDEX = Exposure (oral) · 1/RfD(oral)							
	HAZARD INDEX = (CS · EF · ED · IR · CF · 1/RfD(oral)) / (BW · ATnc)							
Parameter	Description	Units	Values	Source				
CS	soil concentration	mg/kg	see below	RME EPC				
IR	ingestion rate	mg/day	50	USEPA, 1997				
EF	exposure frequency	days/year	24	DNREC, 1998				
ED	exposure duration	years	7	DNREC, 1998				
CF	conversion factor	kg/mg	1.00E-06	DNREC, 1998				
ATc	averaging time carcinogen	days	25550	DNREC, 1998				
ATnc	averaging time noncarcinogen	days	2555	DNREC, 1998				
BW	body weight	kg	57	USEPA, 1997				
CSFs doral	oral cancer slope factor	(mg/kg-day) ⁻¹	see below	DNREC, 1998				
RfD doral	oral reference dose	mg/kg/day	see below	DNREC, 1998				
RISK	cancer risk	unitless	see below	DNREC, 1998				
HI	hazard index	unitless	see below	DNREC, 1998				
Chemical	CS RME	Oral RfD	Notes	EPA Cancer Class	Oral CSF	Notes	RME Cancer Risk	RME Hazard Index
PCBs								
PCB-1254	5.5E+00	2.00E-05	i		2.00E+00	i	6.34E-08	1.59E-02
PCB-1260	1.5E+02				2.00E+00	i	1.73E-06	---
TPH Diesel								
C9-C18 aliphatics	5.4E+01	1.00E-01	TPHCWG				---	3.11E-05
C19 to C36 Aliphatics	6.6E+02	2.00E+00	TPHCWG				---	1.90E-05
C11-C22 aromatics	2.3E+02	3.00E-02	TPHCWG				---	4.42E-04
TPH Gas								
C5-C8 Aliphatic Hydrocarbons (unadjusted)	5.0E+01	5.00E+00	TPHCWG				---	5.77E-07
C9-C12 Aliphatic Hydrocarbons (unadjusted)	4.4E+02	1.00E-01	TPHCWG				---	2.54E-04
C9-C10 Aromatic Hydrocarbons	1.7E+02	2.00E-01	TPHCWG				---	4.90E-05
TOTAL RISK							2E-06	0.02

Notes:

(a) Toxicity values for TPH gas and TPH diesel fractions are from TPH Criteria Working Group (TPHCWG, 1997).

TABLE 10-6b
Exposure and Risk Estimates for Adult Trespasser to Former Roundhouse Soil (0-2 feet bgs)
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Receptor:	Adult Trespasser							
Exposure Point:	Soil							
Exposure Route:	Incidental Ingestion							
Risk Equation:	CANCER RISK = Exposure (oral) · CSF(oral)							
	CANCER RISK = (CS · EF · ED · IR · CF · CSF(oral)) / (BW · ATc)							
Hazard Index Equation:	HAZARD INDEX = Exposure (oral) · 1/RfD(oral)							
	HAZARD INDEX = (CS · EF · ED · IR · CF · 1/RfD(oral)) / (BW · ATnc)							
Parameter	Description	Units	Values	Source				
CS	soil concentration	mg/kg	see below	RME EPC				
IR	ingestion rate	mg/day	50	USEPA, 1997				
EF	exposure frequency	days/year	24	DNREC, 1998				
ED	exposure duration	years	30	DNREC, 1998				
CF	conversion factor	kg/mg	1.00E-06	DNREC, 1998				
ATc	averaging time carcinogen	days	25550	DNREC, 1998				
ATnc	averaging time noncarcinogen	days	10950	DNREC, 1998				
BW	body weight	kg	70	DNREC, 1998				
CSFs doral	oral cancer slope factor	(mg/kg-day) ⁻¹	see below	DNREC, 1998				
RfD doral	oral reference dose	mg/kg/day	see below	DNREC, 1998				
RISK	cancer risk	unitless	see below	DNREC, 1998				
HI	hazard index	unitless	see below	DNREC, 1998				
Chemical	CS RME	Oral RID	Notes	EPA Cancer Class	Oral CSF	Notes	RME Cancer Risk	RME Hazard Index
PCBs								
PCB-1254	5.5E+00	2.00E-05	i		2.00E+00	i	2.21E-07	1.29E-02
PCB-1260	1.5E+02				2.00E+00	i	6.04E-06	---
TPH Diesel								
C9-C18 aliphatics	5.4E+01	1.00E-01	TPHCWG				---	2.54E-05
C19 to C36 Aliphatics	6.6E+02	2.00E+00	TPHCWG				---	1.55E-05
C11-C22 aromatics	2.3E+02	3.00E-02	TPHCWG				---	3.60E-04
TPH Gas								
C5-C8 Aliphatic Hydrocarbons (unadjusted)	5.0E+01	5.00E+00	TPHCWG				---	4.70E-07
C9-C12 Aliphatic Hydrocarbons (unadjusted)	4.4E+02	1.00E-01	TPHCWG				---	2.07E-04
C9-C10 Aromatic Hydrocarbons	1.7E+02	4.00E-02	TPHCWG				---	2.00E-04
TOTAL RISK							6E-06	0.014

Notes:

(a) Toxicity values for TPH gas and TPH diesel fractions are from TPH Criteria Working Group (TPHCWG, 1997).

Table 10-7

Potential Health Risks to On-site Construction Workers via Inhalation
 SITEWIDE ALL DEPTHS REASONABLE MAXIMUM EXPOSURE CONCENTRATIONS

Inhalation Equation: $CDI (mg/kg\text{-}day) = (C_a \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)					
C_a = Constituent Concentration (mg/kg)					
ET = Exposure Time (Unitless)	1	BW = Body Weight (kg) =	70		
EF = Exposure Frequency (days/year) =	125	AT_c = Averaging Time (Carcinogenic Effects) (days) =	25550		
ED = Exposure Duration (years) =	1	AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) =	9125		

Constituent	Constituent Concentration in soil (mg/kg)		Constituent Exposure Concentration in air (mg/m ³)		Carcinogens			Non-carcinogens		
			CDI	Unit Risk	CDI	COC Risk	RfI	CDI	RfI	Hazard
Atoclor 1260	2.8E+0		6.4E-8	5.7E-4		3.7E-8				
TPH-Aliph C09-C18	5.1E+3							4.1E-1	1.0E+0	4.1E-1
TPH-Aliph C19-C36	6.7E+3									
TPH-Arom C11-C22	6.1E+3							4.4E-2	2.0E-1	2.2E-1
TPH-Aliph C05-C08	5.0E+1							2.8E-2	1.8E+1	1.5E-3
TPH-Aliph C9-C12	4.0E+2							7.0E-2	1.0E+0	7.0E-2
TPH-Arom C09-C10	2.4E+2							3.3E-2	2.0E-1	1.6E-1

Total	3.7E-8	8.7E-1
--------------	---------------	---------------

Notes:
 Unit Risk = ug/m³
 RfI = Inhalation reference concentration (mg/m³)
 COC risk = CDI x Unit Risk x 1000 conversion factor

Table 10-9

Potential Health Risks to On-site Construction Workers via Incidental Inhalation
 ROUNDHOUSE SOILS ALL DEPTHS REASONABLE MAXIMUM EXPOSURE CONCENTRATIONS

Inhalation Equation: $CDI (mg/kg\text{-}day) = (C_a \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 ET = Exposure Time (Unitless) BW = Body Weight (kg) = 70
 EF = Exposure Frequency (days/year) = 125 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 ED = Exposure Duration (years) = 1 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration in Soil (mg/kg)	Constituent Exposure Concentration in Air (mg/m ³)	Carcinogens		Non-carcinogens	
			CDI	Unit Risk	CDI	RfI
Atroclor 1254	4.4E+0	1.9E-5	9.3E-8	5.7E-4		
Atroclor 1260	1.0E+2	4.7E-4	2.3E-6	5.7E-4	4.4E-2	1.0E+0
TPH-Aliph C09-C18	5.4E+2	1.3E-1				4.4E-2
TPH-Aliph C19-C36	8.8E+2	6.9E-2				
TPH-Arom C11-C22	1.5E+2	3.2E-3			1.1E-3	2.0E-1
TPH-Aliph C05-C08	2.9E+1	6.2E-2			2.1E-2	1.8E+1
TPH-Aliph C9-C12	2.0E+2	1.0E-1			3.5E-2	1.0E+0
TPH-Arom C09-C10	7.7E+1	3.1E-2			1.1E-2	2.0E-1
			Total		1.4E-6	1.4E-01

Notes:
 Unit Risk = ug/m³
 RfI = inhalation reference concentration (mg/m³)
 COC risk = CDI x Unit Risk x 1000 conversion factor

Table 10-11

Potential Health Risks to On-site Construction Workers via Inhalation
 SITEWIDE ALL DEPTHS CENTRAL TENDENCY EXPOSURE CONCENTRATIONS

Inhalation Equation: $CDI (mg/kg\text{-}day) = (C_a \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 ET = Exposure Time (Unitless) = 70
 EF = Exposure Frequency (days/year) = 25550
 ED = Exposure Duration (years) = 9125
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration in soil (mg/kg)		Constituent Exposure Concentration in air (mg/m ³)		Carcinogens			Non-carcinogens		
	2.1E+0	3.7E+3	9.9E-6	8.7E-1	CDI	Unit Risk	COC Risk	CDI	Rfi	Hazard
Aroclor 1260					5.8E-9	5.7E-4	4.1E-9	3.6E-2	1.0E+0	3.4E-2
TPH-Aliph C09-C18	4.1E+3	4.5E+3	3.2E-1	9.5E-2				3.9E-3	2.0E-1	1.9E-2
TPH-Aliph C19-C36	2.6E+1	2.7E+2	4.2E-2	1.4E-1				1.7E-3	1.8E+1	3.3E-5
TPH-Arom C11-C22	1.8E+2		7.2E-2					5.6E-3	1.0E+0	5.2E-3
TPH-Aliph C05-C08								3.0E-3	2.0E-1	1.2E-2
TPH-Aliph C9-C12										
TPH-Arom C09-C10										

Total 4.1E-9 7.0E-2

Notes:
 Unit Risk = ug/m³
 Rfi = inhalation reference concentration (mg/m³)
 COC risk = CDI x Unit Risk x 1000 conversion factor

Table 10-12

Potential Health Risks to On-site Commercial Workers via Inhalation
 SITEWIDE 0-2 FEET CENTRAL TENDENCY EXPOSURE CONCENTRATIONS

Inhalation Equation: $CDI (mg/kg\text{-}day) = (C_a \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 ET = Exposure Time (Unitless) 70
 EF = Exposure Frequency (days/year) = 250
 ED = Exposure Duration (years) = 25
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration in Soil (mg/kg)	Constituent Exposure Concentration in Air (mg/m ³)	Carcinogens		Non-carcinogens	
			CDI	Unit Risk	CDI	RfI
Aroclor 1248	5.6E-1	7.3E-7	1.8E-7	5.7E-4	1.0E-7	
Aroclor 1254	3.1E-1	2.7E-7	6.6E-8	5.7E-4	3.7E-8	
Aroclor 1260	3.1E+0	2.9E-6	7.1E-7	5.7E-4	4.1E-7	
TPH-Aliph C09-C18	3.6E+3	4.7E-2			3.2E-2	1.0E+0
TPH-Aliph C19-C36	4.8E+3	6.3E-2				3.2E-2
TPH-Arom C11-C22	4.4E+3	1.9E-2			1.3E-2	2.0E-1
TPH-Aliph C05-C08	2.4E+1	3.2E-4			2.2E-4	1.8E+1
TPH-Aliph C9-C12	2.8E+1	3.7E-4			2.5E-4	1.0E+0
TPH-Arom C09-C10	8.9E+0	1.2E-4			8.0E-5	2.0E-1
			Total		5.5E-7	9.7E-02

Notes:
 Unit Risk = ug/m³
 RfI = inhalation reference concentration (mg/m³)
 COC risk = CDI x Unit Risk x 1000 conversion factor

Table 10-15

Potential Health Risks to On-site Construction Workers via Incidental Ingestion of Soils
 SITEWIDE ALL DEPTHS REASONABLE MAXIMUM EXPOSURE CONCENTRATIONS

Ingestion Equation: $CDI (mg/kg\text{-}day) = (C_a \times IR \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 IR = Ingestion Rate (mg/day) =
 ET=Exposure Time (Unitless)

EF = Exposure Frequency (days/year) = 125
 ED = Exposure Duration (years) = 1
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration (mg/kg)	Carcinogens			Non-carcinogens		
		CDI	Slope Factor	COC Risk	CDI	RfD	Hazard
Aroclor 1260	2.8E+0	2.0E-8	2.0E+0	3.1E-7			
TPH-Aliph C09-C18	5.1E+3				2.5E-3	1.0E-1	2.5E-2
TPH-Aliph C19-C36	6.7E+3				3.3E-3	2.0E+0	1.6E-3
TPH-Arom C11-C22	6.1E+3				3.0E-3	3.0E-2	9.9E-2
TPH-Aliph C05-C08	5.0E+1				2.4E-5	5.0E+0	4.9E-6
TPH-Aliph C9-C12	4.0E+2				2.0E-4	1.0E-1	2.0E-3
TPH-Arom C09-C10	2.4E+2				1.2E-4	4.0E-2	2.9E-3

Total	3.1E-7	1.3E-1
-------	--------	--------

Table 10-17

Potential Health Risks to On-site Construction Workers via Incidental Ingestion of Soils
 ROUNDHOUSE SOILS ALL DEPTHS REASONABLE MAXIMUM EXPOSURE CONCENTRATIONS

Ingestion Equation: $CDI (mg/kg\text{-}day) = (C_s \times IR \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_s = Constituent Concentration (mg/kg)
 IR = Ingestion Rate (mg/day) =
 ET=Exposure Time (Unitless)

EF = Exposure Frequency (days/year) = 125
 ED = Exposure Duration (years) = 1
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

100
 1

Constituent	Constituent Concentration (mg/kg)	Carcinogens			Non-carcinogens		
		CDI	Slope Factor	COC Risk	CDI	RfD	Hazard
Aroclor 1254	4.4E+0	3.1E-8	2.0E+0	6.2E-08	2.2E-6	2.0E-5	1.1E-01
Aroclor 1260	1.0E+2	7.0E-7	2.0E+0	1.4E-06			
TPH-Aliph C09-C18	5.4E+2				2.6E-4	1.0E-1	2.6E-03
TPH-Aliph C19-C36	8.8E+2				4.3E-4	2.0E+0	2.2E-04
TPH-Arom C11-C22	1.5E+2				7.3E-5	3.0E-2	2.4E-03
TPH-Aliph C05-C08	2.9E+1				1.4E-5	5.0E+0	2.8E-06
TPH-Aliph C9-C12	2.0E+2				9.8E-5	1.0E-1	9.8E-04
TPH-Arom C09-C10	7.7E+1				3.8E-5	4.0E-2	9.4E-04

Total	1.5E-6	1.1E-01
--------------	---------------	----------------

Table 10-18

Potential Health Risks to On-site Commercial Workers via Incidental Ingestion of Soils
 ROUNDHOUSE SOILS 0-2 FEET REASONABLE MAXIMUM EXPOSURE CONCENTRATIONS

Ingestion Equation: $CDI (mg/kg\text{-}day) = (C_a \times IR \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 IR = Ingestion Rate (mg/day) =
 ET = Exposure Time (Unitless)

EF = Exposure Frequency (days/year) = 12
 ED = Exposure Duration (years) = 25
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration (mg/kg)	Carcinogens			Non-carcinogens		
		CDI	Slope Factor	COC Risk	CDI	RfD	Hazard
Aroclor 1254	2.4E+0	2.0E-8	2.0E+0	4.0E-08	5.6E-8	2.0E-5	2.8E-03
Aroclor 1260	1.3E+2	1.1E-6	2.0E+0	2.2E-06			
TPH-Aliph C09-C18	4.7E+1				1.1E-6	1.0E-1	1.1E-05
TPH-Aliph C19-C36	6.0E+2				1.4E-5	2.0E+0	7.0E-06
TPH-Arom C11-C22	2.0E+2				4.7E-6	3.0E-2	1.6E-04
TPH-Aliph C05-C08	4.1E+1				9.6E-7	5.0E+0	1.9E-07
TPH-Aliph C9-C12	3.0E+2				7.0E-6	1.0E-1	7.0E-05
TPH-Arom C09-C10	1.2E+2				2.8E-6	4.0E-2	7.0E-05

Total	2.2E-6	3.1E-03
-------	--------	---------

Table 10-19

Potential Health Risks to On-site Construction Workers via Incidental Ingestion of Soils
 SITEWIDE ALL DEPTHS CENTRAL TENDENCY EXPOSURE CONCENTRATIONS

Ingestion Equation: $CDI (mg/kg\text{-}day) = (C_a \times IR \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 IR = Ingestion Rate (mg/day) =
 ET=Exposure Time (Unitless)

EF = Exposure Frequency (days/year) = 125
 ED = Exposure Duration (years) = 1
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration (mg/kg)		Carcinogens			Non-carcinogens		
	Concentration (mg/kg)	CDI	Slope Factor	COC Risk	CDI	RfD	Hazard	
Aroclor 1260	2.1E+0	5.8E-9	2.0E+0	1.2E-8				
TPH-Aliph C09-C18	3.7E+3				7.2E-4	1.0E-1	7.2E-3	
TPH-Aliph C19-C36	4.1E+3				7.9E-4	2.0E+0	4.0E-4	
TPH-Arom C11-C22	4.5E+3				8.7E-4	3.0E-2	2.9E-2	
TPH-Aliph C05-C08	2.6E+1				5.0E-6	5.0E+0	1.0E-6	
TPH-Aliph C9-C12	2.7E+2				5.2E-5	1.0E-1	5.2E-4	
TPH-Arom C09-C10	1.8E+2				3.5E-5	4.0E-2	8.7E-4	

Total	1.2E-8	3.8E-2
--------------	---------------	---------------

Table 10-20

Potential Health Risks to On-site Commercial Workers via Incidental Ingestion of Soils
 ROUNDHOUSE SOILS 0-2 CENTRAL TENDENCY EXPOSURE CONCENTRATIONS

Ingestion Equation: $CDI (mg/kg-day) = (C_a \times IR \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 IR = Ingestion Rate (mg/day) =
 ET=Exposure Time (Unitless)

EF = Exposure Frequency (days/year) = 12
 ED = Exposure Duration (years) = 25
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration (mg/kg)		Carcinogens			Non-carcinogens		
	Concentration	CDI	Slope Factor	COC Risk	CDI	RfD	Hazard	
Aroclor 1254	1.8E+0	1.5E-8	2.0E+0	3.0E-08	4.2E-8	2.0E-5	2.1E-03	
Aroclor 1260	8.4E+1	7.0E-7	2.0E+0	1.4E-06				
TPH-Aliph C09-C18	4.0E+1				9.4E-7	1.0E-1	9.4E-06	
TPH-Aliph C19-C36	4.2E+2				9.9E-6	2.0E+0	5.0E-06	
TPH-Arom C11-C22	1.7E+2				4.0E-6	3.0E-2	1.3E-04	
TPH-Aliph C05-C08	3.0E+1				1.0E-7	5.0E+0	2.0E-08	
TPH-Aliph C9-C12	1.3E+2				3.1E-6	1.0E-1	3.1E-05	
TPH-Arom C09-C10	4.8E+1				1.1E-6	4.0E-2	2.8E-05	

Total	1.4E-6	2.3E-03
-------	--------	---------

Table 10-21

Potential Health Risks to On-site Construction Workers via Incidental Ingestion of Soils
 ROUNDHOUSE SOILS ALL DEPTHS CENTRAL TENDENCY EXPOSURE CONCENTRATIONS

Ingestion Equation: $CDI (mg/kg\text{-}day) = (C_a \times IR \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 IR = Ingestion Rate (mg/day) =
 ET = Exposure Time (Unitless)

EF = Exposure Frequency (days/year) = 125
 ED = Exposure Duration (years) = 1
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration (mg/kg)	Carcinogens			Non-carcinogens		
		CDI	Slope Factor	COC Risk	CDI	RfD	Hazard
Aroclor 1254	3.4E+0	9.4E-9	2.0E+0	1.9E-08	6.6E-7	2.0E-5	3.3E-02
Aroclor 1260	6.1E+1	1.7E-7	2.0E+0	3.4E-07			
TPH-Aliph C09-C18	2.9E+2				5.6E-5	1.0E-1	5.6E-04
TPH-Aliph C19-C36	5.6E+2				1.1E-4	2.0E+0	5.4E-05
TPH-Arom C11-C22	1.1E+2				2.1E-5	3.0E-2	7.1E-04
TPH-Aliph C05-C08	2.4E+1				4.6E-6	5.0E+0	9.3E-07
TPH-Aliph C9-C12	1.2E+2				2.3E-5	1.0E-1	2.3E-04
TPH-Arom C09-C10	4.5E+1				8.7E-6	4.0E-2	2.2E-04

Total	3.6E-7	3.5E-02
--------------	---------------	----------------

Table 10-22

Potential Health Risks to On-site Commercial Workers via Incidental Ingestion of Soils
 ROUNDHOUSE SOILS 0-2 CENTRAL TENDENCY EXPOSURE CONCENTRATIONS

Ingestion Equation: $CDI (mg/kg\text{-}day) = (C_a \times IR \times ET \times EF \times ED) / (BW \times AT)$

CDI = Chronic Daily Intake (mg/kg-day)
 C_a = Constituent Concentration (mg/kg)
 IR = Ingestion Rate (mg/day) =
 ET = Exposure Time (Unitless)

EF = Exposure Frequency (days/year) = 12
 ED = Exposure Duration (years) = 25
 BW = Body Weight (kg) = 70
 AT_c = Averaging Time (Carcinogenic Effects) (days) = 25550
 AT_{nc} = Averaging Time (Noncarcinogenic Effects) (days) = 9125

Constituent	Constituent Concentration (mg/kg)		Carcinogens			Non-carcinogens		
	Concentration (mg/kg)	CDI	Slope Factor	COC Risk	CDI	RfD	Hazard	
Aroclor 1254	1.8E+0	1.5E-8	2.0E+0	3.0E-08	4.2E-8	2.0E-5	2.1E-03	
Aroclor 1260	8.4E+1	7.0E-7	2.0E+0	1.4E-06				
TPH-Aliph C09-C18	4.0E+1				9.4E-7	1.0E-1	9.4E-06	
TPH-Aliph C19-C36	4.2E+2				9.9E-6	2.0E+0	5.0E-06	
TPH-Arom C11-C22	1.7E+2				4.0E-6	3.0E-2	1.3E-04	
TPH-Aliph C05-C08	3.0E+1				1.0E-7	5.0E+0	2.0E-08	
TPH-Aliph C9-C12	1.3E+2				3.1E-6	1.0E-1	3.1E-05	
TPH-Arom C09-C10	4.8E+1				1.1E-6	4.0E-2	2.8E-05	

Total	1.4E-6	2.3E-03
--------------	---------------	----------------

Table 11-1
Summary of Macroinvertebrates Collected by D-Frame Net at the Phase II RI
Locations, October 2004 through August 2006

Location No. Collections	AMTRAK Ditches 30		Connectiv Impound. 18		City Ditch 18		Shellpot Creek 24	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.
Platyhelminthes								
Turbellaria								
Planariidae	13	0.43			3	0.17	5	0.21
Annelida								
Oligochaeta	6785	226.17	770	42.78	2960	164.44	4062	169.25
Hirudinea	3	0.10	9	0.50	7	0.39	43	1.79
Nematoda	4	0.13			9	0.50	1	0.04
Acari								
Hydrachnidia	1	0.03	161	8.94	1	0.06	21	0.88
Crustacea								
Amphipoda								
Gammaridae								
<i>Gammarus</i>	22	0.73	1	0.06	34	1.89	340	14.17
Decapoda								
Cambaridae					1	0.06		
Palaemonidae								
<i>Palaemonetes</i>	807	26.90	1	0.06	7	0.39	2	0.08
Isopoda								
Asellidae								
<i>Lirceus</i>			30	1.67			6	0.25
Proboscyrus	5	0.17						
Insecta								
Collembola	17	0.57	4	0.22	63	3.50	672	28.00
Ephemeroptera								
Baetidae								
<i>Baetis</i>	3	0.10						
<i>Callibaetis</i>	9	0.30	767	42.61	1	0.06		
Odonata								
Anisoptera								
Gomphidae								
<i>Argomphus</i>					1	0.06		
Aeshnidae								
<i>Anax</i>	15	0.50	23	1.28	1	0.06	1	0.04
Corduliidae								
<i>Neurocordulia</i>	15	0.50			3	0.17		
Libellulidae								
<i>Erythemis</i>	186	6.20	137	7.61	7	0.39		
<i>Libellula</i>	245	8.17	409	22.72	14	0.78	3	0.13
<i>Leucorhina</i>			6	0.33				
<i>Pachydiplax</i>	4	0.13	104	5.78				
<i>Perithemis</i>	64	2.13			14	0.78	1	0.04
<i>Tramea</i>			4	0.22				
Zygoptera								
Coenagrionidae								
<i>Argia</i>							2	0.08
<i>Enallagma</i>	2748	91.60	947	52.61	77	4.28	250	10.42
<i>Ischnura</i>	121	4.03	170	9.44			2	0.08
Plecoptera								
Perlodidae								
<i>Isoperla</i>							1	0.04
Hemiptera								
Hydrometridae								
<i>Hydrometra</i>	3	0.10	2	0.11			7	0.29
Veliidae								
<i>Microvelia</i>	3	0.10	45	2.50			5	0.21
Gerridae								
<i>Aquarius</i>			4	0.22	1	0.06	4	0.17
<i>Gerris</i>	1	0.03	4	0.22			1	0.04
<i>Rheumatobates</i>			1	0.06			48	2.00
Belastomatidae								
<i>Belastoma</i>	2	0.07	28	1.56			2	0.08
Nepidae								
<i>Ranatra</i>	6	0.20					2	0.08
Psephenidae								
<i>Neoptera</i>	2	0.07	5483	304.61	5	0.28	30	1.25
Corixidae								
<i>Hesperocorixa</i>	4	0.13	173	9.61			1216	50.67
<i>Trichocorixa</i>	7	0.23	303	16.83			1688	70.33

**Table 11-1
Continued**

Location	AMTRAK Ditches		Conectiv Impound.		City Ditch		Shellpot Creek	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.
Notonectidae								
<i>Notonecta</i>	6	0.20	263	14.61			6	0.25
Mesovelidae								
<i>Mesovelia</i>	206	6.87	144	8.00	4	0.22	22	0.92
Megaloptera								
Corydalidae								
<i>Chauliodes</i>	1	0.03	2	0.11				
Trichoptera								
Hydropsychidae								
<i>Hydropsyche</i>	1	0.03	1	0.06	1	0.06	1	0.04
Coleoptera								
Halplidae								
<i>Halipus</i>	1	0.03	89	4.94				
<i>Peltodytes</i>	207	6.90	33	1.83	7	0.39	5	0.21
Dytiscidae								
<i>Agabus</i>	17	0.57	141	7.83	1	0.06	3	0.13
<i>Cybister</i>			1	0.06			1	0.04
<i>Hydroporus</i>			2	0.11			4	0.17
<i>Laccophilus</i>	6	0.20	10	0.56			2	0.08
Noteridae								
<i>Hydrocanthus</i>	4	0.13	4	0.22				
Hydrochidae								
<i>Hydrochus</i>	3	0.10	7	0.39	1	0.06	1	0.04
Hydrophilidae								
<i>Enochrus</i>			7	0.39				
<i>Hydrobius</i>	7	0.23	15	0.83				
<i>Hydrochara</i>	7	0.23	102	5.67			3	0.13
<i>Tropisternus</i>	50	1.67	22	1.22				
Psephenidae								
<i>Psephenus</i>			1	0.06			18	0.75
Elmidae								
<i>Dubiraphia</i>							1	0.04
<i>Macronychus</i>	1	0.03	1	0.06			12	0.50
<i>Stenelmis</i>	3	0.10	2	0.11			3	0.13
Chrysomelidae								
<i>Pyrrhalta</i>	2	0.07	112	6.22			2	0.08
Curculionidae	4	0.13	1	0.06				
Hymenoptera								
Braconidae			1	0.06			2	0.08
Diptera								
Ceratopogonidae	25	0.83	139	7.72	8	0.44	17	0.71
Chaoboridae	5	0.17	503	27.94			1	0.04
<i>Chaoborus</i>							7	0.29
Chironomidae	2486	82.87	1668	92.67	571	31.72	596	24.83
Culicidae	22	0.73			1	0.06	7	0.29
Psychodidae	2	0.07					1	0.04
<i>Pericoma</i>					1	0.06		
Simuliidae	1	0.03						
<i>Simulium</i>					2	0.11		
Tipulidae	1	0.03	3	0.17				
<i>Antocha</i>	8	0.27	1	0.06				
<i>Ormosia</i>			25	1.39			4	0.17
<i>Pseudolimnophila</i>			1	0.06				
<i>Tipula</i>	2	0.07	27	1.50			5	0.21
Dolichopodidae								
<i>Rhaphium</i>			2	0.11	3	0.17	2	0.08
Stratiomyidae	2	0.07	11	0.61				
<i>Odontomyia</i>	23	0.77	32	1.78			2	0.08
Tabanidae								
<i>Tabanus</i>			1	0.06				
Muscidae	1	0.03	1	0.06			3	0.13
Sciomyzidae	5	0.17	19	1.06	1	0.06	5	0.21
Syrphidae	2	0.07						
Mollusca								
Gastropoda								
Physidae								
<i>Physella</i>	2187	72.90	6931	385.06	38	2.11	605	25.21
Planorbidae	558	18.60	260	14.44	13	0.72	142	5.92
Hydrobiidae	126	4.20	18	1.00	113	6.28	6633	276.38
Ancylidae	17	0.57					5	0.21
Lymnaeidae	19	0.63			2	0.11	12	0.50
Bivalvia	206	6.87			79	4.39	168	7.00
Total specimens	17320	577.33	20189	1121.61	4055	225.28	16716	696.50
Total taxa	65		64		36		60	

Table 11-2
Continued

	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2006		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	Percent.
Notonectidae														
<i>Notonecta</i>	2	0.40			1	0.20	2	0.40	1	0.20			6	0.035
Mesoveliidae														
<i>Mesovelia</i>	4	0.80	23	4.60	75	15.00	64	12.80			40	8.00	206	1.189
Megaloptera														
Corydalidae														
Chauliodes	1	0.20												
Tichoptera														
Hydropsychidae														
<i>Hydropsyche</i>	1	0.20					1	0.20					1	0.006
Coleoptera														
Helplidae														
<i>Helplus</i>	1	0.20												
<i>Pelodytes</i>	22	4.40	72	14.40	75	15.00	21	4.20	7	1.40	10	2.00	207	1.195
Dytiscidae														
<i>Agabus</i>			12	2.40	4	0.80	1	0.20	1	0.20	4	0.80	17	0.098
Laccophilus			1	0.20									6	0.035
Noteridae														
Hydrocanithus														
Hydrochidae														
<i>Hydrochus</i>					6	1.20	1	0.20			2	0.40	3	0.017
Hydrophilidae														
<i>Hydrophilus</i>									1	0.20			7	0.040
Hydrothra									2	0.40			7	0.040
Tropisternus			9	1.80	16	3.20	4	0.80	4	0.80	16	3.20	60	0.289
Elmidae	1	0.20												
Macronychus														
<i>Stenelmis</i>														
Chrysomelidae														
<i>Pyrrhalta</i>			2	0.40			2	0.40			1	0.20	3	0.017
Curculionidae														
Diptera														
Ceratopogonidae														
Chironomidae	6	1.20	4	0.80	9	1.80	1	0.20	2	0.40	3	0.60	25	0.144
Culicidae	74	14.80	2	0.40			2	0.40			1	0.20	5	0.029
Psychodidae	2	0.40	579	115.80	656	131.20	408	81.60	92	18.40	677	135.40	2486	14.353
Pericoma	2	0.40					19	3.80	1	0.20			22	0.127
Simuliidae	1	0.20											2	0.012
<i>Simulium</i>														
Tipulidae	1	0.20												
<i>Anlocha</i>														
Tipula														
Stratiomyidae	1	0.20												
Oronotmyia			2	0.40										
Muscidae			1	0.20										
Scomyzidae														
Syrphidae														
Mollusca														
Gastropoda														
Physidae														
<i>Physella</i>	131	26.20	1242	248.40	638	127.60	110	22.00	6	1.20	60	12.00	2187	12.627
Planorbidae	35	7.00	221	44.20	272	54.40	15	3.00	5	1.00	10	2.00	558	3.222
Hydrobiidae			50	10.00	21	4.20	25	5.00	30	6.00	126	25.20	126	0.727
Ancylidae							3	0.60	3	0.60	11	2.20	17	0.098
Lymnaeidae													19	0.110
Bivalvia	61	12.20	72	14.40	40	8.00	33	6.60			19	3.80	206	1.189
Total specimens	2343	468.60	7398	1479.60	3420	684.00	2240	448.00	292	58.40	1622	324.40	17320	577.33
Total taxa	28		28		31		35		27		33		65	

Table 11-3
 Summary of Macroinvertebrates Collected by D-Frame Net in the Connecticut Impoundment, October 2004 through August 2006

No. Collections	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2006		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	Percent No./Coll.
Annelida	22	7.33	116	38.67	178	59.33	64	21.33	230	76.67	160	53.33	770	3.814
Oligochaeta			1	0.33	2	0.67	2	0.67			4	1.33	9	0.045
Hirudinea														0.60
Nematoda			134	44.67	8	2.67	1	0.33	18	6.00			161	0.797
Acanthocephala														8.94
Crustacea														
Amphipoda			1	0.33										0.06
Gammaridae														0.06
Palaeomonidae														0.06
Palaeomonetes														0.06
Isopoda														0.06
Asellidae														0.06
Lirceus														0.06
Insecta			23	7.67	7	2.33							30	0.149
Collembola														1.67
Ephemeroptera														0.22
Baetidae														0.22
Calibaetis														0.22
Obornata			10	3.33	47	15.67	2	0.67	26	8.67	631	210.33	767	3.799
Odonata														42.61
Anisoptera														
Aeschnidae														
Anax			2	0.67	1	0.33	2	0.67	1	0.33	11	3.67	23	0.114
Libellulidae														1.28
Erythemis			3	1.00	34	11.33	69	23.00					137	0.679
Libellula			22	7.33	117	39.00	6	2.00					409	2.026
Leucorrhinia													6	0.030
Pachydiplax													104	0.515
Tramea													4	0.020
Zygoptera													4	0.020
Coenagrionidae														0.22
Enallagma														0.22
Ischnura														0.22
Hemiptera														0.22
Hydrometridae														0.22
Hydrometra														0.22
Veliidae														0.22
Microvelia			1	0.33									2	0.010
Gerridae			8	2.67	11	3.67	6	2.00	2	0.67	9	3.00	45	0.223
Aqarius														2.50
Rheumatobates			4	1.33	4	1.33							4	0.020
Belostomatidae														0.22
Belostomatinae														0.22
Belostoma														0.06
Psephenidae			13	4.33	7	2.33							28	0.139
Psephenus														1.56
Psephenidae														0.06
Neoplea			1908	636.00	696	232.00	1203	401.00	1224	408.00	256	85.33	5483	27.158
Cornixidae														304.61
Hesperocornix			56	18.67									173	0.857
Trichocornix			19	6.33									303	1.501
Trichocornix													2	0.010

Table 11-3
Continued

	Fall 2004	Spring 2005	Summer 2005	Fall 2005	Spring 2006	Summer 2006	Total
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	Percent
Notonectidae							
Notonecta	17	5.67	181	60.33	24	8.00	263
Mesoveliidae							
Mesovella	30	10.00	38	12.67	3	1.00	144
Megaloptera							
Corydalidae							
Chaufiodes	1	0.33					2
Trichoptera							
Hydropsychidae							
Hydropsyche	1	0.33					1
Coleoptera							
Halplidae							
Halplius	38	12.67	7	2.33	1	0.33	89
Peltodytes	5	1.67	5	1.67	3	1.00	33
Dytiscidae							
Agabus	119	39.67	6	2.00			141
Cyaster	1	0.33					1
Hydrophorus			1	0.33			1
Laccophilus			1	0.33			1
Notendae					2	0.67	2
Hydrocanthus							
Hydrochidae							
Hydrochus							
Hydrophilidae							
Enochrus					1	0.33	1
Hydrobius			11	3.67	2	0.67	13
Hydrochara							
Tropisternus							
Psephenidae			5	1.67			5
Psephenus							
Elmidae							
Macronychius							
Sternelmis							
Chrysomelidae							
Pyrrhalta							
Curculionidae							
Hymenoptera							
Braconidae							
Diptera							
Geratopogonidae							
Chaoboridae							
Chironomidae							
Tipulidae							
Antocha							
Ormosia							
Pseudolimnophila							
Tipula							
Delichopodidae							
Rhaphium							
Stratiomyidae							
Odonotomyia							
Tabanidae							
Tabanus							
Muscidae							
Sciomyzidae							
Mollusca							
Gastropoda							
Physidae							
Physella							
Planorbidae							
Hydrobiidae							
Total specimens	975	325.00	2340	780.00	3487	1162.33	20189
Total taxa	24		28	34	30		64

Table 11-4
 Summary of Macroinvertebrates Collected by D-Frame Net in the City Ditch, October 2004 through August 2006

No. Collections	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2006		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	Percent No./Coll.
Platyhelminthes														
Turbellaria														
Planariidae														
Annelida														
Oligochaeta	164	54.67	219	73.00	6	2.00	381	127.00	3	1.00	1502	500.67	2960	72.996
Hirudinea	1	0.33									6	2.00	7	0.173
Nematoda											8	2.67	9	0.222
Acarl														0.50
Hydrachnidia														
Crustacea														0.06
Amphipoda														
Gammaridae														
Gammarus	13	4.33			1	0.33	19	6.33	1	0.33			34	0.838
Decapoda														1.89
Cambaridae														0.06
Palaemonidae														
Palaemonetes	5	1.67												
Insecta														
Collembola			56	18.67	5	1.67			2	0.67			63	1.554
Ephemeroptera														0.39
Baetidae														3.50
Callibaetis	1	0.33												0.06
Odonata														
Anisoptera														
Gomphidae														
Argomphus									1	0.33			1	0.025
Aeshnidae														0.06
Arax	1	0.33												
Corduliidae														
Neurocordulia	3	1.00												0.06
Libellulidae														
Erythemis	7	2.33												0.17
Libellula	14	4.67												0.06
Perithemis														0.06
Zygoptera														
Coenagrionidae														
Enallagma	66	22.00			2	0.67								0.17
Ischnura														0.39
Hemiptera														0.78
Gerridae														0.78
Aquarius														0.78
Pleidae					1	0.33							1	0.025
Neoplea	1	0.33	4	1.33									5	0.123
														0.28

Table 11-4
Continued

	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2006		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	Percent No./Coll.
Mesoveliidae														
Mesovelia			1	0.33	3	1.00							4	0.099
Trichoptera														
Hydropsychidae														
Hydropsyche	1	0.33											1	0.025
Coleoptera														
Halipidae														
Peltodytes			3	1.00					3	1.00	1	0.33	7	0.173
Dytiscidae														
Hydrochidae									1	0.33			1	0.025
Hydrochus									1	0.33			1	0.025
Diptera														
Ceratopogonidae					3	1.00								
Chironomidae			5	1.67	13	4.33							8	0.197
Culicidae	67	22.33					322	107.33	66	22.00	5	1.67	571	14.081
Psychodidae							1	0.33			98	32.67	1	0.025
Pericoma														
Simulidae									1	0.33			1	0.025
Simulium					2	0.67								
Dolichopodidae													2	0.049
Rhaphium					2	0.67			1	0.33			3	0.074
Sciomyzidae					1	0.33							1	0.025
Mollusca														
Gastropoda														
Physidae														
Physella	5	1.67												
Planorbidae	12	4.00	8	2.67	6	2.00	1	0.33	12	4.00	6	2.00	38	0.937
Hydrobiidae	3	1.00	1	0.33	3	1.00	2	0.67	89	29.67	2	0.67	13	0.321
Lymnaeidae			14	4.67									113	2.787
Bivalvia	28	9.33	1	0.33	1	0.33	7	2.33	41	13.67	1	0.33	2	0.049
Total specimens	392	130.67	312	104.00	49	16.33	757	252.33	913	304.33	1632	544.00	4055	225.28
Total taxa	17		10		14		10		17		10		36	

Table 11-5
 Summary of Macroinvertebrates Collected by D-Frame Net in Shellpot Creek, October 2004 through August 2006

No. Collections	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2006		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	Percent
Platyhelminthes														
Turbellaria	1	0.25					1	0.25	3	0.75			5	0.030
Planariidae														
Annelida	252	63.00	547	136.75	1531	382.75	597	149.25	255	63.75	880	220.00	4062	24.300
Oligochaeta	1	0.25	3	0.75	27	6.75	4	1.00	3	0.75	5	1.25	43	0.257
Hirudinea	1	0.25											1	0.006
Nematoda														
Acar					18	4.50	3	0.75					21	0.126
Crustacea														
Amphipoda														
Gammaridae	184	46.00	30	7.50	32	8.00	19	4.75	65	16.25	10	2.50	340	2.034
Palaeomonidae														
Palaeomonetes							1	0.25			1	0.25	2	0.012
Isopoda														
Aseilidae	1	0.25	2	0.50	1	0.25			2	0.50			6	0.036
Insecta														
Collembola			546	136.50	6	1.50	20	5.00	69	17.25	31	7.75	672	4.020
Odonata														
Anisoptera														
Aeshnidae														
Arauc														
Libellulidae					1	0.25	2	0.50	1	0.25	1	0.25	1	0.006
Libellula														
Perithemis														
Zygoptera														
Coenagrionidae														
Argia														
Enallagma	43	10.75			38	9.50	152	38.00	2	0.50	17	4.25	250	1.496
Ischnura											2	0.50	2	0.012
Plecoptera														
Periodidae	1	0.25											1	0.006
Isoperla														
Hemiptera														
Hydrometridae														
Hydrotmetra														
Velidae														
Microvelia			1	0.25	3	0.75					1	0.25	5	0.030
Gerridae					2	0.50	2	0.50					4	0.024
Aquetus	1	0.25			16	4.00	2	0.50			30	7.50	1	0.006
Gerris					2	0.50							48	0.287
Rheumatobates					2	0.50							2	0.012
Belostomatidae					1	0.25							2	0.012
Belostoma														
Nepidae														
Ranatra	1	0.25			1	0.25							30	0.179
Platania														
Neoplea									30	7.50				
Coxidae														
Hesperocorixa	372	93.00	68	17.00	724	181.00	492	123.00			57	14.25	1216	7.274
Trichocorixa					669	167.25	463	115.75	59	14.75			1688	10.098

Table 11-5
Continued

	Fall 2004	Spring 2005	Summer 2005	Fall 2005	Spring 2006	Summer 2006	Total
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	Percent
Notonectidae							No./Coll.
Notonecta	1	0.25	4	1.00	1	0.25	6
Mesoveliidae							0.036
Mesovella	2	0.50	2	0.50			22
Trichoptera							0.132
Hydropsychidae				13	3.25	3	0.75
Hydropsyche	1	0.25					1
Coleoptera							0.006
Halipidae							0.04
Halipilus							
Peltodytes			3	0.75	2	0.50	5
Dytiscidae							0.030
Agabus							0.21
Hydrophilus							0.13
Laccophilus			4	1.00	1	0.25	3
Hydrochidae							0.006
Hydrochus					2	0.50	4
Hydrophilidae							0.024
Hydrochera							0.17
Psephenidae				3	0.75		2
Psephenus							0.012
Elmidae			5	1.25			1
Dubiraphie							0.006
Macronychus							0.04
Stenelmis			2	0.50	12	3.00	12
Chrysomelidae							0.072
Pyrrhalta							0.50
Hymenoptera							0.13
Braconidae							0.18
Diptera							0.108
Ceratopogonidae			6	1.50			18
Chaoboridae	1	0.25					2
Chaoborus							0.012
Chironomidae	56	14.00	143	35.75			2
Culiidae							0.08
Psychodidae							0.08
Tipulidae							0.08
Ormosia							0.12
Tipula							0.08
Dolichopodidae							0.08
Rhaphium							0.12
Stratiomyidae							0.08
Odontomyia							0.08
Muscidae							0.08
Scoomyzidae							0.13
Mollusca							0.018
Gastropoda							0.030
Physidae							0.21
Physella	49	12.25	336	84.00			5
Planorbidae	86	21.50	37	9.25			4
Hydrobiidae	273	68.25	4365	1091.25			3
Ancylidae	5	1.25					5
Lymnaeidae							0.030
Bivalvia	38	9.50	88	22.00			12
Total specimens	1370	342.50	8067	2016.75	1135	283.75	16716
Total taxa	21		28		25		60

Table 11-6
 Summary of Macroinvertebrates Collected by Hester-Dendy Sampler at the Phase II RI
 Locations, October 2004 through August 2006

Location No. Collections	AMTRAK Ditches 60		Connectiv Impound. 36		City Ditch 32		Shellpot Creek 44	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.
Platyhelminthes								
Turbellaria								
Planariidae	1527	25.45	1	0.03	863	26.97	657	14.93
Annelida	733	12.22						
Oligochaeta	886	147.52	3324	92.33	3368	105.25	10775	244.89
Hirudinea	6	0.10	131	3.64	24	0.75	108	2.45
Nematoda	7	0.12	5	0.14	24	0.75	5	0.11
Acarl								
Hydrachnidia	1	0.02	2	0.06	1	0.03	6	0.14
Crustacea								
Amphipoda								
Gammaridae								
Gammarus	24	0.40	2	0.06	66	2.06	586	13.32
Decapoda								
Xanthidae							2	0.05
Isopoda								
Asellidae								
Lirceus			42	1.17	1	0.03	7	0.16
Insecta								
Collembola	20	0.33			6	0.19		
Ephemeroptera								
Eaetidae								
Callibaetis	2	0.03	22	0.61				
Caenidae								
Caenis					1	0.03		
Odonata								
Anisoptera								
Aeshnidae			1	0.03				
Anax	1	0.02						
Libellulidae								
Erythemis	7	0.12	21	0.58				
Libellula	40	0.67	126	3.50	2	0.06		
Pachydiplax	3	0.05	3	0.08				
Perithemis					2	0.06		
Sympetrum					3	0.09		
Zygoptera								
Coenagrionidae								
Argia	1	0.02			1	0.03		
Enallagma	97	1.62	309	8.58	4	0.13	5	0.11
Ischnura	48	0.80	2	0.06				
Hemiptera								
Velidae								
Microvelia	1	0.02						
Gerridae								
Aquarius			1	0.03				
Pleidae			2	0.06				
Neopea								
Corixidae							7	0.16
Trichoptera								
Polycentropidae					1	0.03		
Hydropsychidae					1	0.03		
Hydroptilidae								
Hydroptila					1	0.03		
Coleoptera								
Halipidae								
Halipus			106	2.94				
Peltodytes			4	0.11				
Dytiscidae								
Agabus			77	2.14			1	0.02
Dystiscus	1	0.02						
Hydrophilidae								
Berosus			1	0.03				
Elmidae								
Macronychus	1	0.02						
Diptera								
Ceratopogonidae	21	0.35	67	1.86	5	0.16	1	0.02
Chironomidae	8408	140.13	3275	90.97	1045	32.66	2691	61.16
Psychodidae								
Pericoma			11	0.31				
Simuliidae								
Simulium	1	0.02						
Stratiomyidae								
Odontomyia	1	0.02						
Tabenidae	3	0.05						
Mollusca								
Gastropoda								
Physidae								
Physella	1074	17.90	802	22.28	240	7.50	130	2.95
Planorbidae	360	6.00	137	3.81	44	1.38	110	2.50
Hydrobiidae	2158	35.97	1	0.03	1720	53.75	745	16.93
Ancylidae	208	3.47	8	0.22	145	4.53	26	0.59
Bivalvia	3	0.05	6	0.17	3	0.09	25	0.57
Total specimens	23608	393.47	8489	235.81	7571	236.59	15887	361.07
Total taxa	29		28		24		21	

Table 11-7
 Summary of Macroinvertebrates Collected by Hester-Dandy Sampler in the AMTRAK Ditches, October 2004 through August 2006

No. Collections	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2006		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	Percent
Platyhelminthes														
Turbellaria	55	5.50	50	5.00	265	26.50	30	3.00	128	12.80	959	95.90	1527	6.468
Planariidae					733	73.30							733	3.105
Annelida	60	6.00	3045	304.50			507	50.70	2481	248.10	2758	275.80	8851	37.492
Oligochaeta			3	0.30					1	0.10	2	0.20	6	0.025
Hirudinea			7	0.70									7	0.030
Nematoda														
Acar														
Hydrachnidia									1	0.10			1	0.004
Crustacea														
Amphipoda														
Gammaridae	1	0.10			4	0.40	2	0.20	14	1.40	3	0.30	24	0.102
Insecta														
Collembola			11	1.10			6	0.60	3	0.30			20	0.085
Ephemeroptera														
Baetidae					2	0.20							2	0.008
Odonata														
Anisoptera														
Aeshnidae														
Anax			1	0.10									1	0.004
Libellulidae														
Erythemis	2	0.20			5	0.50							7	0.030
Libellula	3	0.30			27	2.70	4	0.40					40	0.169
Pachydiplax													3	0.013
Zygoptera														
Coenagrionidae														
Argia	13	1.30	1	0.10	74	7.40	9	0.90			1	0.10	97	0.411
Enallagma													48	0.203
Ischnura														
Hemiptera														
Veliidae														
Microvelia			1	0.10									1	0.004
Dytiscidae									1	0.10			1	0.004
Dystiscus														
Elmidae														
Macronychus														
Diptera														
Ceratopogonidae	4	0.40											1	0.004
Chaoboridae														
Chaoborus														
Chironomidae	71	7.10	281	28.10	831	83.10	1134	113.40	2914	291.40	3177	317.70	8408	35.615
Simuliidae													21	0.089
Stratiomyidae			1	0.10									1	0.004
Odontomyia														
Tabanidae			3	0.30									3	0.013
Mollusca														
Gastropoda														
Physidae														
Physella	11	1.10	229	22.90	294	29.40	51	5.10	149	14.90	340	34.00	1074	4.549
Panorbidae	8	0.80	111	11.10	42	4.20	4	0.40	74	7.40	121	12.10	360	1.525
Hydrobiidae			534	53.40	5	0.50	7	0.70	1606	160.60	6	0.60	2158	9.141
Ancylidae			1	0.10					2	0.20	205	20.50	208	0.881
Bivalvia			1	0.10					1	0.10	1	0.10	3	0.013
Total specimens	228	22.80	4280	428.00	2282	228.20	1769	176.90	7376	737.60	7673	767.30	23608	
Total taxa	10		16		11		11		14		16		29	

Table 11-8
 Summary of Macroinvertebrates Collected by Hester-Dendy Sampler in the Connecticut Impoundment, October 2004 through August 2006

No. Collections	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2006		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.
Platyhelminthes														
Turbellaria														
Planariidae														
Annelida														
Oligochaeta	426	71.00	1158	193.00	118	19.67	42	7.00	1434	239.00	146	24.33	3324	39.157
Hirudinea	22	3.67	84	14.00	17	2.83	4	0.67	1	0.17	3	0.50	131	1.543
Nematoda	2	0.33					3	0.50					6	0.059
Acart														
Hydrachnida	1	0.17					1	0.17					2	0.024
Crustacea														
Amphipoda														
Gammaridae							2	0.33					2	0.024
Isopoda														
Asellidae														
Lirceus	15	2.50	25	4.17	2	0.33							42	0.495
Insecta														
Ephemeroptera														
Baetidae														
Calibaetis														
Odonata														
Anisoptera														
Aeschnidae	1	0.17											1	0.012
Libellulidae	1	0.17											21	0.247
Erythemis													126	1.484
Libellula	50	8.33			58	9.67	18	3.00			3	0.50	3	0.035
Pachydiplax														
Zygoptera														
Coenagrionidae														
Enallagma	191	31.83			117	19.50	1	0.17					309	3.640
Ischnura													2	0.024
Hemiptera														
Geridae														
Aquatrilus														
Pleidae														
Neoplea														
Coleoptera														
Halipidae														
Halipius	94	15.67												
Psephenidae														
Psephenus														
Dytiscidae														
Agabus	75	12.50												
Hydrophilidae														
Berosus														
Diptera														
Ceratopogonidae														
Chaoboridae	53	8.83	1	0.17	4	0.67	7	1.17	2	0.33			1	0.012
Chironomidae														
Culicidae	885	147.50	701	116.33	789	131.50	779	129.83	95	15.83	26	4.33	3275	38.579
Psychodidae														
Pericoma														
Mollusca														
Gastropoda														
Physidae														
Physella	233	38.83	249	41.50	109	18.17	185	30.83	16	2.67	10	1.67	802	9.448
Planorbidae	59	9.83	3	0.50	18	3.00	56	9.33			1	0.17	137	1.614
Hydrobiidae														
Ancylidae	1	0.17	2	0.33	4	0.67	1	0.17			1	0.17	8	0.094
Bivalvia	3	0.50	3	0.50									6	0.071
Total specimens	2112	352.00	2232	372.00	1302	217.00	1103	183.83	1548	258.00	192	32.00	8469	235.81
Total taxa	17		11		17		15		6		8		28	

Table 11-9
 Summary of Macroinvertebrates Collected by Hester-Dendy Sampler in the City Ditch, October 2004 through August 2006

No. Collections	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2005		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	Percent
Platyhelminthes														
Turbellaria														
Planariidae	3	0.50	75	12.50	438	73.00	159	26.50	2	0.50	186	46.50	863	11.399
Annelida														
Oligochaeta	78	13.00	980	163.33	417	69.50	296	49.33	559	139.75	1038	259.50	3368	44.486
Hirudinea			23	3.83							1	0.25	24	0.317
Nematoda														
Acari	2	0.33	20	3.33	1	0.17					1	0.25	24	0.317
Crustacea														
Hydrachnidia	1	0.17											1	0.013
Amphipoda														
Gammaridae	3	0.50	33	5.50	9	1.50	11	1.83			10	2.50	66	0.872
Insecta														
Collembola							1	0.17					1	0.013
Ephemeroptera					4	0.67	2	0.33					6	0.079
Caenidae														
Caenis					1	0.17							1	0.013
Odonata														
Anisoptera														
Libellulidae														
Libellula					1	0.17	1	0.17					2	0.026
Psephenidae													2	0.026
Sympetrum					3	0.50	1	0.17			1	0.25	3	0.040
Zygoptera														
Coenagrionidae														
Argia														
Enallagma			1	0.17	3	0.50	1	0.17					1	0.013
Trichoptera													4	0.053
Polychaetidae	1	0.17		0.00									1	0.013
Hydropsychidae					1	0.17							1	0.013
Hydroptilidae													1	0.013
Hydroptila							1	0.17					1	0.013
Diptera														
Ceratopogonidae					2	0.33	3	0.50					5	0.066
Chaoboridae														
Chaoborus														
Chironomidae	120	20.00	68	11.33	455	75.83	186	31.00	35	8.75	181	45.25	1045	13.803
Mollusca														
Gastropoda														
Physidae														
Physella	1	0.17	230	38.33	7	1.17							240	3.170
Planorbidae	14	2.33	3	0.50	15	2.50	10	1.67					44	0.581
Hydrobiidae	3	0.50	1363	227.17	9	1.50	317	52.83	16	4.00	12	3.00	1720	22.718
Ancylidae	1	0.17					140	23.33	4	1.00			145	1.915
Lymnaeidae														
Bivalvia			2	0.33									3	0.040
Total specimens	227	37.83	2798	466.33	1366	227.67	1129	188.17	621	155.25	1430	357.50	7571	236.59
Total taxa	11		11		15		14		8		8		24	

Table 11-10
 Summary of Macroinvertebrates Collected by Hester-Dandy Sampler in Shellpot Creek, October 2004 through August 2006

No. Collections	Fall 2004		Spring 2005		Summer 2005		Fall 2005		Spring 2006		Summer 2006		Total	
	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	No./Coll.	No.	Percent
Platyhelminthes														
Turbellaria														
Planariidae	28	3.50	19	4.75	375	46.88	210	26.25	3	0.38	22	2.75	657	4.135
Annelida														
Oligochaeta	237	29.63	2558	639.50	495	61.88	792	99.00	3771	471.38	2922	365.25	10775	67.823
Hirudinea	1	0.13	1	0.25	62	7.75	32	4.00	7	0.88	5	0.63	108	0.680
Nematoda	1	0.13	3	0.75							1	0.13	5	0.031
Acari														
Hydrachnidia	1	0.13			5	0.63							6	0.038
Crustacea														
Amphipoda														
Gammaridae														
Gammarus	129	16.13	407	101.75	10	1.25	6	0.75	18	2.25	16	2.00	586	3.689
Decapoda														
Xanthidae					2	0.25							2	0.013
Isopoda														
Asellidae														
Lirceus			5	1.25			1	0.13			1	0.13	7	0.044
Insecta														
Odonata														
Zygoptera														
Coenagrionidae														
Enallagma	4	0.50					1	0.13					5	0.031
Hemiptera														
Corixidae					7	0.88							7	0.044
Coleoptera														
Dytiscidae														
Agabus														
Diptera														
Ceratopogonidae					1	0.13							1	0.006
Chaoboridae													1	0.006
Chaoborus														
Chironomidae	341	42.63	609	152.25	270	33.75	436	54.50	914	114.25	121	15.13	2691	16.938
Mollusca														
Gastropoda														
Physidae														
Physella	5	0.63	88	22.00	16	2.00	9	1.13	10	1.25	2	0.25	130	0.818
Planorbidae	70	8.75	20	5.00	13	1.63	4	0.50	1	0.13	2	0.25	110	0.692
Hydrobiidae	17	2.13	84	21.00	327	40.88	294	36.75	17	2.13	6	0.75	745	4.689
Ancylidae	1	0.13	12	3.00	2	0.25							26	0.164
Bivalvia	1	0.13			3	0.38			21	2.63	11	1.38	25	0.157
Total specimens	836	104.50	3806	951.50	1588	198.50	1786	223.25	4762	595.25	3109	388.63	15887	361.07
Total taxa	13		11		14		11		9		11		21	

Table 11-11
Bioassessment Metrics for Macroinvertebrates Collected by D-Frame Net
at the Phase II RI Locations, October 2004 through August 2006

	AMTRAK Ditches	Conectiv Impoundment	City Ditch	Shellpot Creek
Taxa richness	65	64	36	60
EPT richness	3	2	2	1
Percent EPT abundance	0.08	3.80	0.05	<0.01
Percent Chironomidae	14.35	8.26	14.08	3.56
Percent dominant taxon	39.17	34.33	73.00	39.68
Hilsenhoff Biotic Index	7.767	5.440	8.961	8.259
Shannon-Weaver diversity (H')	2.846	3.136	1.582	2.707
H' max	6.022	6.000	5.170	5.907
Evenness (J')	0.473	0.523	0.306	0.458

Table 11-12
Bioassessment Metrics for Macroinvertebrates Collected by Hester-Dendy
Sampler at the Phase II RI Locations, October 2004 through August 2006

	AMTRAK Ditches	Conectiv Impoundment	City Ditch	Shellpot Creek
Taxa richness	29	28	24	21
EPT richness	1	1	3	0
Percent EPT abundance	<0.01	0.26	0.04	0.00
Percent Chironomidae	35.62	38.58	13.80	16.94
Percent dominant taxon	37.49	39.16	44.49	67.82
Hilsenhoff Biotic Index	7.813	7.894	8.678	8.956
Shannon-Weaver diversity (H')	2.258	2.176	2.228	1.596
H' max	4.858	4.807	4.585	4.392
Evenness (J')	0.465	0.453	0.486	0.363

**Table 11-13
Common and Scientific Names of Fish Collected at the Phase II
RI Locations, October 2004 through August 2006**

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
Freshwater eels American eel	Anguillidae <i>Anguilla rostrata</i>
Herrings Gizzard shad	Clupeidae <i>Dorosoma cepedianum</i>
Carp and minnows Goldfish Common carp Common shiner Golden shiner Spottail shiner Swallowtail shiner Longnose dace Creek chub	Cyprinidae <i>Carassius auratus</i> <i>Cyprinus carpio</i> <i>Luxilus cornutus</i> <i>Notemigonus crysoleucas</i> <i>Notropis hudsonius</i> <i>Notropis procne</i> <i>Rhinichthys cataractae</i> <i>Semotilus atromaculatus</i>
Suckers Quillback White sucker Creek chubsucker	Catostomidae <i>Carpionodes cyprinus</i> <i>Catostomus commersoni</i> <i>Erimyzon oblongus</i>
Bullhead catfishes Yellow bullhead Brown bullhead	Ictaluridae <i>Ameiurus natalis</i> <i>Ameiurus nebulosus</i>
Pikes Redfin pickerel	Esocidae <i>Esox americanus</i>
Mudminnows Eastern mudminnow	Umbridae <i>Umbra pygmaea</i>
Killifishes Banded killifish Mummichog	Cyprinodontidae <i>Fundulus diaphanus</i> <i>Fundulus heteroclitus</i>
Livebearers Eastern mosquitofish	Poeciliidae <i>Gambusia holbrooki</i>
Temperate basses White perch Striped bass	Percichthyidae <i>Morone americana</i> <i>Morone saxatilis</i>
Sunfishes Rockbass Green sunfish Pumpkinseed Bluegill Smallmouth bass Largemouth bass Black crappie	Centrarchidae <i>Ambloplites rupestris</i> <i>Lepomis cyanellus</i> <i>Lepomis gibbosus</i> <i>Lepomis macrochirus</i> <i>Micropterus dolomieu</i> <i>Micropterus salmoides</i> <i>Pomoxis nigromaculatus</i>
Perches Tessellated darter	Percidae <i>Etheostoma olmstedii</i>

Note: Nomenclature follows Nelson et al. (2004).

Table 11-14
Summary of Fish Collected by Electrofishing at the Phase II RI Locations,
October 2004 through August 2006

Species	AMTRAK Ditches		Conectiv Impoundment		City Ditch		Shellpot Creek	
	No.	No./min	No.	No./min	No.	No./min	No.	No./min
Total shocking dur. (min)	286.6		128.4		173.4		250.8	
American eel	15	0.052	4	0.031	13	0.075	114	0.455
Gizzard shad	2	0.007	0	0.000	1	0.006	0	0.000
Goldfish	49	0.161	8	0.062	0	0.000	6	0.024
Common carp	10	0.035	0	0.000	0	0.000	13	0.052
Common shiner	31	0.098	0	0.000	62	0.358	7	0.028
Golden shiner	42	0.147	7	0.054	4	0.023	46	0.183
Spottail shiner	5	0.017	0	0.000	21	0.121	8	0.032
Swallowtail shiner	1	0.003	0	0.000	0	0.000	0	0.000
Longnose dace	0	0.000	0	0.000	0	0.000	1	0.004
Creek chub	0	0.000	0	0.000	2	0.012	3	0.012
Quillback	0	0.000	0	0.000	0	0.000	16	0.064
Creek chubsucker	0	0.000	0	0.000	0	0.000	8	0.032
White sucker	0	0.000	0	0.000	1	0.006	117	0.463
Yellow bullhead	0	0.000	0	0.000	0	0.000	1	0.004
Brown bullhead	42	0.126	13	0.101	0	0.000	23	0.092
Redfin pickerel	0	0.000	9	0.070	0	0.000	6	0.024
Eastern mudminnow	3	0.010	103	0.801	0	0.000	36	0.144
Banded killifish	2288	8.308	0	0.000	191	1.101	283	1.128
Mummichog	104	0.363	0	0.000	196	1.130	123	0.486
Eastern mosquitofish	0	0.000	28	0.218	1	0.006	17	0.068
White perch	0	0.000	0	0.000	0	0.000	6	0.024
Rockbass	1	0.003	0	0.000	0	0.000	0	0.000
Green sunfish	3	0.010	0	0.000	5	0.029	8	0.032
Pumpkinseed	1421	4.874	42	0.327	158	0.911	167	0.666
Bluegill	255	0.841	27	0.210	22	0.127	34	0.132
Smallmouth bass	4	0.014	1	0.008	8	0.046	12	0.048
Largemouth bass	11	0.038	0	0.000	1	0.006	3	0.012
Black crappie	0	0.000	4	0.031	2	0.012	12	0.048
Tessellated darter	0	0.000	0	0.000	0	0.000	2	0.008
Total specimens	4287	14.958	246	1.916	688	3.968	1072	4.274
Total species	18		11		16		26	

Table 11-15
 Summary of Fish Collected by Electrofishing in the Ditches Adjacent to the AMTRAK
 Former Fueling Facility, August 1998 and October 2004 through August 2006

Species	Phase I RI		Phase II RI												Total	
	Aug-98		Oct-04		May-05		Aug-05		Oct-05		May-06		Aug-06		No.	No./min
	No.	No./min	No.	No./min	No.	No./min	No.	No./min	No.	No./min	No.	No./min	No.	No./min	No.	No./min
Total shocking dur. (min)	60.0		48.9		43.5		49.2		49.1		48.8		47.1		286.6	
American eel	3	0.050	0	0.000	6	0.138	1	0.020	3	0.061	3	0.061	2	0.042	15	0.052
Gizzard shad	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.020	1	0.021	2	0.007
Goldfish	25	0.417	1	0.020	11	0.253	5	0.102	6	0.122	10	0.205	16	0.340	49	0.171
Common carp	0	0.000	1	0.020	1	0.023	0	0.000	0	0.000	7	0.143	1	0.021	10	0.035
Common shiner	0	0.000	0	0.000	0	0.000	3	0.061	5	0.102	0	0.000	23	0.488	31	0.108
Golden shiner	9	0.150	0	0.000	2	0.046	4	0.081	4	0.081	13	0.266	19	0.403	42	0.147
Spottail shiner	0	0.000	0	0.000	0	0.000	0	0.000	1	0.020	4	0.082	0	0.000	5	0.017
Swallowtail shiner	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.020	0	0.000	1	0.003
Unidentified minnow	1	0.017	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
Brown bullhead	5	0.083	7	0.143	7	0.161	7	0.142	2	0.041	9	0.184	10	0.212	42	0.147
Eastern mudminnow	0	0.000	3	0.061	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	3	0.010
Banded killifish	0	0.000	123	2.515	207	4.759	302	6.138	620	12.627	796	16.311	240	5.096	2288	7.983
Mummichog	133	2.217	2	0.041	23	0.529	33	0.671	20	0.407	10	0.205	16	0.340	104	0.363
Rockbass	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.021	1	0.003
Green sunfish	0	0.000	0	0.000	0	0.000	1	0.020	1	0.020	0	0.000	1	0.021	3	0.010
Pumpkinseed	118	1.967	88	1.800	271	6.230	195	3.963	218	4.440	276	5.656	373	7.919	1421	4.958
Bluegill	0	0.000	125	2.556	29	0.667	12	0.244	46	0.937	23	0.471	20	0.425	255	0.890
Pumpkinseed x bluegill	4	0.067	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
Smallmouth bass	0	0.000	1	0.020	0	0.000	2	0.041	1	0.020	0	0.000	0	0.000	4	0.014
Largemouth bass	0	0.000	0	0.000	3	0.069	1	0.020	1	0.020	5	0.102	1	0.021	11	0.038
Total specimens	298	4.967	351	7.178	560	12.874	566	11.504	928	18.900	1158	23.730	724	15.372	4287	14.958
Total species	8		9		10		12		13		13		14		18	

Table 11-16
 Summary of Fish Collected by Electrofishing in the Connecticut Impoundment,
 August 1998 and October 2004 through August 2006

Species	Phase I RI		Phase II RI												Total	
	Aug-98		Oct-04		May-05		Aug-05		Oct-05		May-06		Aug-06		Total	
	No.	No./min	No.	No./min	No.	No./min	No.	No./min	No.	No./min	No.	No./min	No.	No./min	No.	No./min
American eel	1	0.050	0	0.000	3	0.133	0	0.000	0	0.000	1	0.049	0	0.000	4	0.031
Goldfish	0	0.000	0	0.000	0	0.000	0	0.000	1	0.050	1	0.049	6	0.297	8	0.062
Common carp	1	0.050	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
Golden shiner	1	0.050	0	0.000	1	0.044	4	0.200	0	0.000	2	0.098	0	0.000	7	0.055
Brown bullhead	1	0.050	3	0.119	2	0.089	0	0.000	6	0.300	2	0.098	0	0.000	13	0.101
Redfin pickerel	0	0.000	8	0.316	0	0.000	0	0.000	0	0.000	0	0.000	1	0.050	9	0.070
Eastern mudminnow	0	0.000	58	2.292	5	0.222	11	0.550	0	0.000	1	0.049	28	1.386	103	0.802
Eastern mosquitofish	0	0.000	3	0.119	0	0.000	1	0.050	2	0.100	0	0.000	22	1.089	28	0.218
Pumpkinseed	2	0.100	10	0.395	7	0.311	0	0.000	14	0.700	11	0.539	0	0.000	42	0.327
Bluegill	0	0.000	9	0.356	3	0.133	3	0.150	9	0.450	1	0.049	2	0.099	27	0.210
Smallmouth bass	0	0.000	1	0.040	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.008
Black crappie	0	0.000	2	0.079	0	0.000	1	0.050	0	0.000	1	0.049	0	0.000	4	0.031
Total specimens	6	0.300	94	3.715	21	0.933	20	1.000	32	1.600	20	0.980	59	2.921	246	1.916
Total species	5		8		6		5		5		8		5		11	

Table 11-17
 Summary of Fish Collected by Electrofishing in the City Ditch,
 October 2004 through August 2006

Total shocking dur. (min)	Oct-04 30.6		May-05 30.0		Aug-05 30.2		Oct-05 30.0		May-06 30.2		Aug-06 22.4		Total 173.4	
	No.	No./min												
American eel	1	0.033	2	0.067	4	0.132	1	0.033	0	0.000	5	0.223	13	0.075
Gizzard shad	0	0.000	1	0.033	0	0.000	0	0.000	0	0.000	0	0.000	1	0.006
Common shiner	0	0.000	0	0.000	1	0.033	0	0.000	0	0.000	61	2.723	62	0.358
Golden shiner	1	0.033	1	0.033	0	0.000	0	0.000	2	0.066	0	0.000	4	0.023
Spottail shiner	1	0.033	1	0.033	5	0.166	7	0.233	1	0.033	6	0.268	21	0.121
Creek chub	0	0.000	1	0.033	0	0.000	0	0.000	1	0.033	0	0.000	2	0.012
White sucker	0	0.000	0	0.000	1	0.033	0	0.000	0	0.000	0	0.000	1	0.006
Banded killifish	63	2.059	40	1.333	15	0.497	16	0.533	15	0.497	42	1.875	191	1.101
Mummichog	3	0.098	40	1.333	114	3.775	7	0.233	27	0.894	5	0.223	196	1.130
Eastern mosquitofish	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.045	1	0.006
Green sunfish	0	0.000	0	0.000	1	0.033	4	0.133	0	0.000	0	0.000	5	0.029
Pumpkinseed	5	0.163	19	0.633	12	0.397	36	1.200	51	1.689	35	1.563	158	0.911
Bluegill	0	0.000	7	0.233	3	0.099	7	0.233	1	0.033	4	0.179	22	0.127
Smallmouth bass	1	0.033	0	0.000	1	0.033	4	0.133	0	0.000	2	0.089	8	0.046
Largemouth bass	0	0.000	0	0.000	0	0.000	0	0.000	1	0.033	0	0.000	1	0.006
Black crappie	1	0.033	0	0.000	0	0.000	0	0.000	0	0.000	1	0.045	2	0.012
Total specimens	76	2.484	112	3.733	157	5.199	82	2.733	99	3.278	162	7.232	688	3.968
Total species	8		9		10		9		8		10		16	

Table 11-18
 Summary of Fish Collected by Electrofishing in Shellpot Creek,
 October 2004 through August 2006

Total shocking dur. (min)	Oct-04 47.9		May-05 40.9		Aug-05 40.6		Oct-05 40.4		May-06 40.3		Aug-06 40.7		Total 250.8	
	No.	No./min												
American eel	45	0.939	44	1.076	6	0.148	4	0.099	10	0.248	5	0.123	114	0.455
Goldfish	3	0.063	0	0.000	2	0.049	1	0.025	0	0.000	0	0.000	6	0.024
Common carp	6	0.125	1	0.024	4	0.099	0	0.000	2	0.050	0	0.000	13	0.052
Common shiner	0	0.000	0	0.000	1	0.025	0	0.000	3	0.074	3	0.074	7	0.028
Golden shiner	11	0.230	5	0.122	2	0.049	3	0.074	2	0.050	23	0.565	46	0.183
Spottail shiner	0	0.000	0	0.000	0	0.000	8	0.198	0	0.000	0	0.000	8	0.032
Longnose dace	0	0.000	0	0.000	0	0.000	1	0.025	0	0.000	0	0.000	1	0.004
Creek chub	1	0.021	2	0.049	0	0.000	0	0.000	0	0.000	0	0.000	3	0.012
Quillback	15	0.313	1	0.024	0	0.000	0	0.000	0	0.000	0	0.000	16	0.064
Creek chubsucker	0	0.000	0	0.000	0	0.000	7	0.173	1	0.025	0	0.000	8	0.032
White sucker	46	0.960	10	0.244	1	0.025	36	0.891	20	0.496	4	0.098	117	0.467
Yellow bullhead	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.025	1	0.004
Brown bullhead	4	0.084	0	0.000	11	0.271	6	0.149	2	0.050	0	0.000	23	0.092
Redfin pickerel	5	0.104	0	0.000	0	0.000	0	0.000	0	0.000	1	0.025	6	0.024
Eastern mudminnow	23	0.480	2	0.049	4	0.099	7	0.173	0	0.000	0	0.000	36	0.144
Banded killifish	34	0.710	20	0.489	13	0.320	100	2.475	55	1.365	61	1.499	283	1.128
Mummichog	3	0.063	3	0.073	23	0.567	15	0.371	63	1.563	16	0.393	123	0.490
Eastern mosquitofish	0	0.000	0	0.000	15	0.369	1	0.025	0	0.000	1	0.025	17	0.068
White perch	0	0.000	0	0.000	0	0.000	6	0.149	0	0.000	0	0.000	6	0.024
Green sunfish	2	0.042	2	0.049	1	0.025	0	0.000	3	0.074	0	0.000	8	0.032
Pumpkinseed	24	0.501	21	0.513	0	0.000	33	0.817	61	1.514	28	0.688	167	0.666
Bluegill	11	0.230	4	0.098	3	0.074	7	0.173	5	0.124	4	0.098	34	0.136
Smallmouth bass	7	0.146	0	0.000	0	0.000	2	0.050	0	0.000	3	0.074	12	0.048
Largemouth bass	0	0.000	0	0.000	0	0.000	0	0.000	3	0.074	0	0.000	3	0.012
Black crappie	5	0.104	0	0.000	0	0.000	3	0.074	2	0.050	2	0.049	12	0.048
Tessellated darter	0	0.000	2	0.049	0	0.000	0	0.000	0	0.000	0	0.000	2	0.008
Total specimens	245	5.115	117	2.861	86	2.118	240	5.941	232	5.757	152	3.735	1072	4.274
Total species	17		13		13		17		14		13		26	

Table 11-19
Summary of Fish and Turtles Collected by Trap Net at the Phase II RI
Locations, October 2004 through August 2006

	AMTRAK		Conectiv Impoundment		Shellpot Creek	
Sampling duration (hrs)	245.1		268.2		254.2	
Species	No.	No./hr.	No.	No./hr.	No.	No./hr.
Common shiner	0	0.000	0	0.000	20	0.079
Golden shiner	30	0.122	9	0.034	6	0.024
Quillback	0	0.000	1	0.004	0	0.000
Creek chubsucker	2	0.008	0	0.000	2	0.008
Yellow bullhead	0	0.000	1	0.004	0	0.000
Brown bullhead	18	0.073	2	0.007	25	0.098
Redfin pickerel	0	0.000	2	0.007	0	0.000
Banded killifish	66	0.269	0	0.000	20	0.079
Mummichog	3	0.012	0	0.000	12	0.047
White perch	0	0.000	0	0.000	9	0.035
Striped bass	0	0.000	0	0.000	1	0.004
Green sunfish	6	0.024	0	0.000	0	0.000
Pumpkinseed	176	0.718	36	0.134	17	0.067
Bluegill	87	0.355	11	0.041	5	0.020
Smallmouth bass	0	0.000	0	0.000	2	0.008
Black crappie	0	0.000	4	0.015	2	0.008
Total specimens	388	1.583	66	0.246	121	0.476
Total species	8		8		12	
Blue crab	0	0.000	0	0.000	1	0.004
Snapping turtle	4	0.016	0	0.000	2	0.008
Stinkpot	0	0.000	6	0.022	1	0.004
Midland painted turtle	1	0.004	5	0.019	1	0.004
Eastern painted turtle	29	0.118	172	0.641	14	0.055
Red-bellied turtle	12	0.049	1	0.004	13	0.051

Table 11-20
 Summary of Fish and Turtles Collected by Trap Net in the Ditches Adjacent to the AMTRAK
 Former Fueling Facility, August 1998 and October 2004 through August 2006

Species	Phase I RI		Phase II RI												Total No./hr.	
	Aug-98 42.0		Oct-04 38.3		May-05 42.5		Aug-05 38.3		Oct-05 41.7		May-06 43.1		Aug-06 41.2			
	No.	No./hr.														
Golden shiner	7	0.167	0	0.000	3	0.071	2	0.052	16	0.384	0	0.000	9	0.218	30	0.122
Creek chubsucker	0	0.000	0	0.000	2	0.047	0	0.000	0	0.000	0	0.000	0	0.000	2	0.008
Brown bullhead	4	0.095	0	0.000	0	0.000	0	0.000	0	0.000	14	0.325	4	0.097	18	0.073
Banded killifish	0	0.000	18	0.470	17	0.400	23	0.601	4	0.096	4	0.093	0	0.000	66	0.269
Mummichog	6	0.143	0	0.000	0	0.000	2	0.052	0	0.000	1	0.023	0	0.000	3	0.012
Green sunfish	0	0.000	3	0.078	0	0.000	2	0.052	1	0.024	0	0.000	0	0.000	6	0.024
Pumpkinseed	106	2.524	42	1.097	32	0.753	45	1.175	26	0.624	21	0.487	10	0.243	176	0.718
Bluegill	6	0.143	22	0.574	24	0.565	14	0.366	9	0.216	12	0.278	6	0.146	87	0.355
Pumpkinseed x bluegill	10	0.238	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
Total specimens	139	3.310	85	2.219	78	1.835	88	2.298	56	1.343	52	1.206	29	0.704	388	1.583
Total species	6		4		5		6		5		5		4		8	
Snapping turtle	8	0.190	0	0.000	1	0.024	0	0.000	0	0.000	2	0.046	1	0.024	4	0.016
Midland painted turtle	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.023	0	0.000	1	0.004
Eastern painted turtle	30	0.714	2	0.052	4	0.094	8	0.209	7	0.168	4	0.093	4	0.097	29	0.118
Red-bellied turtle	4	0.095	2	0.052	1	0.024	5	0.131	0	0.000	3	0.070	1	0.024	12	0.049

Table 11-21
 Summary of Fish and Turtles Collected by Trap Net in the Connecticut Impoundment,
 August 1998 and October 2004 through August 2006

Species	Phase I RI		Phase II RI															
	Aug-98		Oct-04		May-05		Aug-05		Oct-05		May-06		Aug-06		Total			
	No.	No./hr.	No.	No./hr.	No.	No./hr.	No.	No./hr.	No.	No./hr.	No.	No./hr.	No.	No./hr.	No.	No./hr.		
American eel	1	0.022	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
Common carp	1	0.022	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
Golden shiner	0	0.000	0	0.000	0	0.000	4	0.093	3	0.061	2	0.042	0	0.000	0	0.000	9	0.034
Quillback	0	0.000	1	0.024	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.004
Yellow bullhead	0	0.000	0	0.000	1	0.025	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.004
Brown bullhead	11	0.244	0	0.000	0	0.000	0	0.000	2	0.041	0	0.000	0	0.000	0	0.000	2	0.007
Redfin pickerel	0	0.000	1	0.024	0	0.000	1	0.023	0	0.000	0	0.000	0	0.000	0	0.000	2	0.007
Mummichog	30	0.667	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
Pumpkinseed	2	0.044	19	0.449	4	0.100	2	0.047	4	0.082	7	0.148	0	0.000	0	0.000	36	0.134
Bluegill	0	0.000	6	0.142	0	0.000	3	0.070	2	0.041	0	0.000	0	0.000	0	0.000	11	0.041
Black crappie	51	1.133	4	0.095	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	4	0.015
Total specimens	96	2.133	31	0.733	5	0.124	10	0.233	11	0.225	9	0.190	0	0.000	0	0.000	66	0.246
Total species	6		5		2		4		4		2		0		0		8	
Stinkpot	14	0.311	0	0.000	0	0.000	0	0.000	3	0.061	3	0.063	0	0.000	0	0.000	6	0.022
Midland painted turtle	0	0.000	0	0.000	0	0.000	1	0.023	2	0.041	0	0.000	0	0.000	2	0.043	5	0.019
Eastern painted turtle	154	3.422	7	0.165	17	0.423	37	0.862	106	2.168	7	0.148	2	0.043	2	0.043	176	0.656
Red-bellied slider	3	0.067	0	0.000	0	0.000	0	0.000	1	0.020	0	0.000	0	0.000	0	0.000	1	0.004

Table 11-22
 Summary of Fish and Turtles Collected by Trap Net in Shellpot Creek,
 October 2004 through August 2006

Species	Oct-04 34.6		May-05 41.3		Aug-05 46.3		Oct-05 44.1		May-06 45.2		Aug-06 42.7		Total 254.2	
	No.	No./hr.												
Common shiner	0	0.000	0	0.000	0	0.000	20	0.454	0	0.000	0	0.000	20	0.079
Golden shiner	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	6	0.141	6	0.024
Creek chubsucker	2	0.058	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	2	0.008
Brown bullhead	0	0.000	1	0.024	21	0.454	2	0.045	1	0.022	0	0.000	25	0.098
Banded killifish	0	0.000	7	0.169	6	0.130	0	0.000	0	0.000	7	0.164	20	0.079
Mummichog	0	0.000	10	0.242	2	0.043	0	0.000	0	0.000	0	0.000	12	0.047
White perch	0	0.000	0	0.000	2	0.043	7	0.159	0	0.000	0	0.000	9	0.035
Striped bass	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.023	1	0.004
Pumpkinseed	2	0.058	0	0.000	0	0.000	3	0.068	3	0.066	9	0.211	17	0.067
Bluegill	0	0.000	1	0.024	0	0.000	0	0.000	0	0.000	4	0.094	5	0.020
Smallmouth bass	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	2	0.047	2	0.008
Black crappie	0	0.000	0	0.000	0	0.000	2	0.045	0	0.000	0	0.000	2	0.008
Total specimens	4	0.116	19	0.460	31	0.670	34	0.771	4	0.088	29	0.679	121	0.476
Total species	2		4		4		5		2		6		12	
Blue crab	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.023	1	0.004
Snapping turtle	0	0.000	0	0.000	1	0.022	0	0.000	1	0.022	0	0.000	2	0.008
Stinkpot	0	0.000	0	0.000	0	0.000	0	0.000	1	0.022	0	0.000	1	0.004
Midland painted turtle	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	1	0.023	1	0.004
Eastern painted turtle	1	0.029	1	0.024	3	0.065	6	0.136	1	0.022	2	0.047	14	0.055
Red-bellied turtle	2	0.058	3	0.073	2	0.043	2	0.045	2	0.044	2	0.047	13	0.051

Table 11-23
Length-Frequency Distributions of Banded Killifish Collected in the
Ditches Adjacent to the AMTRAK Former Fueling Facility

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
11 - 15							
16 - 20			1				1
21 - 25	2						2
26 - 30			2			1	3
31 - 35	8	4	2	1	1		16
36 - 40	8	13	6	13	2	4	46
41 - 45	9	8	8	29	4	4	62
46 - 50	6	22	38	53	14	2	135
51 - 55	8	14	38	32	41	3	136
56 - 60	13	20	26	26	39	7	131
61 - 65	14	31	8	18	41	26	138
66 - 70	8	22	9	11	33	44	127
71 - 75	10	20	10	6	21	50	117
76 - 80	8	13	22	7	16	25	91
81 - 85	27	18	12	1	13	7	78
86 - 90	10	15	7	3	9	9	53
91 - 95	4	18	4	1	6	3	36
96 - 100	1	5	2		1	2	11
101 - 105		1	1		1		3
106 - 110					1	1	2
111 - 115							
Total measured	136	224	196	201	243	188	1188
Total taken	141	224	325	624	800	240	2354

Table 11-24
Length-Frequency Distributions of Mummichog Collected in the
Ditches Adjacent to the AMTRAK Former Fueling Facility

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
21 - 25							2
26 - 30		2					2
31 - 35		5	1				6
36 - 40		2		1			3
41 - 45		1	1				2
46 - 50				2			2
51 - 55		1	3		1	1	6
56 - 60			4	2	1	2	9
61 - 65		1	5	3	1	1	11
66 - 70			7	5	1	6	19
71 - 75	1	1	2	1	2	2	9
76 - 80		2	2	2	1	2	9
81 - 85		2	4	3	1	2	12
86 - 90			2		1		3
91 - 95	1	2	3				6
96 - 100		2					2
101 - 105		2		1			3
106 - 110			1		2		3
111 - 115							
Total measured	2	23	35	20	11	16	107
Total taken	2	23	35	20	11	16	107

Table 11-25
Length-Frequency Distributions of Pumpkinseed Collected in the
Ditches Adjacent to the AMTRAK Former Fueling Facility

Length (mm TL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
26 - 30		2	1	2			5
31 - 35		4		11	4		19
36 - 40		3	1	8	10	1	23
41 - 45		8	1	11	20		40
46 - 50	2	16		10	13	3	44
51 - 55	3	42	4	6	14	4	73
56 - 60	6	46	6	3	5	26	92
61 - 65	3	28	28	7	7	20	93
66 - 70	4	5	33	4	2	20	68
71 - 75	4	4	40	21	9	22	100
76 - 80	10	11	29	27	20	13	110
81 - 85	16	21	14	27	26	19	123
86 - 90	19	24	12	34	27	24	140
91 - 95	8	23	16	13	27	20	107
96 - 100	9	14	13	13	14	21	84
101 - 105	12	16	15	7	16	18	84
106 - 110	12	12	9	1	9	9	52
111 - 115	9	13	7	3	5	5	42
116 - 120	2	2		2	2	4	12
121 - 125	6	2	4		6	4	22
126 - 130	1	2	3	2	2	2	12
131 - 135	2	2				1	5
136 - 140	2	2	1	1	1		7
141 - 145			2	1	2		5
146 - 150							0
151 - 155		1		1	1		3
156 - 160			1				1
161 - 165							0
166 - 170				1			1
Total measured	130	303	240	216	242	236	1367
Total taken	130	303	240	244	297	383	1597

Table 11-26
Length-Frequency Distributions of Bluegill Collected in the
Ditches Adjacent to the AMTRAK Former Fueling Facility

Length (mm TL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
21 - 25							2
26 - 30	2						2
31 - 35	1	1		5			7
36 - 40	4	2	1	8		1	16
41 - 45	17	6		3	1		27
46 - 50	33	5	1	3	2		44
51 - 55	36	2	1	2	2		43
56 - 60	25	2	2	1	1	3	34
61 - 65	3	2	3		1	1	10
66 - 70			2	2	3		7
71 - 75			3	1		2	6
76 - 80	2		2	2		3	9
81 - 85	1		1			1	3
86 - 90	2		1				3
91 - 95	2	1		1		2	6
96 - 100	1	2	1	1	1	2	8
101 - 105	1	3			2	1	7
106 - 110	2	2	1	2		1	8
111 - 115		4	1	2			7
116 - 120	1	2			2		5
121 - 125	3	2		3	3		11
126 - 130	2	2	2	2	2	2	12
131 - 135	1	4	2	2	2		11
136 - 140	2	1		3	2		8
141 - 145		2	1	3	2	3	11
146 - 150	3	1		2	2		8
151 - 155	1	1		2		2	6
156 - 160	1	2		1	3	1	8
161 - 165		2		1	2		5
166 - 170		1	1	2			4
171 - 175	1			1	1	1	4
176 - 180		1					1
181 - 185					1		1
186 - 190							0
Total measured	147	53	26	55	35	26	342
Total taken	147	53	26	55	35	26	342

Table 11-27
Length-Frequency Distributions of Pumpkinseed Collected in the
Conectiv Impoundment

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
31 - 35							
36 - 40				1			1
41 - 45				2			2
46 - 50				3			3
51 - 55							
56 - 60				1			1
61 - 65		1					1
66 - 70					1		1
71 - 75	1		1		1		3
76 - 80	1						1
81 - 85	1			2			3
86 - 90	1	1		1			3
91 - 95	4			1	2		7
96 - 100	3	2			2		7
101 - 105	6		1	1	7		15
106 - 110	1						1
111 - 115	2	1		1			4
116 - 120		1		2			3
121 - 125	3	1		1	1		6
126 - 130	3	2			1		6
131 - 135	1	1		2			4
136 - 140	2				1		3
141 - 145		1			1		2
146 - 150							
151 - 155							
156 - 160							
161 - 165					1		1
166 - 170							
Total measured	29	11	2	18	18	0	78
Total taken	29	11	2	18	18	0	78

Table 11-28
Length-Frequency Distributions of Bluegill Collected in the
Conectiv Impoundment

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
21 - 25							
26 - 30			1				1
31 - 35						1	1
36 - 40			1	1			3
41 - 45			1	1			2
46 - 50	1			1			2
51 - 55							
56 - 60		1		1			2
61 - 65	1			2			3
66 - 70	1	1					2
71 - 75	1	1			1		3
76 - 80	1						1
81 - 85							
86 - 90	1						1
91 - 95	2		1				3
96 - 100	1						1
101 - 105							
106 - 110							
111 - 115	1			1			2
116 - 120			2				2
121 - 125	2						2
126 - 130				1			1
131 - 135							
141 - 145				2			2
146 - 150							
151 - 155				1			1
156 - 160							
161 - 165							
166 - 170	1						1
171 - 175							
Total measured	13	3	6	11	1	2	36
Total taken	15	3	6	11	1	2	38

Table 11-29
Length-Frequency Distributions of Banded Killifish Collected in the
City Ditch

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
11 - 15							
16 - 20							
21 - 25							
26 - 30							
31 - 35				1			1
36 - 40			1			1	2
41 - 45	3	1	3			1	8
46 - 50	4	3	1	1		3	12
51 - 55	11	7	1			1	20
56 - 60	15	9		2			26
61 - 65	10	4		3		4	21
66 - 70	13	4	1	1	2	13	34
71 - 75	2	4	3	1	4	7	21
76 - 80	2	3		3	2	6	16
81 - 85		2	1	3	3	4	13
86 - 90	1	1	4	1	1	1	9
91 - 95	1	2				1	4
96 - 100					2		2
101 - 105							
106 - 110					1		1
111 - 115							
Total measured	62	40	15	16	15	42	190
Total taken	63	40	15	16	15	42	191

Table 11-30
Length-Frequency Distributions of Mummichog Collected in the
City Ditch

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
31 - 35							
36 - 40			1				1
41 - 45							
46 - 50			1				1
51 - 55		1	3				4
56 - 60		14	32				46
61 - 65		12	35	5			52
66 - 70	1	4	23	1	3		32
71 - 75		3	5		4		12
76 - 80		2	9	1	10		22
81 - 85	1	2	2		3		8
86 - 90	1		1		5		7
91 - 95		1	2		1	4	8
96 - 100					1	1	2
101 - 105							
106 - 110							
111 - 115		1					1
116 - 120							
Total measured	3	40	114	7	27	5	196
Total taken	3	40	114	7	27	5	196

**Table 11-31
Length-Frequency Distributions of Pumpkinseed Collected in the
City Ditch**

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
31 - 35							
36 - 40						1	1
41 - 45		1		2	2	1	6
46 - 50		1			2		3
51 - 55		3		3	2		8
56 - 60		1		1	5	1	8
61 - 65		2		3	8		13
66 - 70		2		7	3		12
71 - 75				4	4	2	10
76 - 80		1		3	9	10	23
81 - 85			1		1	8	10
86 - 90		1	2	2	5	2	12
91 - 95	4	1				1	6
96 - 100		2	2	4	1	1	10
101 - 105			2		3		5
106 - 110		1		1	2	3	7
111 - 115	1	2	1		1	1	6
116 - 120			2	1	1	1	5
121 - 125			1	1		2	4
126 - 130			1		1	1	3
131 - 135							
136 - 140					1		1
141 - 145		1		2			3
146 - 150				1			1
151 - 155				1			1
156 - 160							
Total measured	5	19	12	36	51	35	158
Total taken	5	19	12	36	51	35	158

Table 11-32
Length-Frequency Distributions of Bluegill Collected in the
City Ditch

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
26 - 30							
31 - 35						1	1
36 - 40							
41 - 45		1		1			2
46 - 50		1		1		1	3
51 - 55		1		2			3
56 - 60			1				1
61 - 65				1			1
66 - 70		2					2
71 - 75		1		1			2
76 - 80				1			1
81 - 85							
86 - 90							
91 - 95							
96 - 100			1			1	2
101 - 105		1					1
106 - 110							
111 - 115							
116 - 120							
121 - 125							
126 - 130							
131 - 135							
136 - 140							
141 - 145			1				1
146 - 150						1	1
151 - 155					1		1
156 - 160							
Total measured	0	7	3	7	1	4	22
Total taken	0	7	3	7	1	4	22

Table 11-33
Length-Frequency Distributions of Banded Killifish Collected in
Shellpot Creek

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
21 - 25							
26 - 30			1	4		1	6
31 - 35				3	1	1	5
36 - 40			2	9	2		13
41 - 45		1	3	10	3		17
46 - 50	1			12	4		17
51 - 55	4			12	4		20
56 - 60	2	1	2	10	13	3	31
61 - 65	3	1	3	4	2	8	21
66 - 70	2		2	2	9	19	34
71 - 75		1	2	4	5	10	22
76 - 80	6	2	1	9	3	10	31
81 - 85	3	2	1	10	2	10	28
86 - 90	8	8		2	5	1	24
91 - 95	2	8		1	1	4	16
96 - 100	1	3		1			5
101 - 105	2				1		3
106 - 110							
Total measured	34	27	17	93	55	67	293
Total taken	34	27	19	100	55	68	303

Table 11-34
Length-Frequency Distributions of Mummichog Collected in
Shellpot Creek

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
16 - 20							
21 - 25			3				3
26 - 30			2				2
31 - 35			3				3
36 - 40			6				6
41 - 45			2	1	1		4
46 - 50			3	2	1		6
51 - 55		1		3	2		6
56 - 60				2	8		10
61 - 65				3	12	1	16
66 - 70		4	2	1	15	1	23
71 - 75		4	3	1	13	6	27
76 - 80		1	1		4	5	11
81 - 85	2	1			6	1	10
86 - 90	1	2				2	5
91 - 95				2	1		3
96 - 100							
Total measured	3	13	25	15	63	16	135
Total taken	3	13	25	15	63	16	135

Table 11-35
Length-Frequency Distributions of Pumpkinseed Collected in
Shellpot Creek

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
36 - 40							
41 - 45	1				1		2
46 - 50	1	1		1	3		6
51 - 55	1				2		3
56 - 60	3	3		1			7
61 - 65	2	3		1	1		7
66 - 70	2				2	1	5
71 - 75		2			1	3	6
76 - 80		1		2	3	2	8
81 - 85	1			1	5		7
86 - 90		1			7	4	12
91 - 95				3	8	5	16
96 - 100	3	2			2	2	9
101 - 105	1	4		2	5		12
106 - 110	2			3	3	3	11
111 - 115	1			5	2	5	13
116 - 120	3	1		2	2	1	9
121 - 125	2	1		6	6	4	19
126 - 130	1	1		3	3	2	10
131 - 135				3	6	2	11
136 - 140		1		1	1	3	6
141 - 145	1				1		2
146 - 150	1						1
151 - 155				2			2
156 - 160							
Total measured	26	21	0	36	64	37	184
Total taken	26	21	0	36	64	37	184

Table 11-36
Length-Frequency Distributions of Bluegill Collected in
Shellpot Creek

Length (mmTL)	October 2004	May 2005	August 2005	October 2005	May 2006	August 2006	Total
26 - 30							
31 - 35		1	1				2
36 - 40	1	1					2
41 - 45	2			1			3
46 - 50		1	1	3			5
51 - 55	1						1
56 - 60	1	1					2
61 - 65	1					1	2
66 - 70		1	1	1			3
71 - 75						2	2
76 - 80					1		1
81 - 85					1	2	3
86 - 90							
91 - 95						1	1
96 - 100	1				1		2
101 - 105					1		1
106 - 110							
111 - 115						1	1
116 - 120				2	1		3
121 - 125							
126 - 130							
131 - 135							
136 - 140						1	1
141 - 145	1						1
146 - 150	1						1
151 - 155							
156 - 160	1						1
161 - 165	1						1
166 - 170							
Total measured	11	5	3	7	5	8	39
Total taken	11	5	3	7	5	8	39

Table 11-37
Bioassessment Metrics for Fish Collected by Electrofishing
at the Phase II RI Locations, October 2004 through August 2006

	AMTRAK Ditches	Conectiv Impoundment	City Ditch	Shellpot Creek
No. of species	18	11	16	26
No. of intolerant species	1	0	0	1
No. of tolerant species	7	4	5	10
Proportion of individuals as omnivores	0.024	0.061	0.009	0.185
Proportion of individuals as insectivores	0.944	0.447	0.669	0.521
Catch per unit effort (no./min)	14.958	1.916	3.968	4.274
Proportion of individuals with disease/abnormalities	0.025	0.053	0.161	0.118
Shannon-Weaver diversity (H')	1.757	2.599	2.524	3.434
H' max	4.170	3.459	4.000	4.700
Evenness (J')	0.421	0.751	0.631	0.731

Table 11-38
Bioassessment Metrics for Fish Collected by Trap Net
Sampler at the Phase II RI Locations, October 2004 through August 2006

	AMTRAK Ditches	Conectiv Impoundment	Shellpot Creek
No. of species	8	8	12
No. of intolerant species	0	0	0
No. of tolerant species	4	3	3
Proportion of individuals as omnivores	0.077	0.152	0.050
Proportion of individuals as insectivores	0.915	0.758	0.736
Catch per unit effort (no./hr)	1.583	0.246	0.476
Proportion of individuals with disease/abnormalities	0.026	0.015	0.050
Shannon-Weaver diversity (H')	2.113	2.034	3.091
H' max	3.000	3.000	3.584
Evenness (J')	0.704	0.678	0.862

Table 11-39
Diseases and Abnormalities Noted in Fish Collected at the Phase II RI Locations, October 2004 through August 2006

AMTRAK Ditches	October-04		May-05		August-05		October-05		May-06		August-06		Total	
	EF	TN	EF	TN	EF	TN	EF	TN	EF	TN	EF	TN	EF	TN
Golden shiner	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Banded killifish	1	0	0	0	2	0	0	0	1	0	0	0	13	0
	0	0	0	0	3	0	0	0	0	0	0	0	3	0
	0	0	2	0	0	0	0	0	0	0	0	0	2	0
	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Mummichog	1	0	5	0	14	0	0	0	0	0	0	0	34	0
	0	0	0	0	1	0	0	0	0	0	0	0	1	0
	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Pumpkinseed	2	0	0	0	1	0	0	0	0	0	0	0	3	0
	0	0	9	0	1	0	0	0	23	10	0	0	33	10
	3	0	1	0	0	0	0	0	0	0	0	0	4	0
Blugill	0	0	3	0	0	0	0	4	1	0	0	0	8	0
	0	0	2	0	0	0	0	0	0	0	0	0	2	0
	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Large-mouth bass	0	0	0	0	1	0	0	0	0	0	0	0	1	0
														10
Total														
Connectiv Impediment														
Redfin pickerel	8	1	0	0	0	0	0	0	0	0	0	0	0	8
Eastern mudminnow	0	0	1	0	4	0	0	0	0	0	0	0	5	0
														8
Total														
City Ditch														
Spottail shiner	0	n/a	1	n/a	0	n/a	0	n/a	0	n/a	0	n/a	1	n/a
Banded killifish	0	n/a	0	n/a	0	n/a	0	n/a	11	n/a	0	n/a	11	n/a
Mummichog	0	n/a	2	n/a	53	n/a	6	n/a	25	n/a	2	n/a	88	n/a
	1	n/a	0	n/a	1	n/a	0	n/a	0	n/a	0	n/a	2	n/a
	1	n/a	0	n/a	2	n/a	0	n/a	1	n/a	0	n/a	4	n/a
Pumpkinseed	1	n/a	0	n/a	0	n/a	0	n/a	0	n/a	0	n/a	1	n/a
	0	n/a	0	n/a	0	n/a	0	n/a	3	n/a	0	n/a	3	n/a
	0	n/a	0	n/a	0	n/a	1	n/a	0	n/a	0	n/a	1	n/a
														111
Total														
Shellpot Creek														
Redfin pickerel	2	0	0	0	0	0	0	0	0	0	0	0	2	0
Eastern mudminnow	10	0	0	0	0	0	0	0	0	0	0	0	10	0
Banded killifish	0	0	0	1	0	0	20	0	34	0	7	0	61	1
	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Mummichog	3	0	0	5	0	0	7	0	23	0	15	0	48	5
	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Pumpkinseed	0	0	1	0	0	0	0	0	0	0	0	0	1	0
	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Bluegill	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Black crappie	1	0	0	0	0	0	0	0	0	0	0	0	1	0
														6
Total														

EF=Electrofishing
TN=Trap net

Table 11-40
Common and Scientific Names of Turtles Collected at the Phase II
RI Locations, October 2004 through August 2006

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>
Snapping turtles Snapping turtle	Chelydridae <i>Chelydra serpentina</i>
Musk and mud turtles Stinkpot	Kinosternidae <i>Sternotherus odoratus</i>
Cooters and sliders Midland painted turtle Eastern painted turtle Red-bellied turtle	Chrysemys <i>Chrysemys picta marginata</i> <i>Chrysemys picta picta</i> <i>Chrysemys rubriventris</i>

Note: Nomenclature follows Conant (1975).

Table 11-41
Field Water Quality Data and Substrate Characteristics for Petite Ponar Samples Collected
in the Tidal Brandywine Creek, November 3 and 5, 2004

Station	Date	Time	Water Temp (°C)	Dissolved Oxygen (mg/l)	Specific Conductance (µmhos)	Water Depth (ft)	Tide Stage	Substrate Characteristics
BC-SED-1	11/3/2004	0910	13.2	9.4	110	6	Ebb 2	Silt with fine sand
BC-SED-2	11/3/2004	1020	13.7	10	111	4	Ebb 2	Silt, some fine sand, little organic matter
BCT-3-A	11/5/2004	1100	10.1	11.7	105	3.5	Ebb 2	Silt and fine sand, leaves on substrate
BCT-3-B	11/5/2004	1040	10.0	11.2	105	8	Ebb 2	Fine to medium sand, little coarse sand, trace silt
BCT-3-C	11/5/2004	1130	10.0	11.1	105	12	Ebb 2	Medium to coarse sand, little fine gravel, little fine sand
BCT-2-A	11/3/2004	1210	13.5	9.5	112	10	Flood 1	Fine to medium sand, little fine gravel, little silt, trace organic matter
BCT-2-B	11/3/2004	1130	13.4	9.2	113	12	Low slack	Medium to coarse sand, some fine gravel, little fine sand
BCT-2-C	11/3/2004	1240	13.7	9.4	113	12	Flood 1	Silt, some fine sand, little organic matter
BCT-1-A	11/5/2004	1300	10.1	11.6	102	5	Flood 1	Fine sand, some silt, trace medium sand
BCT-1-B	11/5/2004	1240	10.1	11.5	101	5	Low slack	Fine to medium sand, little coarse sand, trace fine gravel
BCT-1-C	11/5/2004	1220	10.2	11.9	101	3	Low slack	Medium to coarse sand, some fine gravel, little fine sand
BC-SED-3	11/3/2004	1340	13.7	10.1	110	4	Flood 1	Fine to medium sand, little coarse sand, trace silt
BC-SED-4	11/3/2004	1410	13.6	10.9	112	3	Flood 2	Fine sand, some medium sand, little coarse sand
BC-SED-5	11/3/2004	1440	13.4	10.8	111	3	Flood 2	Medium to fine sand, little coarse sand, trace fine gravel, trace organic matter
BC-SED-6	11/3/2004	1500	13.6	10.8	112	2	Flood 2	Fine sand, little medium sand

Table 11-42
 Macroinvertebrates Collected by Petite Ponar Grab Sampler in the Tidal Brandywine Creek, November 3 and 5, 2004

	BC-SED-1	BC-SED-2	BCT-3-A	BCT-3-B	BCT-3-C	BCT-2-A	BCT-2-B	BCT-2-C	BCT-1-A	BCT-1-B	BCT-1-C	BC-SED-3	BC-SED-4	BC-SED-5	BC-SED-6	Total	Percent
Annelida																	
Oligochaeta																	
Enchytraeidae																	
Lumbriculidae																	
Naididae	9	21	12	1	6	43	14	157	101	7	67	1	129	4	210	811	60.75
Tubificidae		2		51		1		2	1	5			3		1	36	2.70
Crustacea																	
Amphipoda																	
Gammaridae																	
Gammarus		1	2	1		3				1	2					10	0.75
Insecta																	
Ephemeroptera																	
Polamanthidae																	
Plecoptera																	
Perilidae																	
Lepidoptera																	
Pyralidae																	
Coleoptera																	
Elmidae																	
Psephenidae																	
Diptera																	
Chironomidae																	
Trichoptera																	
Hydropsychidae																	
Mollusca																	
Bivalvia																	
Corbiculidae																	
Corbicula																	
Dreissenidae																	
Dreissena bugensis																	
Mytilidae																	
Geukensia demissa																	
Gastropoda																	
Bithyniidae																	
Total specimens	23	65	31	60	25	92	21	173	135	33	142	17	179	86	253	1335	
Total taxa	4	5	6	5	3	6	3	5	4	7	6	5	5	5	6	17	

TABLE 13-1
Preliminary Screening of Remedial Action Alternatives
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Media	Remedial Action Alternative	Screening Status	Comments
Site Sediments and Bank Soils Greater than 50 mg/kg PCBs			
	Maintain Existing Sediment Controls	Rejected	Does not result in additional PCB loading reductions
	Alternative 1. Stabilization and Capping of Sediments, Capping Soils, and Construction of New Drainage Ditches	Retained	
	Alternative 2. Removal and Off-Site Disposal with Reconstruction of Drainage Ditches	Retained	
	Alternative 3. In-Situ Capping of Sediments and Off-Site Disposal of Soils	Retained	
	Alternative 4. Construction of Sedimentation Basins within the Footprint of the Existing Ditches		
	Alternative 5. Re-routing Eastern Drainage Ditch, Stabilization of Sediments, Construction of Two Sediment Control Systems (Sedimentation Basins draining to Constructed Wetlands), and Capping of Bank Soils	Retained	
Site-Wide Soils			
	Maintain Existing Sediment Controls	Rejected	Does not result in additional PCB loading reductions
	Alternative 6. Storm Water and Sediment Controls Best Management Practices	Retained	
	Alternative 7. Cover/Cap Soils	Retained	
Roundhouse Area Soils			
	Maintain Existing Sediment Controls	Rejected	Does not result in additional PCB loading reductions
	Alternative 8. Cover/Cap Soils	Retained	
	Alternative 9. Excavation of Off-Site Disposal of All Soils with PCB Concentrations Greater than 50 mg/kg PCBs	Retained	
Light Nonaqueous Phase Hydrocarbons/Groundwater			
	Alternative 10. Continue Operation of Existing Diesel Fuel Recovery Program	Retained	
	Alternative 11. Installation of Perimeter Interceptor/Recovery Trenches and Continue Operation of the Current Diesel Fuel Recovery Program	Retained	

Notes:

CR = Carcinogenic risk

Rationale for retaining alternatives are described in the Section 13.1.4 of the Report

TABLE 13-2
Detailed Screening of Remedial Alternatives
Site Sediments and Bank Soils Greater than 50 mg/kg PCBs
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Alternative	Alternative 1. Stabilization and Covering of Sediments, Capping Soils, and Construction of New Drainage Ditches	Alternative 2. Removal and Off-Site Disposal with Reconstruction of Drainage Ditches	Alternative 3. In-Situ Capping of Sediments and Off-Site Disposal of Soils	Alternative 4. Construction of Sedimentation Basins within the Footprint of the Existing Ditches	Alternative 5. Re-routing Eastern Drainage Ditch, Stabilization of Sediments, Sediment Control Systems, and Capping of Bank Soils
DESCRIPTION	Stabilizing site sediments in-place. Covering stabilized sediments with geotextile and earthen fill material. Capping bank soils. Re-route existing/constructing new site ditches.	Removal and site sediments and those bank soils with PCB concentrations greater than 50 mg/kg. Re-constructing site ditches at the current locations.	In-place capping of sediments using Aquablok technology. Removal and ditch bank soils with PCB concentrations greater than 50 mg/kg.	Sedimentation basins would be installed within existing drainage features to reduce suspended solids in storm water being conveyed off-site.	The existing Eastern Drainage Ditch would be re-routed to a new channel constructed to the east. Sediments in the other site drainage features would be stabilized and capped. Two sediment control systems, each consisting of a sedimentation basin draining to constructed wetlands would be installed (in the lower portion of the Eastern Drainage Ditch and the confluence area). Bank soils with PCB concentrations greater than 50 mg/kg would be capped.
EVALUATION CRITERIA					
Protection of Public Health, Welfare and Environment	Eliminates direct contact (pathway elimination) with sediments and the potential for future re-suspension and transport. Would eliminate the existing aquatic ecosystems in site ditches.	Eliminates direct contact (pathway elimination) with sediments and the potential for future re-suspension and transport. Would eliminate the existing aquatic ecosystems in site ditches.	Eliminates direct contact (pathway elimination) with sediments and the potential for future re-suspension and transport. Would eliminate the existing aquatic ecosystems in site ditches.	Reduces suspended solids (and associated PCB transport) in surface water conveyed from the site. Would only locally disrupt the existing aquatic ecosystems in site ditches.	Eliminates direct contact (pathway elimination) with sediments and the potential for future re-suspension and transport from sediments to be stabilized and capped. Storm water to the Eastern Drainage Ditch would be re-routed and groundwater discharge to the existing sedimentation basins. Would only locally disrupt existing aquatic ecosystems in the Eastern Drainage Ditch.
Compliance with Applicable Laws and Regulations	Meets remedial objectives of reducing PCB loading and pathway elimination for sediments. Some wetland areas would be disturbed.	Would be implemented in accordance with TSCA regulations. Some wetland areas would be disturbed.	Meets remedial objectives of reducing PCB loading and pathway elimination for sediments. Some wetland areas would be disturbed.	Meets remedial objectives of reducing PCB loading and pathway elimination for sediments. Consistent with the approach described in the Draft PCB TMDL Development for the Schuylkill River, PA.	Meets remedial objectives of reducing PCB loading and pathway elimination for sediments. Consistent with the approach described in the Draft PCB TMDL Development for the Schuylkill River, PA.
Community Acceptance	Would reduce PCB loadings from the site and implementation would have minimal effect on the community. The site is zoned industrial. Should be acceptable to the community.	Would reduce PCB loadings from the site and implementation would have minimal effect on the community. The site is zoned industrial. Steps could be taken to reduce traffic impact on the local community. Should be acceptable to the community.	Would reduce PCB loadings from the site and implementation would have minimal effect on the community, other than some increased truck traffic associated with the off-site disposal of bank soils. The site is zoned industrial. Should be acceptable to the community.	Would reduce PCB loadings from the site. Truck traffic to and from the site would be increased during implementation and maintenance of this remedy. The site is zoned industrial. Steps could be taken to reduce traffic impact on the local community. Should be acceptable to the community.	Would reduce PCB loadings from the site. Truck traffic to and from the site would be increased during implementation and maintenance of this remedy. The site is zoned industrial. Steps could be taken to reduce traffic impact on the local community. Should be acceptable to the community.

TABLE 13-2
Detailed Screening of Remedial Alternatives
Site Sediments and Bank Soils Greater than 50 mg/kg PCBs
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Alternative	Alternative 1. Stabilization and Covering of Sediments, Capping Soils, and Construction of New Drainage Ditches	Alternative 2. Removal and Off-Site Disposal with Reconstruction of Drainage Ditches	Alternative 3. In-Situ Capping of Sediments and Off-Site Disposal of Soils	Alternative 4. Construction of Sedimentation Basins within the Footprint of the Existing Ditches	Alternative 5. Re-routing Eastern Drainage Ditch, Stabilization of Sediments, Sediment Control Systems, and Capping of Bank Soils
Compliance Monitoring Requirements	Monitoring of surface water leaving the site would continue to be performed to verify that the PCB loading reductions result from the implementation of this remedy. Surface waters leaving the site are currently monitored in accordance with the PMP and the NPDES permit for the site. Routine inspections would be performed to verify the integrity of the encapsulation system and that pathway elimination is maintained.	Monitoring of surface water leaving the site would continue to be performed to verify that the PCB loading reductions result from the implementation of this remedy. Surface waters leaving the site are currently monitored in accordance with the PMP and the NPDES permit for the site.	Monitoring of surface water leaving the site would continue to be performed to verify that the PCB loading reductions result from the implementation of this remedy. Surface waters leaving the site are currently monitored in accordance with the PMP and the NPDES permit for the site. Routine inspections would be performed to verify the integrity of the capping system and that pathway elimination is maintained.	A monitoring plan would be developed to verify that the settlement basins are functioning effectively. Monitoring of surface water leaving the site would continue to be performed to verify that the PCB loading reductions result from the implementation of this remedy. Routine inspections would be performed to determine when sediments accumulating in the sedimentation basins would need to be removed.	A monitoring plan would be developed to verify that the settlement basins are functioning effectively. Monitoring of surface water leaving the site would continue to be performed to verify that the PCB loading reductions result from the implementation of this remedy. Routine inspections would be performed to determine when sediments accumulating in the sedimentation basins would need to be removed and to evaluate to stabilized/capped sediment areas.
Permanence	Routine inspections would be performed and corrective measures taken (if needed) to insure the integrity of the encapsulation systems and the permanence of this remedy.	Removal and off-site disposal provides a permanent solution to bank soils with PCB concentrations greater than 50 mg/kg and site sediments. Potential future PCB contributions from other media (soils and LNAPL) would be addressed using selected alternatives for those media.	Routine inspections would be performed and corrective measures taken (if needed) to insure the integrity of the Aquablok capping system and the permanence of this remedy.	The amount of reduction in PCB loading from the site would be dependent of the effectiveness of the basins in removing suspended solids over a range of storm events. Routine inspections would be performed to maintain effectiveness of the basins and remove accumulated sediments.	Routine inspections would be performed and corrective measures taken (if needed) to insure the integrity of the encapsulation systems and maintain effectiveness of the basins and to remove accumulated sediments in order to insure the permanence of this remedy.
Technical Practicability	This remedy is technically practicable to construct and maintain. Engineering controls would be needed to reduce concerns with dust during the handling and mixing of the stabilizing agent.	This remedy is technically practicable to construct and maintain. Engineering controls would be needed to reduce potential impacts associated with the excavation and handling of excavated soil and sediment.	This remedy is technically practicable to construct and maintain. Field-scale testing may be required before full scale implementation.	This remedy is technically practicable to construct and maintain. Sedimentation basins are commonly used technology to reduce suspended solids in storm water.	This remedy is technically practicable to construct and maintain. Sediment stabilization/capping and sedimentation basins are commonly used technologies to reduce suspended solids in storm water.
Restoration Timeframe	This alternative could be implemented within a 12 to 24 month period.	This alternative could be implemented within a 12 to 24 month period.	This alternative could be implemented within a 12 to 24 month period.	This alternative could be implemented within a 12 to 24 month period. However, periodic removal of accumulating sediment would be required.	This alternative could be implemented within a 12 to 24 month period. However, periodic removal of accumulating sediment would be required.
Reduction of Toxicity, Mobility and Volume of Contamination	The mobility of PCBs in the sediment would be eliminated since this an encapsulation remedy.	The on-site volume of PCBs will be significantly reduced although excavated soils and sediments would be managed in an off-site landfill. The mobility of PCBs in the excavated materials will be eliminated.	The on-site volume of PCBs will be reduced although excavated bank soils will be managed in an off-site landfill. The mobility of PCBs in site sediments would be eliminated.	The mobility of PCBs in bank soils greater than 50 mg/kg would be eliminated by capping and the mobility in sediments would be reduced. Sediment direct contact with ecological receptors would not be eliminated.	The mobility of PCBs in bank soils greater than 50 mg/kg would be eliminated by capping and the mobility in sediments would be reduced. Sediment direct contact with ecological receptors would be eliminated in the stabilized/capped ditches.

TABLE 13-2
Detailed Screening of Remedial Alternatives
Site Sediments and Bank Soils Greater than 50 mg/kg PCBs
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Alternative	Alternative 1. Stabilization and Covering of Sediments, Capping Soils, and Construction of New Drainage Ditches	Alternative 2. Removal and Off-Site Disposal with Reconstruction of Drainage Ditches	Alternative 3. In-Situ Capping of Sediments and Off-Site Disposal of Soils	Alternative 4. Construction of Sedimentation Basins within the Footprint of the Existing Ditches	Alternative 5. Re-routing Eastern Drainage Ditch, Stabilization of Sediments, Sediment Control Systems, and Capping of Bank Soils
Long-term Effectiveness	By eliminating sediment contact with surface water and aquatic ecosystems, this remedy would be effective in the long-term.	Since this alternative removes bank soils with a PCB concentration greater than 50 mg/kg and sediments from the site, it would be effective long-term.	By eliminating sediment contact with surface water and aquatic ecosystems, this remedy would be effective in the long-term.	The amount of reduction in PCB loading from the site would be dependent of the effectiveness of the basins in removing suspended solids over a range of storm events. Routine inspections would be performed to maintain effectiveness of the basins and remove accumulated sediments. Sediment direct contact with ecologic receptors would not be eliminated.	The amount of reduction in PCB loading from the site would be dependent of the effectiveness of the basins in removing suspended solids over a range of storm events. Routine inspections would be performed to maintain effectiveness of the basins and remove accumulated sediments.
Short-term Effectiveness	By re-routing the Eastern Drainage Ditch and diverting/treating surface water during implementation, this alternative would be effective during implementation and can be completed in 12 to 24 months.	Since this remedy requires the removal and handling of bank soil and sediments, there a potential of increased mobility of PCBs during implementation of this alternative. Large volumes of materials would also be transported to a disposal facility further increasing potential mobility. This remedy is not considered effective in the short term.	This alternative involves soil excavation, possibly increasing potential PCB mobility during implementation. Engineering controls would be implemented to reduce this potential.	Sediments would be disturbed during installation. However, controls would be implemented to reduce sediment re-suspension during implementation.	By re-routing the Eastern Drainage Ditch and diverting/treating surface water during implementation, this alternative would be effective during implementation and can be completed in 12 to 24 months.
Cost	\$10,600,000	\$26,000,000	\$8,600,000	\$2,900,000	\$4,800,000

Table 13-3
Alternative 1 - Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Water Diversion and Treatment	25	weeks	\$25,000	\$625,000
New East/West Ditch Excavation	19,911	cy	\$15	\$298,665
Cement Kiln Dust Reagent and mixing	62,230	ton	\$70	\$4,356,100
Ditch Cover and Regrading	32,000	cy	\$23	\$736,000
Geotextile Fabric Placement	53,700	sy	\$1.32	\$70,884
Ditch Revetment	13,500	cy	\$31	\$418,500
Perimeter Swales	2,800	lf	\$6.50	\$18,200
Non-hazardous Soil Disposal	0	tons	\$36	\$0
TSCA Soil Disposal	0	tons	\$140	\$0
<i>Subtotal</i>				\$6,523,349
Mob/Demob & Construction Mgt. (25%)	0.25			\$1,630,837
Health & Safety (5%)	0.05			\$326,167
<i>Subtotal</i>				\$8,480,354
Contingency (30%)	0.30			\$1,957,005
Total Capital Cost				\$10,437,358
Operations and Maintenance NPV (1)				\$130,000
TOTAL				\$10,567,358

Notes:

For Cement Kiln Dust: assumes \$50 ton delivered to site (IT, 2001), plus \$10 ton to apply,
plus \$10 for engineering controls to store and apply the material

Assumes that the cement kiln dust application rate is 70% of the volume of sediment to be stabilized

NPV = Net Present Value assuming a 8% net discount rate

(1) Operation and Maintenance costs allow for \$5,000/year for inspections over a 30 year period

Table 13-4
Alternative 2 - Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Water Diversion and Treatment	25	weeks	\$25,000	\$625,000
Soil and Sediment Excavation	74,200	cy	\$15	\$1,113,000
Ditch Regrading	64,000	cy	\$23	\$1,472,000
Ditch Revetment	13,500	cy	\$31	\$418,500
Perimeter Swales	2,800	lf	\$6.50	\$18,200
Non-hazardous Soil Disposal	17,800	tons	\$36	\$640,800
TSCA Soil Disposal	85,200	tons	\$140	\$11,928,000
<i>Subtotal</i>				<i>\$16,215,500</i>
Mob/Demob & Construction Mgt. (25%)	0.25			\$4,053,875
Health & Safety (5%)	0.05			\$810,775
<i>Subtotal</i>				<i>\$21,080,150</i>
Contingency (30%)	0.30			\$4,864,650
Total				\$25,944,800

Assumes 1 cy of soil/sediment = 1.4 tons

Assumes no operation and maintenance costs are necessary

Table 13-5
Alternative 3 - Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Water Diversion and Treatment	25	weeks	\$25,000	\$625,000
Soil and Sediment Excavation	11,200	cy	\$15	\$168,000
Ditch Cover and Regrading	12,000	cy	\$23	\$276,000
Sand Placement	18,000	cy	\$31	\$558,000
AquaBlok Placement	5,000	tons	\$330	\$1,650,000
Perimeter Drainage Swales	2,800	lf	\$6.50	\$18,200
Non-hazardous Soil Disposal	0	tons	\$36	\$0
TSCA Soil Disposal	14,200	tons	\$140	\$1,988,000
<i>Subtotal</i>				<i>\$5,283,200</i>
Mob/Demob & Construction Mgt. (25%)	0.25			\$1,320,800
Health & Safety (5%)	0.05			\$264,160
<i>Subtotal</i>				<i>\$6,868,160</i>
Contingency (30%)	0.30			\$1,584,960
Total Capital Cost				\$8,453,120
Operations and Maintenance NPV (1)				\$130,000
TOTAL				\$8,583,120

Assumes 1 cy of soil/sediment = 1.4 tons

NPV = Net Present Value assuming a 8% net discount rate

(1) Operation and Maintenance costs allow for \$5,000/year for inspections over a 30 year period

Table 13-6
Alternative 4 - Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Water Diversion and Treatment	10	weeks	\$25,000	\$250,000
Sediment Basin Excavation	10000	cy	\$15	\$150,000
Sediment Basin Lining	5,100	cy	\$23	\$117,300
Geo-textile Fabric (basins)	3,600	sy	\$1	\$4,752
Geo-textile Fabric (bank soils)	3,500	sy	\$1	\$4,620
Bank Soil Cover and Regrading	1,200	cy	\$23	\$27,600
Basin Revetment	600	cy	\$31	\$18,600
Overflow Structures	4	ea	\$50,000	\$200,000
Perimeter Drainage Swales	2,800	lf	\$6.50	\$18,200
Non-hazardous Soil Disposal	900	tons	\$36	\$32,400
TSCA Impacted Soil Disposal	4,700	tons	\$140	\$658,000
<i>Subtotal</i>				<i>\$1,481,472</i>
Mob/Demob & Construction Mgt. (25%)	0.25			\$370,368
Health & Safety (5%)	0.05			\$74,074
<i>Subtotal</i>				<i>\$1,925,914</i>
Contingency (30%)	0.30			\$444,442
Total				\$2,370,355
Operations and Maintenance NPV (1)				\$530,000
TOTAL				\$2,900,355

Assumes 1 cy of soil/sediment = 1.4 tons

NPV = Net Present Value assuming a 8% net discount rate

- (1) Operation and Maintenance costs allow for \$15,000/year for inspections and sorbent boom maintenance plus removal and off-site disposal of up to 40 tons of sediment from the sedimentation basins every 5 years over a 30 year period

Table 13-7
 Alternative 5 - Cost Estimate Summary
 Amtrak Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Water Diversion and Treatment	10	weeks	\$25,000	\$250,000
Construct New Eastern Drainage Ditch Channel				
Excavate Soils	19911	cy	\$15	\$298,665
Construct Ditch Berms Using Excavated Soils	1660	cy	\$10	\$16,600
Ditch Revetment	1800	cy	\$31	\$55,800
Geotextile Fabric Placement	6400	sy	\$1.32	\$8,448
Allowance to Divert Storm Water to New Channel	1	allow	\$100,000	\$100,000
Stabilize Sediments in Drainage Ditch North of Eastern Drainage Ditch, Western Drainage Ditch and Confluence Area				
Cement Kiln Dust Reagent and Mixing	13500	ton	\$70	\$945,000
Ditch Cover and Regrading	1600	cy	\$23	\$36,800
Ditch Revetment	1800	cy	\$31	\$55,800
Geotextile Fabric Placement	6800	sy	\$1.32	\$8,976
Installation of Sediment Control Systems (Sedimentation Basins Draining to Constructed Wetlands)				
Sediment Basin Excavation	2200	cy	\$15	\$33,000
Sediment Basin Lining	2,200	cy	\$23	\$50,600
Geo-textile Fabric (basins)	1,800	sy	\$1.32	\$2,376
Basin Revetment	400	cy	\$31	\$12,400
TSCA PCB Soil/Sediment Disposal	3,100	tons	\$140	\$434,000
Overflow Structures	2	ea	\$50,000	\$100,000
Allowance for Constructed Wetlands	2	allow/ea	\$100,000	\$200,000
Cap/Cover Bank Soil Areas with PCB Concentrations Greater Than 50 mg/kg				
Geo-textile Fabric (bank soils)	3,500	sy	\$1.32	\$4,620
Bank Soil Cover and Regrading	1,200	cy	\$23	\$27,600
Seed	3,500	sy	\$2.70	\$9,450
Perimeter Drainage Swale				
Perimeter Drainage Swales	2,800	lf	\$6.50	\$18,200
<i>Subtotal</i>				\$2,668,335
Mob/Demob & Construction Mgt. (25%)	0.25			\$667,084
Health & Safety (5%)	0.05			\$133,417
<i>Subtotal</i>				\$3,468,836
Contingency (30%)	0.30			\$800,501
Total Capital Cost				\$4,269,336
Operation and Maintenance NPV (1)				\$500,000
TOTAL				\$4,769,336

Assumes 1 cy of soil/sediment = 1.4 tons

For Cement Kiln Dust: assumes \$50 ton delivered to site (IT, 2001), plus \$10 ton to apply, plus \$10 for engineering controls to store and apply the material

Assumes that the cement kiln dust application rate is 70% of the volume of sediment to be stabilized

NPV = Net Present Value assuming a 8% net discount rate

(1) Operation and Maintenance costs allow for \$15,000/year for inspections and sorbent boom maintenance plus removal and off-site disposal of up to 20 tons of sediment from the sedimentation basins every 5 years over a 30 year period

TABLE 13-8
Detailed Screening of Remedial Action Alternatives
Site-Wide Soils
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Screening Criteria	Alternative 6. Storm Water and Erosion Control BMPs	Alternative 7. Cap/Cover Soils
Alternative	Installation of storm water and erosion control BMPs. These controls include bio-retention caps/strips, drainage swales, geotextile/stone cover, surface water (run-on) control berms, porous paving, and placing additional top soils and upgrading vegetative cover.	Installation of a one-foot thick geotextile and earthen cap, surface water (run-on) control berms, and placing additional top soils and upgrading vegetative cover.
EVALUATION CRITERIA		
Protection of Public Health, Welfare and Environment	The human health risk assessment indicates that site-wide soils do not pose an unacceptable risk. This remedy would provide and additional protection of human health and will reduce PCB loading to drainage features.	The human health risk assessment indicates that site-wide soils do not pose an unacceptable risk. This remedy would provide and additional protection of human health and will reduce PCB loading to drainage features.
Compliance with Applicable Laws and Regulations	Consistent with risk-based approach allowed under the VCP and measures already implemented at the site under the PMP.	Consistent with risk-based approach allowed under the VCP including pathway elimination.
Community Acceptance	Would reduce PCB loadings from the site and implementation would have minimal effect on the community. The site is zoned industrial. Should be acceptable to the community.	Would reduce PCB loadings from the site and implementation would have minimal effect on the community, although truck traffic will be increased to bring cap materials to the site. The site is zoned industrial. Should be acceptable to the community.
Compliance Monitoring Requirements	Would require regular inspections in order to verify controls are maintained.	Would require regular inspections in order to verify cap and controls are maintained.
Permanence	Routine inspections would be performed and corrective measures taken (if needed) to insure the integrity of the BMPs and the permanence of this remedy.	Routine inspections would be performed and corrective measures taken (if needed) to insure the integrity of the cap and controls and the permanence of this remedy.

TABLE 13-8
Detailed Screening of Remedial Action Alternatives
Site-Wide Soils
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Screening Criteria	Alternative 6. Storm Water and Erosion Control BMPs	Alternative 7. Cap/Cover Soils
Technical Practicability	This remedy is technically practicable to construct and maintain. Similar measures have already been implemented at the site.	This remedy is technically practicable to construct and maintain. Would cause some disruption to facility operations due to removal and partial replacement of rail track.
Restoration Timeframe	This alternative can be implemented within a 12 to 24 month period.	This alternative can be implemented within 12 to 24 month period.
Reduction of Toxicity, Mobility and Volume of Contamination	Mobility of PCBs would be greatly reduced by reducing suspended solids in site drainage features and covering soils.	Mobility of PCBs would be greatly reduced by isolating soils from storm water and reducing PCB loading to drainage features.
Long-term Effectiveness	By eliminating reducing PCBs in storm water run-off, this remedy would be effective in the long-term.	By eliminating reducing PCBs in storm water run-off, this remedy would be effective in the long-term.
Short-term Effectiveness	By eliminating reducing PCBs in storm water run-off upon installation, this remedy would be effective in the short-term.	By eliminating reducing PCBs in storm water run-off upon installation, this remedy would be effective in the short-term.
Cost	\$1,500,000	\$4,500,000

Notes:

Table 13-9
Alternative 6 - Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Bioretention Strips (Yellow Zone)				
Regrading	5,790	cy	\$7	\$40,532
Geotextile	17,371	sy	\$1.32	\$22,930
Topsoil	2,895	cy	\$20	\$57,903
Seed	17,371	sy	\$2.70	\$46,901
Erosion Control Fabric	17,371	sy	\$1.50	\$26,056
Stone Swales (Gray/White Stripe Zone)				
Geotextile	3,967	sy	\$1.32	\$5,237
Stone	661	cy	\$15	\$9,918
Run-on Control Berms (Tan Zone)				
Import Soil	621	cy	\$10	\$6,211
Placement	2,096	lf	\$12	\$25,156
Upgrade Veg Cover (Green Stripe Zone)				
Topsoil	3,085	cy	\$20	\$61,707
Geotextile	18,512	sy	\$1.32	\$24,436
Seed	18,512	sy	\$2.70	\$49,983
Additional Geotextile/Stone (90% of Blue Zone)				
Geotextile	43,843	sy	\$1.32	\$57,873
Stone	7,307	cy	\$15	\$109,609
Allowance for Porous Paving (10% of Blue Zone)				
Porous Paving	4,871	sy	\$13.00	\$63,329
Subtotal				\$607,782
Mob/Demob & Construction Mgt. (25%)				\$151,945
Health & Safety (5%)				\$30,389
Subtotal				\$790,117
Contingency @ 30%				\$237,035
Capital Cost Total				\$1,027,152
Operations and Maintenance NPV (1)				\$500,000
TOTAL				\$1,527,152

Notes:

Color patterns refer to Figure 13-8

NPV = Net Present Value assuming an 8% net discount rate

(1) Operation and Maintenance costs allow for \$20,000/year for inspections, vegetation maintenance, and upkeep of erosion and sedimentation controls over a 30 year period

Table 13-10
Alternative 7- Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Cover/Cap (Green Zone)				
Regrading	27,619	cy	\$7	\$193,332
Geotextile	82,857	sy	\$1.32	\$109,371
Cover Material	27,619	cy	\$10	\$276,189
Seed	82,857	sy	\$2.70	\$223,713
East Ditch Vegetation Upgrade (Green Striped Zone)				
Topsoil	14,949	cy	\$20	\$298,976
Seed	89,693	sy	\$2.70	\$242,171
Track Removal and Replacement				
Removal	14,404	lf	\$55	\$792,209
Replacement	6,384	lf	\$55	\$351,094
Run-on Control Berms (Tan Zone)				
Import Soil	621	cy	\$10	\$6,211
Placement	2,096	lf	\$12	\$25,156
Subtotal				\$2,518,422
Mob/Demob & Construction Mgt. (25%)				\$629,606
Health & Safety (5%)				\$125,921
Subtotal				\$3,273,949
Contingency @ 30%				\$982,185
Capital Cost Total				\$4,256,134
Operations and Maintenance NPV (1)				\$260,000
TOTAL				\$4,516,134

Notes:

Color patterns refer to Figure 13-9

NPV = Net Present Value assuming an 8% net discount rate

(1) Operation and Maintenance costs allow for \$10,000/year for inspections and vegetation maintenance over a 30 year period

TABLE 13-11
Detailed Screening of Remedial Alternatives
Former Roundhouse Area Soils
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Alternative	Alternative 8. Cap/Cover Soils	Alternative 9. Excavation and Off-Site Disposal of all Soils with PCB Concentrations greater than 50 mg/kg
DESCRIPTION	Placement of one-foot thick geotextile and soil cover over entire former roundhouse area. Vegetate the cap.	Excavate all soils with PCB concentrations greater than 50 mg/kg, backfill the excavation, and re-vegetate the entire area.
EVALUATION CRITERIA		
<i>Protection of Public Health, Welfare and Environment</i>	Addresses unacceptable risk to human health through pathway elimination (direct contact to soils). Eliminates PCB runoff from existing exposed soils.	Reduces risk to human health by removing soils with PCB concentrations greater than 50 mg/kg. Reduces PCBs in storm water run-off.
<i>Compliance with Applicable Laws and Regulations</i>	Consistent with risk-based approach allowed under the VCP including pathway elimination.	Would be performed in accordance with TSCA regulations relating to soil excavation and disposal.
<i>Community Acceptance</i>	Would reduce PCB loadings from the site and implementation would have minimal effect on the community, although truck traffic will be increased to bring cap materials to the site. The site is zoned industrial. Should be acceptable to the community.	Would reduce PCB loadings from the site and implementation would have minimal effect on the community, although truck traffic will be increased by off-site transportation of excavated soils and bringing fill materials to the site. The site is zoned industrial. Should be acceptable to the community.
<i>Compliance Monitoring Requirements</i>	Would require regular inspections in order to verify cap is maintained.	Regular inspections would be needed to verify vegetative cover is maintained since soils with PCB concentrations less than 50 mg/kg would remain.
<i>Permanence</i>	Routine inspections would be performed and corrective measures taken (if needed) to insure the integrity of the cap and controls and the permanence of this remedy.	Soils with highest PCB concentrations would be removed from the site, although regular inspections would be needed to verify vegetative cover is maintained.
<i>Technical Practicability</i>	This remedy is technically practicable to construct and maintain. The area is not currently used so there would be no disruption to facility operations.	This remedy is technically practicable to construct and maintain. The area is not currently used so there would be no disruption to facility operations.

TABLE 13-11
Detailed Screening of Remedial Alternatives
Former Roundhouse Area Soils
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Alternative	Alternative 8. Cap/Cover Soils	Alternative 9. Excavation and Off-Site Disposal of all Soils with PCB Concentrations greater than 50 mg/kg
Restoration Timeframe	This alternative can be implemented within 9 to 18 month period.	This alternative can be implemented within 9 to 18 month period.
Reduction of Toxicity, Mobility and Volume of Contamination	Mobility of PCBs would be greatly reduced by isolating storm water from soils. Reduces PCB loading to drainage features.	Soils with highest PCB concentrations would be removed from the site. However, relies of vegetative cover to reduce PCB loadings in storm water runoff from area with PCB concentrations less than 50 mg/kg.
Long-term Effectiveness	By eliminating reducing PCBs in storm water run-off, this remedy would be effective in the long-term.	Regular inspections would be needed to verify long-term effectiveness of vegetative cover.
Short-term Effectiveness	By eliminating reducing PCBs in storm water run-off upon installation, this remedy would be effective in the short-term.	By eliminating reducing PCBs in storm water run-off upon removal of excavated soils, this remedy would be effective in the short-term.
Cost	\$420,000	\$1,700,000

Notes:

Table 13-12
Alternative 8 - Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Cover/Cap				
Regrading	5,830	cy	\$7	\$40,809
Geotextile	17,489	sy	\$1.32	\$23,086
Cover Material	5,830	cy	\$10	\$58,298
Seed	17,489	sy	\$2.70	\$47,221
Subtotal				\$169,414
Mob/Demob & Construction Mgt. (25%)				\$42,354
Health & Safety (5%)				\$8,471
Subtotal				\$220,239
Contingency @ 30%				\$66,072
Capital Cost Total				\$286,310
Operations and Maintenance NPV (1)				\$130,000
TOTAL				\$416,310

Notes:

NPV = Net Present Value assuming an 8% net discount rate

(1) Operation and Maintenance costs allow for \$5,000/year for inspections and vegetation maintenance over a 30 year period

Table 13-13
Alternative 9 - Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
Soil Excavation	4,892	tons	\$6	\$29,354
On-Site Soil Transportation	4,892	tons	\$3	\$14,677
Backfill and Compaction				
Import Soil	4,892	tons	\$10	\$48,923
Placement	4,892	tons	\$12	\$58,708
Seed	17,489	sy	\$2.70	\$47,221
Disposal				
Off-Site Disposal (Over 50 mg/kg)	4,892	tons	\$70	\$342,461
Transportation	4,892	tons	\$70	\$342,461
Water Management	1	ls	\$50,000	\$50,000
Subtotal				\$933,806
Mob/Demob & Construction Mgt. (25%)				\$233,451
Health & Safety (5%)				\$46,690
Subtotal				\$1,213,947
Contingency @ 30%				\$364,184
Capital Cost Total				\$1,578,132
Operations and Maintenance NPV (1)				\$130,000
TOTAL				\$1,708,132

Assumes 1 cy of soil/sediment = 1.4 tons

NPV = Net Present Value assuming an 8% net discount rate

(1) Operation and Maintenance costs allow for \$5,000/year for inspections and vegetation maintenance over a 30 year period

TABLE 13-14
Detailed Screening of Remedial Alternatives
LNAPL of the Water Table Surface
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Alternative	Alternative 10. Continue Operation of the Current Diesel Fuel Recovery Program	Alternative 11. Installation of Perimeter Interceptor/Recovery Trenches and Continue Operation of the Current Diesel Fuel Recovery Program
DESCRIPTION	Continue operation of the existing diesel fuel recovery systems.	Install perimeter recovery trenches adjacent to the Eastern and Western Drainage Ditches and continue operation of the existing diesel fuel recovery systems.
EVALUATION CRITERIA		
Protection of Public Health, Welfare and Environment	Collection of LNAPL prior to reaching drainage ditches reduces loading to drainage ditches.	Collection and interception of all LNAPL prior to reaching drainage ditches reduces loading to drainage ditches.
Compliance with Applicable Laws and Regulations	Diesel fuel recovery system was proposed in the Diesel Fuel Remedial Work Plan which was approved by DNREC.	This alternative is an expansion of the current recovery system which was proposed in the Diesel Fuel Remedial Work Plan that was approved by DNREC.
Community Acceptance	The recovery system is already in-place.	Similar to the recovery system already in place which has not caused a disruption to the nearby community.
Compliance Monitoring Requirements	Requires routine operation and maintenance to ensure LNAPL is removed efficiently. Also, requires sampling of recovered LNAPL prior to off-site shipment, monitoring of apparent LNAPL thicknesses in wells, and groundwater monitoring after attainment of LNAPL remedial goals to verify natural attenuation of dissolved organics is occurring.	Requires routine operation and maintenance to ensure LNAPL is removed efficiently. Also, requires sampling of recovered LNAPL prior to off-site shipment, monitoring of apparent LNAPL thicknesses in wells, and groundwater monitoring after attainment of LNAPL remedial goals to verify natural attenuation of dissolved organics is occurring.
Permanence	Augmentation of recovery systems with LNAPL containment in drainage ditches (sorber boom maintenance) would need to continue to address potential LNAPL seeps.	Provides a permanent remedy for the recovery of LNAPL and protection of site drainage ditches from LNAPL seepage.
Technical Practicability	Recovery system is already in place.	Practical to implement and maintain as demonstrated by operation of the current recovery system.
Restoration Timeframe	Restoration timeframe is dependent on water table fluctuation and ability to manage water evacuated from the trenches (refer to text).	Restoration timeframe is dependent on water table fluctuation and ability to manage water evacuated from the trenches (refer to text).

TABLE 13-14
Detailed Screening of Remedial Alternatives
LNAPL of the Water Table Surface
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Alternative	Alternative 10. Continue Operation of the Current Diesel Fuel Recovery Program	Alternative 11. Installation of Perimeter Interceptor/Recovery Trenches and Continue Operation of the Current Diesel Fuel Recovery Program
Reduction of Toxicity, Mobility and Volume of Contamination	Approximately 15,200 gallons of LNAPL have been recovered through December 2006. Visual observations indicate LNAPL seepage (LNAPL mobility) has been greatly reduced since implementation of recovery operations.	Approximately 15,200 gallons of LNAPL have been recovered through December 2006. Visual observations indicate LNAPL seepage (LNAPL mobility) has been greatly reduced since implementation of recovery operations. Would eliminate LNAPL seepage to drainage ditches in the long-term.
Long-term Effectiveness	Would continue to recover LNAPL and reduce LNAPL seepage to site drainage features.	Would continue to recover LNAPL and eliminate LNAPL seepage to site drainage features in the long-term.
Short-term Effectiveness	This alternative has already been implemented, therefore it is effective in the short-term.	Components of this alternative has already been implemented, therefore it is effective in the short-term.
Cost	\$1,000,000	\$2,300,000

Notes:

Table 13-15
Alternative 11 - Cost Estimate Summary
Amtrak Former Fueling Facility
4001 Vandever Avenue
Wilmington, Delaware

Capital Cost Item	Quantity	Unit	Unit Price	Total
East Trench Installation	550	lf	\$225	\$123,750
Sump Installation (East Trench)	3	ea	\$15,000	\$45,000
West Trench Installation	880	lf	\$225	\$198,000
Sump Installation (West Trench)	6	ea	\$15,000	\$90,000
LNAPL and Water Recovery Systems	9	ea	\$10,000	\$90,000
Allowance for Liquids Management	1	ea	\$50,000	\$50,000
Allowance to Connect to Existing System Components	1	ea	\$30,000	\$30,000
Non-hazardous Soil Disposal	1,430	cy	\$50	\$71,500
<i>Subtotal</i>				<i>\$698,250</i>
Mob/Demob & Construction Mgt. (25%)	0.25			\$174,563
Health & Safety (5%)	0.05			\$34,913
<i>Subtotal</i>				<i>\$907,725</i>
Contingency (30%)	0.30			\$209,475
Capital Cost Total				\$1,117,200
Operations and Maintenance NPV (1)				\$1,200,000
TOTAL				\$2,317,200

Notes: Allowance for Liquids Management is during trench installation

NPV = Net Present Value assuming a 8% net discount rate

(1) Operation and Maintenance costs allow for \$120,000/year for years 1 through 5
and \$70,000/year for years 6 through 15

TABLE 13-16
 Summary of Evaluation Criteria
 Antrak Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, Delaware

Evaluation Criteria	Sediments: Bank Soils Greater Than 50 mg/kg PCBs				Site-wide Soils		Former Roundhouse Area Soils		Light Nonaqueous Phase Liquids (LNAPL)	
	Alternative #1	Alternative #2	Alternative #3	Alternative #4	Alternative #5	Alternative #6	Alternative #7	Alternative #8	Alternative #9	Alternative #10
Protection of Public Health Welfare and the Environment	1	1	1	2	2	1	1	1	1	1
Compliance with Applicable Laws and Regulations	2	1	1	2	1	1	1	1	1	1
Community Acceptance	2	2	2	2	1	1	1	2	1	1
Permanence	1	1	2	2	2	1	1	1	3	2
Technical Practicability	1	1	1	1	1	2	1	1	1	1
Restoration Timeframe	2	2	1	1	1	1	1	1	1	1
Reduction of Toxicity, Mobility, and Volume of Contamination	2	2	2	3	2	2	2	2	2	1
Long-Term Effectiveness	1	1	2	2	2	1	1	1	2	1
Short Term Effectiveness	1	3	3	2	2	1	1	2	1	1
Cost Ranking (Lowest =1, Highest =4)	3	4	2	1	1	3	1	2	1	2
Total Score	16	18	17	18	15	12	11	14	14	12

Notes on Evaluation Criteria

1. Fully Meets the Evaluation Criteria
2. Partially Meets the Evaluation Criteria
3. Fails the Evaluation Criteria

Notes on Cost Ranking

1. Each alternative rank based on cost with lowest =1

Total Score

1. Sum of evaluation criteria and cost ranking
2. The lower the score the more generally favorable the alternative

TABLE 13-17

Summary of Selected Remedial Action Alternatives
 Amtrak Former Fueling Facility
 4001 Vandever Avenue
 Wilmington, Delaware

Media	Remedial Action Alternative	Implementation Cost Estimate	Operation and Maintenance (NPV) (3)	Total for Alternative	Comments
	Site Sediments and Bank Soils Greater than 50 mg/kg PCBs				
	Alternative 5. Re-routing Eastern Drainage Ditch, Stabilization of Sediments, Construction of Sediment Control Systems (consisting of sedimentation basins draining to a constructed wetland), and Capping of Bank Soils	\$4,300,000	\$500,000	\$4,800,000	O&M costs assume \$15,000/year for inspections and maintenance of sorbent booms plus removal of 20 tons of sediment from the sedimentation basins every 5 years for off-site disposal - 30 year duration
	Site-Wide Soils				
	Alternative 6. Storm Water and Sediment Controls Best Management Practices	\$1,000,000	\$500,000	\$1,500,000	O&M costs assume \$20,000/year for inspections, maintenance of vegetated areas, and upkeep of erosion controls - 30 year duration
	Roundhouse Area Soils				
	Alternative 8. Cover/Cap Soils	\$290,000	\$130,000	\$420,000	O&M costs assume \$5,000/year for inspection and upkeep of vegetative cover - 30 year duration
	Light Nonaqueous Phase Hydrocarbons/Groundwater				
	Alternative 11. Installation of Perimeter Interceptor/Recovery Trenches and Continue Operation of the Current Diesel Fuel Recovery Program	\$1,100,000	\$1,200,000	\$2,300,000	O&M costs estimated to be on the order of \$120,000 per year for years 1 - 5 and \$70,000/year for years 6 - 15 (1)
	Closure of Abandoned Brick Sewer	\$100,000	NA	\$100,000	(2)
	TOTAL			\$9,120,000	

Notes:

- (1) O&M and monitoring duration depends on rate of product recovery and time required to attain remedial objectives
- (2) Assumes approximately 1,600 feet of brick sewer will be filled with flowable fill
- (3) NPV = Net Present Value assuming an 8% net discount rate
 it is assumed that the Brandywine Creek tide gate will be fixed by the appropriate government agency

APPENDIX A

**Graphical Presentation of Phase I Remedial Investigation Analytical Data
Figures after Phase II Remedial Investigation and Focused Feasibility Study Work Plan
Prepared by IT Corporation, December 2001**



MEASURED AND CORRECTED GROUNDWATER ELEVATIONS

WELL	DEPTH TO WATER FEET BELOW TOC	DEPTH TO PRODUCT FEET BELOW TOC	PRODUCT THICKNESS FEET	CORRECTED DEPTH TO WATER FEET BELOW TOC	TIC ELEVATION FEET ABOVE MSL	GROUNDWATER ELEVATION CORRECTED FEET ABOVE MSL
MW-1	4.24	---	---	4.24	5.20	2.06
MW-2	4.65	---	---	4.65	9.26	4.61
MW-3	10.35	---	---	10.35	14.59	4.24
MW-4	4.53	---	---	4.53	8.98	4.43
MW-5	8.06	3.54	4.52	4.19	9.48	5.35
MW-6A	5.00	5.71	0.29	5.75	10.07	4.77
MW-7	6.61	5.10	1.51	6.61	8.90	4.21
MW-8A	4.69	3.31	1.38	4.69	9.23	5.07
MW-9	7.66	3.53	4.13	3.88	8.22	4.48
MW-10A	5.12	2.53	2.59	2.74	7.97	1.68
MW-11	7.23	---	---	7.23	7.44	-0.19
MW-12	1.84	---	---	1.84	6.66	3.82
MW-13	5.21	5.20	0.01	5.20	8.41	3.21
MW-14	4.50	2.76	1.74	2.99	8.54	5.55
MW-15	7.48	3.44	4.04	3.97	9.67	5.70
MW-16	---	2.74	0.56	2.77	5.86	3.09
MW-17	3.00	---	---	---	---	---

MSL -- MEAN SEA LEVEL
 TOC -- TOP OF CASING
 --- NOT DETECTED

NOTE: VELS MW-1 THRU MW-12 WERE INSTALLED BY SMITH ENVIRONMENTAL. VELS MW-6A, MW-8A, MW-10A AND MW-13 THRU MW-17 INSTALLED BY IT CORPORATION
 SOURCE: MAPPING BASE DERIVED FROM AERIAL PHOTOGRAPHY (OCTOBER 24, 1998) AND FIELD SURVEYED 11/18-11/24 & 2/12/99 BY VANDEMARK & LYNCH, INC.

(4.48) GROUNDWATER ELEVATION

LEGEND
 ED-0 STAND PIPE LOCATION
 MW-17 MONITORING WELL LOCATION
 TP-1 TEST PIT STAND PIPE
 SUMP #1 SUMP LOCATION
 MW-15 GROUNDWATER ELEVATION CONTROL (DASHED WHERE BORDER INTERVAL .405 FT)

SCALE
 0 140
 FEET
 TITLE/SQUARE DATE

1220 WARD AVENUE
 WEST CHESTER, PA 19380
 (610) 241-5000

GROUNDWATER ELEVATIONS
 20 AUGUST 1998

CLIENT: FORMER FUELING FACILITY AIRPAK WILMINGTON SHOPS
 LOCATION: VANDEVER AVE. WILMINGTON, DELAWARE
 DESIGNED BY: DE
 DRAWING DATE: 1/12/99
 PROJECT NO: 013020177
 ACAD FILE: 01770005A
 CHECKED BY: DE



MEASURED AND CORRECTED GROUNDWATER ELEVATIONS

WELL	DEPTH TO WATER FEET BELOW TOC	DEPTH TO PRODUCT FEET BELOW TOC	PRODUCT THICKNESS FEET ¹	CORRECTED DEPTH TO WATER FEET BELOW TOC	TOC ELEVATION FEET ABOVE MSL	GROUNDWATER ELEVATION CORRECTED FEET ABOVE MSL
MW-1	4.31	---	---	4.31	5.20	1.99
MW-2	4.71	---	---	4.71	9.25	4.55
MW-3	10.40	---	---	10.40	14.59	4.19
MW-4	4.50	---	---	4.50	8.98	4.48
MW-5	5.14	3.85	1.29	4.02	9.48	5.46
MW-6A	5.02	5.75	0.73	5.88	9.13	3.31
MW-7	6.02	5.15	0.87	5.28	10.07	4.81
MW-8A	4.61	---	---	4.61	8.50	4.29
MW-9	4.78	3.40	1.38	3.98	9.23	5.67
MW-10A	4.21	3.59	0.62	3.67	8.22	4.55
MW-11	5.24	---	---	5.24	7.97	1.73
MW-12	7.20	---	---	7.20	7.24	-0.16
MW-13	1.22	---	---	1.22	6.66	5.44
MW-14	5.08	---	---	5.08	8.41	3.33
MW-15	3.27	2.94	0.43	3.00	8.54	5.54
MW-16	7.44	3.15	4.29	3.71	9.67	5.96
MW-17	2.87	2.78	0.09	2.79	5.86	3.07

MSL --- MEAN SEA LEVEL
 TOC --- TOP OF CASING
 SPECIFIC GRAVITY OF PRODUCT USED IN CALCULATIONS FOR CORRECTED GROUNDWATER ELEVATIONS = 0.87.
 --- NOT DETECTED

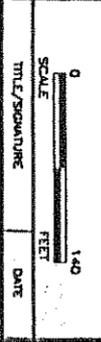
NO.	DATE	BY	REVISION



LEGEND
 ED-D STAND PIPE LOCATION
 MW-17 MONITORING WELL LOCATION
 TP-1 TEST PIT STAND PIPE
 SUMP #1 SUMP LOCATION
 -2.5 GROUNDWATER ELEVATION
 CONTOUR (DASHED WHERE
 CONTOUR INTERVAL = 0.5 FT

(4.48) GROUNDWATER ELEVATION

NOTE: WELLS MW-1 THRU MW-12 WERE INSTALLED BY SMITH ENVIRONMENTAL. WELLS MW-6A, MW-8A, MW-10A AND MW-13 THRU MW-17 INSTALLED BY IT CORPORATION
 SOURCE: MAPPING BASE DERIVED FROM AERIAL PHOTOGRAPHY (OCTOBER 24, 1998) AND FIELD SURVEYED 11/18-11/24 & 2/12/99 BY VANDERHARK & LYNCH, INC.

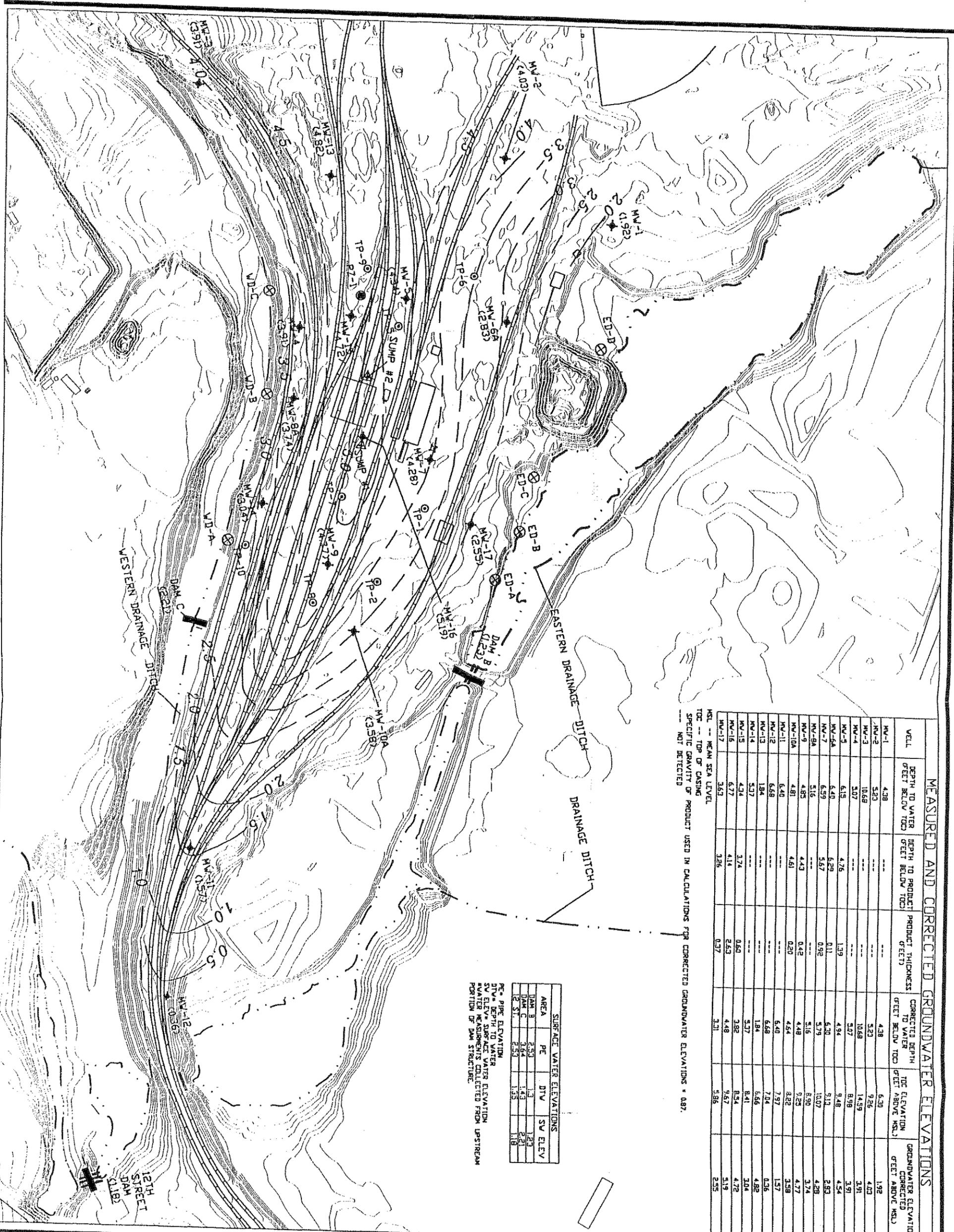


TITLE/SIGNATURE	DATE

IT CORPORATION
 1220 WARD AVENUE
 WEST CHESTER, PA 19380
 (610) 241-5000

GROUNDWATER ELEVATIONS
 18 SEPTEMBER 1998

CLIENT: FORMER FUELING FACILITY
 AIRTRAK WILMINGTON SHOPS
 LOCATION: VANDOVER AVE.
 WILMINGTON, DELAWARE
 DESIGNED BY: AV
 CHECKED BY: DE
 DRAWING DATE: 1/12/99
 PROJECT NO.: 01770007A
 NOTES: 013030177



MEASURED AND CORRECTED GROUNDWATER ELEVATIONS

WELL	DEPTH TO WATER FEET BELOW TOC	DEPTH TO PRODUCT FEET BELOW TOC	PRODUCT THICKNESS FEET	CORRECTED DEPTH TO WATER FEET BELOW TOC	TOC ELEVATION FEET ABOVE MSL	GROUNDWATER ELEVATION CORRECTED FEET ABOVE MSL
MW-1	4.38	---	---	4.38	5.30	1.92
MW-2	3.23	---	---	3.23	9.28	4.03
MW-3	10.68	---	---	10.68	14.59	3.91
MW-4	3.07	---	---	3.07	8.98	3.91
MW-5	6.15	4.76	1.39	4.94	9.48	4.54
MW-6A	6.40	5.29	0.11	6.30	9.12	2.82
MW-7	6.59	5.87	0.68	5.79	10.07	4.28
MW-8A	5.16	---	---	5.16	8.90	3.74
MW-9	4.85	4.43	0.42	4.43	8.23	4.77
MW-10A	4.81	4.61	0.20	4.64	8.22	3.58
MW-11	6.48	---	---	6.40	7.97	1.57
MW-12	1.84	---	---	1.84	7.94	0.36
MW-13	5.07	---	---	5.07	8.56	4.82
MW-14	5.37	---	---	5.37	8.41	3.04
MW-15	4.94	3.74	1.20	3.82	8.54	4.72
MW-16	6.77	4.14	2.63	4.48	9.57	5.19
MW-17	3.63	3.26	0.37	3.21	5.86	2.55

MSL -- MEAN SEA LEVEL
 TOC -- TOP OF CASING
 SPECIFIC GRAVITY OF PRODUCT USED IN CALCULATIONS FOR CORRECTED GROUNDWATER ELEVATIONS = 0.87.
 --- NOT DETECTED

SURFACE WATER ELEVATIONS

AREA	PE	DIV	SV ELEV
DAM B	2.53	1.3	1.23
DAM C	3.64	1.43	2.21
12 ST.	2.53	1.53	1.0

PE = PIPE ELEVATION
 DIV = DEPTH TO WATER
 SV ELEV = SURFACE WATER ELEVATION
 PORTION OF DAM STRUCTURE
 WATER MEASUREMENTS COLLECTED FROM UPSTREAM

NO.	DATE	BY	REVISION

LEGEND
 ED-3 STAND PIPE LOCATION
 MW-17 MONITORING WELL LOCATION
 TP-1 TEST PIT STAND PIPE
 SUMP #1 SUMP LOCATION
 2.5' GROUNDWATER ELEVATION CONTROL (DASHED WHERE CONFIDENCE INTERVAL = 0.5 FT)
 (4.48) GROUNDWATER ELEVATION
 (11.82) SURFACE WATER ELEVATION

NOTE: WELLS MW-1 THRU MW-12 WERE INSTALLED BY SMITH ENVIRONMENTAL. WELLS MW-6A, MW-8A, MW-10A AND MW-13 THRU MW-17 INSTALLED BY IT CORPORATION
 SOURCE: MAPPING BASE DERIVED FROM AERIAL PHOTOGRAPHY (OCTOBER 24, 1998) AND FIELD SURVEYED 11/18-11/24 & 2/12/99 BY VANDEMARK & LYNCH, INC.

SCALE 0 140 FEET
 TITLE/SIGNATURE DATE

1220 WARD AVENUE
 WEST CHESTER, PA. 19380
 (610) 241-5000

GROUNDWATER ELEVATIONS
 30 DECEMBER 1998

CLIENT: FORMER FUELING FACILITY
 AVIATRAX WILMINGTON SHOPS
 LOCATION: VANDOVER AVE
 WILMINGTON, DELAWARE
 DESIGNED BY: DETAILED BY: CHECKED BY:
 DRAWING DATE: 1/12/99
 PROJECT NO.: 01770006A
 NOTES: 013030177

FIGURE 2-4

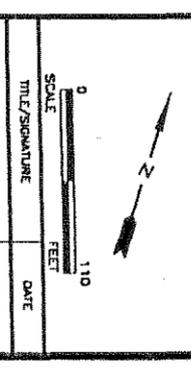


NO.	DATE	BY	REVISION

NOTE: TPH-DRO = TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE
 mg/kg = MILLIGRAMS PER KILOGRAM
 J = ESTIMATED VALUE
 TPH-DRO ANALYZED BY US EPA METHOD 8015B

- LEGEND**
- ED-0 STAND PIPE LOCATION
 - MW-17 MONITORING WELL LOCATION
 - TP-1 TEST PIT STAND PIPE
 - ⊕ SLUMP LOCATION
 - ⊙ PEDESTAL

MONITORING WELLS MW-1 THROUGH MW-12 INSTALLED BY SMITH ENVIRONMENTAL TECHNOLOGIES (1995)
 SOURCE: MAPPING VASE DERIVED FROM AERIAL PHOTOGRAPHY (OCTOBER 24, 1990) AND FIELD SURVEYED 11/18-11/24 & 2/12/98 BY WANDERBARK & LYNCH, INC.



TITLE/SIGNATURE	DATE

ITC CORPORATION
 1220 WARD AVENUE
 WEST CHESTER, PA 19380
 (610) 241-5000

TPH-DRO SOIL ANALYTICAL RESULTS
 JUNE 1998

CUSTOMER: FORMER FUELING FACILITY
 AMTRAK WILMINGTON SHOPS

LOCATION: WANDERER AVE
 WILMINGTON, DELAWARE

DESIGNED BY: DETAILED BY: CHECKED BY:

SM JWB

DRAWING DATE: 1/12/99
ACAD FILE: 0177-002

PROJECT NO.: 01303-0177

NOTES:

FIGURE

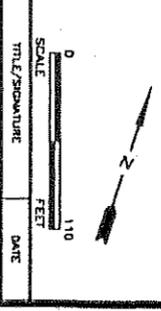


NO.	DATE	BY	REVISION

NOTE: TPH-DRO - TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE
 TPH-DRO ANALYZED BY US EPA METHOD 8015B
 mg/L = MILLIGRAMS PER LITER

- LEGEND**
- ⊖-0 STAND PIPE LOCATION
 - ⊖-17 MONITORING WELL LOCATION
 - ⊖-1 TEST PIT STAND PIPE
 - ⊖-17 NOT ANALYZED
 - (LPH) LIQUID PHASE HYDROCARBONS
 - ⊖-17 SAMPLE LOCATION
 - ⊖-17 FUELING AREA

MONITORING WELLS MW-1 THROUGH MW-17 INSTALLED BY SMITH ENVIRONMENTAL TECHNOLOGIES (1998)
 SOURCE: MAPPING BASE DERIVED FROM AERIAL PHOTOGRAPHY (OCTOBER 24, 1988) AND FIELD SURVEY, 11/18-11/23 & 2/12/99, BY WANDERLARK & LYNDON, INC.



TPH-DRO GROUND WATER ANALYTICAL RESULTS ON JULY 1, 1998

W&L
 WEST CHESTER
 (810) 241-5000

1720 SAND AVENUE
 WEST CHESTER, OHIO 45380

CLIENT: FORMER FUELING FACILITY
 AMTRAK WILMINGTON SHOPS

LOCATION: WANDERLARK AVE.
 WILMINGTON, DELAWARE

DESIGNED BY: DETAILD BY: JMB
DRAWING DATE: 1/12/99
PROJECT NO.: 01303-0177

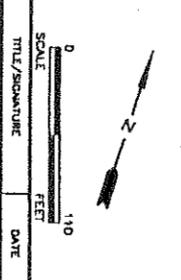
FIGURE 5-2



NO.	DATE	BY	REVISION

NOTE: MONITORING WELLS MW-1 THROUGH MW-17 INSTALLED BY TECHNOLOGIES (1993)
 ED AND WD STANPIPE SERIES INSTALLED ON 8-18-86

- LEGEND**
- ED-5 STAND PIPE LOCATION
 - MW-17 MONITORING WELL LOCATION
 - TP-1 TEST PIT STAND PIPE
 - (LAW) PRODUCT THICKNESS IN FEET
 - (NP) NO PRODUCT
 - SWP LOCATION
 - PIEDMETER



DATE	DESCRIPTION

TEC
 1220 80th AVENUE
 WEST CHESTER (610) 241-5000
 IT CORPORATION

APPARENT PRODUCT THICKNESS
 AUGUST 20, 1998

CLIENT:
 FORMER FUELING FACILITY
 AVIATRAX WILMINGTON SHOPS

LOCATION:
 VANDOVER AVE.
 WILMINGTON, DELAWARE

DRAWN BY: JMB
CHECKED BY: JMB

DRAWING DATE: 1/12/99
SCALE: AS SHOWN

PROJECT NO.: 01303-0177
NOTES:

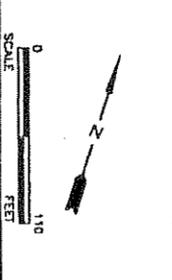
FIGURE 5-3



NO.	DATE	BY	REVISION

NOTE: MONITORING WELLS MW-1 THROUGH MW-17 WERE INSTALLED BY SUTHERLAND ENVIRONMENTAL TECHNOLOGIES (1995)

- LEGEND**
- ED-0 STAND PIPE LOCATION
 - MW-17 MONITORING WELL LOCATION
 - TP-1 TEST PIT STAND PIPE
 - (ND) PRODUCT THICKNESS IN FEET
 - (NP) NO PRODUCT
 - (NM) NOT MEASURED
 - SWAMP LOCATION
 - PEDESTAL



TITLE/SIGNATURE	DATE

ETI 1220 BARD AVENUE
WEST CHESTER, PA 19380
(610) 241-5800
TI CORPORATION

APPARENT PRODUCT THICKNESS
DECEMBER 30, 1998

CLIENT: FORMER FUELING FACILITY
AFTERSHOCK WILMINGTON STOPS

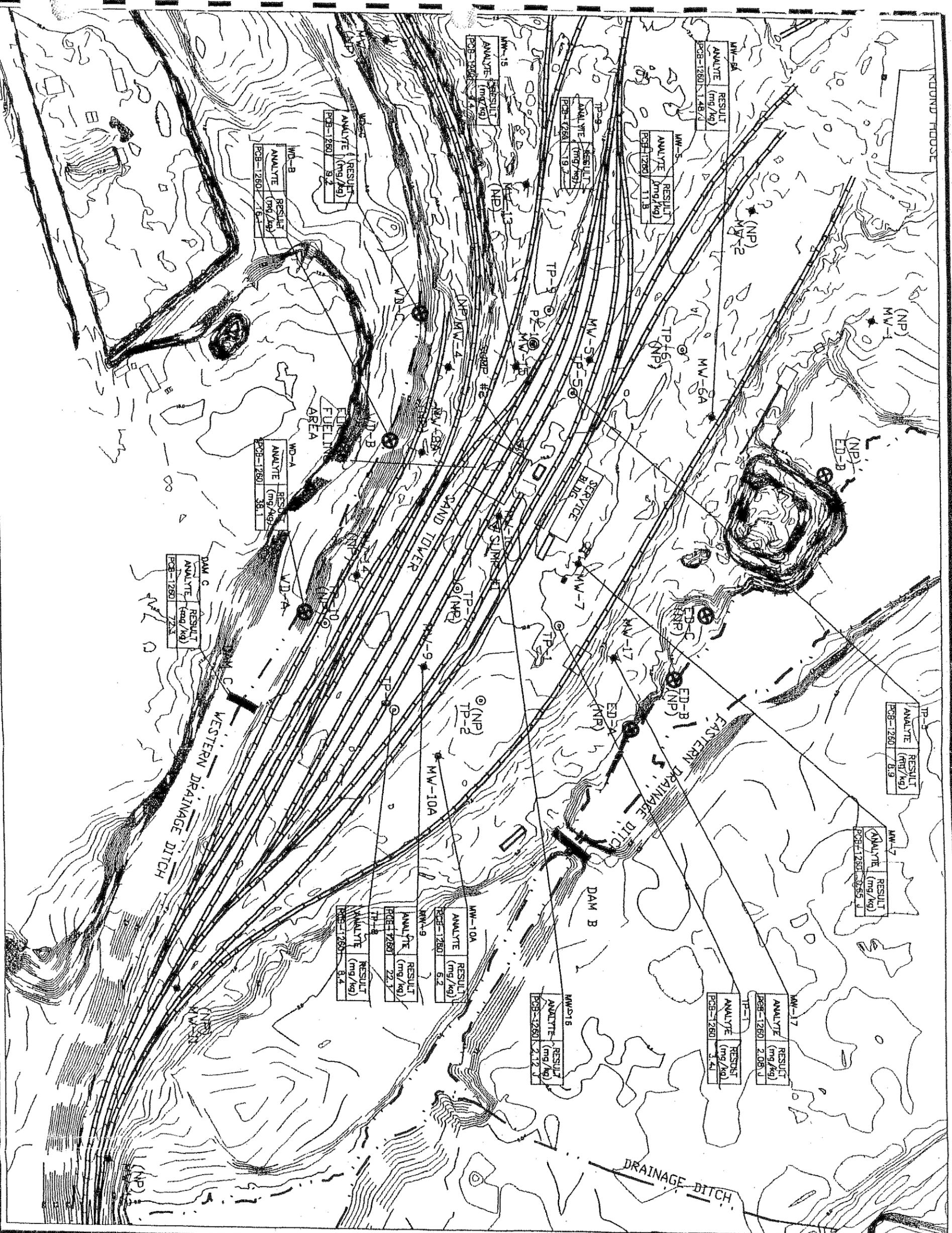
LOCATION: VANDERPF AVE
WILMINGTON, DELAWARE

DESIGNED BY: DETACHED BY: CHECKED BY:
SKM JMB

DRAWING DATE: 1/12/99 ACAD FILE: 0177-005

PROJECT NO.: 01303-0177 NOTES

FIGURE 5-4



<p>CLIENT: FORMER FUELING FACILITY AIRTRAK WILMINGTON SQUONS</p> <p>LOCATION: VANDEVER AVE WILMINGTON, DELAWARE</p> <p>DRAWING DATE: 1/12/89</p> <p>PROJECT NO.: 01303-0177</p>	<p>PRODUCT GRAB SAMPLES-PCB ANALYTICAL RESULTS</p> <p>ITC CORPORATION 1220 WARD AVENUE WEST CHESTER, PA 19380 (610) 241-5000</p>	<p>LEGEND</p> <ul style="list-style-type: none"> ED-0 STRAD FIRE LOCATION MW-17 MONITORING WELL LOCATION TP-1 TEST PIT STRADDLE (C-4) PCB-1260 CONCENTRATION IN MILLIGRAMS PER KILOGRAM (mg/kg) (NP) NO PRODUCT ▲ SUP LOCATION ● FERTILIZER LOCATION 	<p>NOTE - ESTIMATED VALUE</p> <p>ALL SAMPLES WERE COLLECTED ON 8/14/88 EXCEPT FOR DAM C ON 8/14/88, MW-8 ON 10/8/88 & MW-4 ON 10/8/88.</p> <p>ALL SAMPLES WERE ANALYZED FOR PCBs BY US EPA METHOD 8081. ALL OTHER ANALYTES BELOW DETECTABLE LEVELS.</p> <p>MONITOR WELLS MW-1 THROUGH MW-12 INSTALLED BY SMITH ENVIRONMENTAL TECHNOLOGIES (1983)</p>
---	--	--	---

FIGURE 5-5



SED-4

ANALYTE	RESULT
TPH-DRO	10,500

SED-3

ANALYTE	RESULT
TPH-DRO	19,000

SED-2

ANALYTE	RESULT
TPH-DRO	14,000

SED-1

ANALYTE	RESULT
TPH-DRO	4,900

SED-9 (DUPLICATE)

ANALYTE	RESULT
TPH-DRO	40,000

SED-5

ANALYTE	RESULT
TPH-DRO	40,000

NOTE: TPH-DRO = TOTAL PETROLEUM HYDROCARBONS-DIESEL RANGE ORGANICS
 SAMPLES ANALYZED BY US EPA METHOD 8015B
 mg/kg = MILLIGRAMS PER KILOGRAM

- LEGEND
- ED-0 STAKE POLE LOCATION
 - MW-17 MONITORING WELL LOCATION
 - TP-1 TEST PIT STAKEPOLE
 - SED-1 SEDIMENT SAMPLE LOCATION
 - ☒ SAMPLING LOCATION
 - ☒ MONITORING

0 140
 SCALE FEET
 TITLE/SIGNATURE DATE

ITC CORPORATION
 1220 WARD AVENUE
 WEST CHESTER, PA 19380
 (610) 241-5800

SEDIMENT TPH-DRO RESULTS
 AUGUST 11 & 12, 1998

CLIENT: FORMER FUELING FACILITY
 AMTRAK WILMINGTON SHOPS
 LOCATION: WILMINGTON, DELAWARE
 VANDER AVENUE
 DESIGNED BY: JMB
 CHECKED BY: JMB
 DRAWING DATE: 1/13/99
 KAD FILE: 0177-008
 PROJECT NO.: 01303-0177

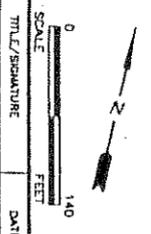
FIGURE 5-6



NO.	DATE	BY	REVISION

NOTE: J = ESTIMATED VALUE
 ALL SAMPLES ANALYZED FOR
 PCB'S 1015, 1221, 1232, 1242,
 1244, 1254, & 1260 BY US EPA
 METHOD 8081
 mg/kg = MILLIGRAMS PER KILOGRAM

- LEGEND**
- ED-0 STAIN PIPE LOCATION
 - MW-17 MONITORING WELL LOCATION
 - TP-1 TEST PIT STAIN PIPE
 - SEDIMENT SAMPLE LOCATION
 - ⊕ SUMP LOCATION
 - ⊙ PEZOMETER



IT CORPORATION
 1220 WARD AVENUE
 WEST CHESTER, PA 19380
 (610) 241-5000

SEDIMENT PCB RESULTS
 AUGUST 11 & 12, 1998

CLIENT: FORMER FUELING FACILITY
 AIRTRAK WILMINGTON SHORES

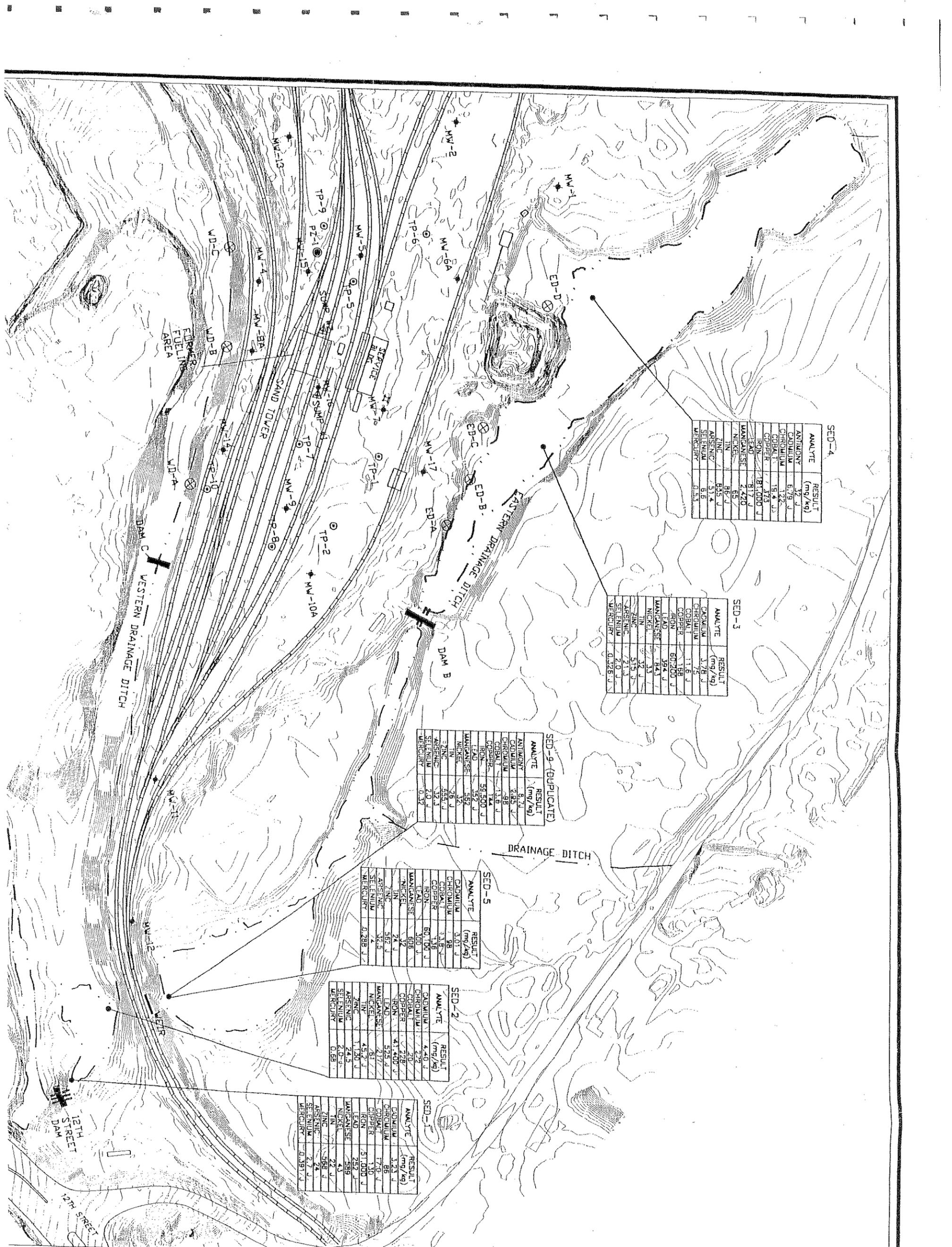
LOCATION: VANDERBILT AVE.
 WILMINGTON, DELAWARE

DESIGNED BY: JWB
 CHECKED BY: JWB

DRAWING DATE: 1/12/99
 PROJECT NO.: 01303-0177

ACAD FILE: 0177-007
 NOTES:

FIGURE S-7



SED-4

ANALYTE	RESULT (mg/kg)
ANTIMONY	37 J
CADMIUM	6.79 J
CHROMIUM	1.22 J
COBALT	19.4 J
COPPER	373 J
IRON	181,000 J
LEAD	81.7 J
MANGANESE	2,220 J
NICKEL	65 J
TIN	86.7 J
ZINC	835 J
ARSENIC	51.4 J
SELENIUM	9.6 J
MERCURY	0.53 J

SED-3

ANALYTE	RESULT (mg/kg)
CADMIUM	3.78 J
CHROMIUM	1.76 J
COBALT	1.98 J
COPPER	1,158 J
IRON	60,200 J
LEAD	99.4 J
MANGANESE	84.3 J
NICKEL	3.0 J
TIN	32.2 J
ZINC	575 J
ARSENIC	21.3 J
SELENIUM	2.0 J
MERCURY	0.328 J

SED-9 (DUPLICATE)

ANALYTE	RESULT (mg/kg)
ANTIMONY	8.31 J
CADMIUM	2.85 J
CHROMIUM	3.98 J
COBALT	13.8 J
COPPER	1,158 J
IRON	59,500 J
LEAD	38.2 J
MANGANESE	35.2 J
NICKEL	3.2 J
TIN	2.6 J
ZINC	355.1 J
ARSENIC	32.3 J
SELENIUM	2.0 J
MERCURY	0.37 J

SED-5

ANALYTE	RESULT (mg/kg)
CADMIUM	3.03 J
CHROMIUM	1.98 J
COBALT	13.8 J
COPPER	1,158 J
IRON	50,100 J
LEAD	300 J
MANGANESE	608 J
NICKEL	3.2 J
TIN	2.4 J
ZINC	582 J
ARSENIC	32.5 J
SELENIUM	2.0 J
MERCURY	0.288 J

SED-2

ANALYTE	RESULT (mg/kg)
CADMIUM	4.48 J
CHROMIUM	2.92 J
COBALT	1,228 J
COPPER	41,400 J
IRON	525 J
LEAD	2,177 J
MANGANESE	63 J
NICKEL	45.2 J
TIN	1,130 J
ZINC	24.5 J
ARSENIC	2.0 J
SELENIUM	2.0 J
MERCURY	0.68 J

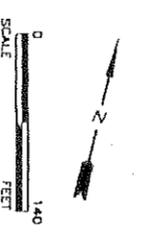
SED-1

ANALYTE	RESULT (mg/kg)
CADMIUM	3.23 J
CHROMIUM	1.78 J
COBALT	1,300 J
COPPER	178 J
IRON	51,000 J
LEAD	282 J
MANGANESE	289 J
NICKEL	4.3 J
TIN	22 J
ZINC	98 J
ARSENIC	2.4 J
SELENIUM	2.7 J
MERCURY	0.397 J

NO.	DATE	BY	REVISION

NOTE: METALS ANALYZED BY US EPA METHOD 846.7000/2000 SERIES mg/kg = MILLIGRAMS PER KILOGRAM J = ESTIMATED VALUE

- LEGEND
- ED-0 STAND PIPE LOCATION
 - MW-17 MONITORING WELL LOCATION
 - TP-1 TEST PIT STANDPIPE
 - SED-4 SEDIMENT SAMPLE LOCATION
 - SWAMP LOCATION
 - PIEZOMETER LOCATION



IT CORPORATION
 1220 WARD AVENUE
 WEST CHESTER, PA 19380
 (610) 241-5000

METAL RESULTS OF SEDIMENT SAMPLES COLLECTED ON AUGUST 11 & 12, 1998

CLIENT: FORMER FUELING FACILITY
 AMTRAK WILMINGTON SHOPS
 LOCATION: VANDER AVENUE
 WILMINGTON, DELAWARE

DESIGNED BY: JWB
 DRAWING DATE: 1/13/99
 PROJECT NO.: 01303-0177

NOTES: 1/13/99
 0177-010

APPENDIX B

Monitoring Well Drilling Logs

SECOR

International Incorporated

Logged By:	Date Drilled:	Drilling Contractor	Project Name:		Method/Equipment:		Well Number:	
KRS	13/01/04	Total Quality Drilling	Amtrak - Former Fueling Area Wilmington, Delaware		Hollow Stem Auger Split Spoon		MW-1A	
See "Legend to Logs" for sampling method, classifications and laboratory testing methods		Boring Diam. (in.):	Surface Elev. (ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt. (lbs.):	Drop Dist. (in.):	
		12		7	13.0			
Well Construction	Depth, (ft.)	Sample Type	Description				Recovery (inches)	PID Readings
Grout			Gravel surface.					
Bentonite #1 Sand and Riser Schedule 40 PVC, 20 Slot			Black fine coal ash with little slag; trace gravel. Dry/soft.				18	0.3
			Same as previous with increased slag. Crushed concrete present. Damp/soft.				18	0.2
	5		Black fine coal ash with slag; little brown fine to medium sand. Slight sheen observed on water in split spoon.				3	3.1
			Black fine to coarse SAND with gravel and boulders; wet. Free product and a sheen observed in split spoon.				9	27.2
			Light gray silty-CLAY. A sheen was observed within sampler. Damp/soft.				9	8.3
	10		Fallback.				12	2.1
			Light gray silty-CLAY; damp; soft. Sheen observed within sampler.					
			Brown/gray silty-CLAY with organic material present. Sheen observed within sampler.				12	4.2
	15							
	20							

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. 62OT.01013.02.0005 Date January 13 and 14, 2004

Log of Well

JAN 2004 LOGS.GPJ
LOG OF BOREHOLE

Figure

(sheet 1 of 1)

SECOR

International Incorporated

Logged By: KRS	Date Drilled: 13/01/04	Drilling Contractor Total Quality Drilling	Project Name: Amtrak - Former Fueling Area Wilmington, Delaware	Method/Equipment: Hollow Stem Auger Split Spoon	Well Number: MW-3A
--------------------------	----------------------------------	--	---	---	------------------------------

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam. (in.): 8	Surface Elev. (ft.): ▽	Groundwater Depth (ft.): 9	Total Depth (ft.): 17.0	Drive wt. (lbs.):	Drop Dist. (in.):
--	---------------------------------	----------------------------------	--------------------------------------	-----------------------------------	-------------------	-------------------

Well Construction	Depth, (ft.)	Sample Type	Description	Recovery (inches)	PID Readings
-------------------	--------------	-------------	-------------	-------------------	--------------

<p>Grout</p> <p>Bentonite Seal and Riser</p> <p>#1 Sand and Riser</p> <p>Schedule 40 PVC, 20 Slot</p>			Gravel surface - Hand Dug		
			No Recovery. Cuttings consist of black fine to medium SAND with silt and slag. Gravel, boulders, railroad spikes, and railroad ties (crushed) are present.	0	NS
			No Recovery. Driller refusal. Switched from 12 inch HSAs to 8 inch HSAs.	0	NS
	5		Black fine coal ash with gravel and boulders.	1	0.5
			Black fine to coarse SAND; little coal ash and gravel; trace silt and clay.	16	0.2
			Brown/tan fine to medium SAND; trace gravel. Damp/firm.	2	0.2
	10		No Recovery. No Cuttings.	0	NS
			Brown/orange fine to coarse SAND with sub-rounded gravel. Wet/firm.	8	0.3
			Brown/red/white fine to coarse SAND; trace silt. Wet/firm.	12	0.5
	15		Brown/gray/red/white fine to coarse SAND. Wet/firm.	18	0.5

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. 62OT.01013.02.0005 Date January 13 and 14, 2004

Log of Well

JAN 2004 LOGS.GPJ
LOG OF BOREHOLE

Figure

(sheet 1 of 1)

Drilling Log

Monitoring Well **MW-6A**

Project Amtrak-Wilmington, DE Owner AMTRAK-APU
 Location Former fueling facility Proj. No. 01303-0177
 Surface Elev. _____ Total Hole Depth 16 ft. Diameter 6.625 in.
 Top of Casing _____ Water Level Initial 5.35 ft. Static _____
 Screen: Dia 4 in. Length 12.5 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 2.5 ft. Type SCH 40 PVC
 Fill Material Morie Sand Rig/Core HSA
 Drill Co. Lutz Drilling Method Split Spoon
 Driller T. Westover Log By Michael Malone Date 06/1/98 Permit # _____
 Checked By _____ License No. _____

See Site Map
For Boring Location

COMMENTS:

*Denotes sample interval submitted for laboratory analysis.

Depth (ft.)	Well Completion	TIME (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							SAND AND GRAVEL: black, some silt.
2		215	SS-1*	5,6,4,5			SAND AND GRAVEL: black, moist to wet, some silt.
4		354	SS-2	5,5,4,6			GRAVEL: black, wet to saturated, some sand, trace silt.
6		433	SS-3*	4,10,14,13		GM	SAND AND GRAVEL: black, saturated, some silt.
8		480	SS-4	8,10,6,5			
10		452	SS-5	7,6,4,3			
12		151	SS-6	7,5,3,2		SM	SAND: brown, medium grain, some coarse sand, some silt.
14		105	SS-7	5,4,2,1		OL	CLAY: black, silty.
16		100	SS-8			Pt	ORGANIC MATERIAL: brown, moist, grasses, weeds, etc.
18							End of Exploration at 16 feet.
20							
22							
24							

Drilling Log

Monitoring Well **MW-8A**

Project AMTRAK/APU Wilmington, DE Owner AMTRAK-APU
 Location Former Fueling Facility; Vandever Avenue Proj. No. 01303-0177
 Surface Elev. 9.25 ft. Total Hole Depth 14 ft. Diameter 6.625 in.
 Top of Casing 8.99 ft. Water Level Initial 4.09 ft. Static _____
 Screen: Dia 4 in. Length 12 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 2 ft. Type SCH 40 PVC
 Fill Material Morie Sand Rig/Core _____
 Drill Co. Lutz Drilling Method HSA
 Driller T. Westover Log By Michael Malone Date 06/2/98 Permit # _____
 Checked By M. Malone License No. _____

See Site Map
For Boring Location

COMMENTS:

*Denotes sample interval submitted for laboratory analysis.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2		52.0	SS-1*	50% 18,13,11,8		GM	SAND AND GRAVEL: black.
4		81.0	SS-2*	40% 3,3,2,4			SAND: brown, wet, medium grain, some gravel, some pebbles, trace silt.
6		222	SS-3	80% 3,4,3,2			SAND: brown, wet to saturated, medium grain, some gravel, some pebbles, trace silt.
8		295	SS-4	30% 4,3,2,2			
10		258	SS-5	90% 1,2,1,2		SM	SAND: brown, saturated, medium grain, some gravel, some pebbles, some silt, thin layer of fine sand.
12		143	SS-6	50% 1,3,2,2			SAND AND GRAVEL: black, saturated, medium grain.
14		94.0	SS-7	80% 1,1,1			SAND: brown, saturated, medium grain, some gravel, some pebbles. CLAY: black, silty.
14							End of Exploration at 14 feet.
16							
18							
20							
22							
24							

Drilling Log

Monitoring Well **MW-10A**

Project Amtrak-Wilmington, DE Owner AMTRAK-APU
 Location Former fueling facility Proj. No. 01303-0177
 Surface Elev. _____ Total Hole Depth 16 ft. Diameter 6.625 in.
 Top of Casing _____ Water Level Initial 3.25 ft. Static _____
 Screen: Dia 4 in. Length 13 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 3 ft. Type SCH 40 PVC
 Fill Material Morie Sand Rig/Core HSA
 Drill Co. Lutz Drilling Method Split Spoon
 Driller T. Westover Log By Michael Malone Date 06/1/98 Permit # _____
 Checked By _____ License No. _____

See Site Map
For Boring Location

COMMENTS:

*Denotes sample interval submitted for laboratory analysis.

Depth (ft.)	Well Completion	TIME (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							SAND AND GRAVEL: black, some silt.
1.8		18.0	SS-1*	10,11,10,8		GM	
2							SAND: brown, medium grain, some pebbles, gravel, silt.
3.6		45.0	SS-2*	5,6,5,4			
4							SAND: brown, very moist to wet, medium grain, some gravel, some pebbles.
5.4		31.0	SS-3	8,9,8,3			
6							SAND: light brown, wet, medium grain, some coarse sand, some silt.
7.2		25.0	SS-4	4,2,1,3		SM	
8							SAND: brown, wet to saturated, medium grain, some coarse sand, some silt.
9.8		85.0	SS-5				
10							SAND: brown, medium to coarse grain, trace pebbles, trace silt.
11.2		40.0	SS-6	2,1,1,2			
12							SAND: brown-black, saturated, coarse grain, some fine sand, some silt.
13.2		25.0	SS-7			OL	CLAY: black, moist to wet, silty.
14							ORGANIC MATERIAL: brown, moist, grasses, weeds, etc.
15.2		16.0	SS-8	1,1,1		Pt	
16							End of Exploration at 16 feet.
18							
20							
22							
24							

Drilling Log

Monitoring Well **MW-13**

Project AMTRAK/APU Wilmington, DE Owner AMTRAK-APU
 Location Former Fueling Facility; Vandever Avenue Proj. No. 01303-0177
 Surface Elev. 6.90 ft. Total Hole Depth 12 ft. Diameter 6.625 in.
 Top of Casing 6.66 ft. Water Level Initial 0.52 ft. Static _____
 Screen: Dia 4 in. Length 11 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 1 ft. Type SCH 40 PVC
 Fill Material Marie Sand Rig/Core _____
 Drill Co. Lutz Drilling Method HSA
 Driller T. Westover Log By Michael Malone Date 06/2/98 Permit # _____
 Checked By M. Malone License No. _____

See Site Map
For Boring Location

COMMENTS:

*Denotes sample interval submitted for laboratory analysis.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							SAND AND GRAVEL: black, dry to wet at 1 foot.
2		90.0	SS-1*	40% 3,5,4,8		GM	SAND AND GRAVEL: black, wet.
4		193	SS-2*	80% 3,2,1,2			
6		66.0	SS-3	70% 2,1,2,1			SAND: brown, medium grain, some gravel, some pebbles, some silt. SAND: brown, wet to saturated, medium grain, some gravel, some silt, little pebbles.
8		13.0	SS-4	50% 3,3,2,2		SM	
10		58.0	SS-5	40% 3,4,7,9			
12		69.0	SS-6	30% 1,1,1,1		OL	CLAY: reddish brown, wet to saturated, silty.
14							End of Exploration at 12 feet.
16							
18							
20							
22							
24							

Drilling Log

Monitoring Well **MW-14**

Project Amtrak-Wilmington, DE Owner AMTRAK-APU
 Location Former fueling facility Proj. No. 01303-0177
 Surface Elev. _____ Total Hole Depth 14 ft. Diameter 6.625 in.
 Top of Casing _____ Water Level Initial 4.90 ft. Static _____
 Screen: Dia 4 in. Length 12 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 2 ft. Type SCH 40 PVC
 Fill Material Morie Sand Rig/Core HSA
 Drill Co. Lutz Drilling Method Split Spoon
 Driller T. Westover Log By Michael Malone Date 06/2/98 Permit # _____
 Checked By _____ License No. _____

See Site Map
For Boring Location

COMMENTS:

*Denotes sample interval submitted for laboratory analysis.

Depth (ft.)	Well Completion	TIME (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2		5.5	SS-1*	8,7,5,4	GM		GRAVEL: black, dry, some sand.
4		4.3	SS-2*	3,2,2,2			SAND: black, wet to saturated, fine to medium grain, some gravel, some silt.
6		145	SS-3	2,3,4,2			No Recovery.
8		50.0	SS-4	1,1,1,2			No Recovery.
10		NA	SS-5	4,2,2,1	SM		SAND: brown, fine to medium grain, some silt, trace gravel.
12		23.0	SS-6	3,1,1,1			
14		68.0	SS-7	2,3,2,1			End of Exploration at 14 feet.
16							
18							
20							
22							
24							

Drilling Log

Monitoring Well **MW-15**

Project AMTRAK/APU Wilmington, DE Owner AMTRAK-APU
 Location Former Fueling Facility; Vandever Avenue Proj. No. 01303-0177
 Surface Elev. 8.80 ft. Total Hole Depth 14 ft. Diameter 6.625 in.
 Top of Casing 8.54 ft. Water Level Initial 2.20 ft. Static _____
 Screen: Dia 4 in. Length 12 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 2 ft. Type SCH 40 PVC
 Fill Material Marie Sand Rig/Core _____
 Drill Co. Lutz Drilling Method HSA
 Driller J. Westover Log By Michael Malone Date 06/2/98 Permit # _____
 Checked By M. Malone License No. _____

See Site Map
For Boring Location

COMMENTS:

*Denotes sample interval submitted for laboratory analysis.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							SAND AND GRAVEL: black, dry
2		247	SS-1*	70% 7,8,8,8	(Graphic symbols)	GM	
4		310	SS-2*	80% 7,9,10,13	(Graphic symbols)		SAND: brown to black, wet, medium grain, some gravel, some pebbles, some silt.
6		355	SS-3	80% 9,10,9,7	(Graphic symbols)		SAND: brown to black, wet, medium grain, some gravel, some pebbles, some silt, black staining from 6 to 7 feet.
8		283	SS-4	90% 7,14,8,7	(Graphic symbols)	SM	SAND: brown to black, wet, medium grain, some gravel, some pebbles, some silt, thin layer of silty clay at 9 feet.
10		45.0	SS-5	30% 2,3,1,4	(Graphic symbols)		SAND: brown, wet, medium grain, some gravel, some pebbles, some silt, black staining from 10 to 11 feet.
12		50.0	SS-6	70% 4,5,9,10	(Graphic symbols)		SAND: brown to black, medium grain, some gravel, some pebbles, some silt.
14		35.0	SS-7	30% 2,1,1,1	(Graphic symbols)	OL	CLAY: black, silty.
							End of Exploration at 14 feet.
16							
18							
20							
22							
24							

Drilling Log

Monitoring Well **MW-16**

Project AMTRAK/APU Wilmington, DE Owner AMTRAK-APU
 Location Former Fueling Facility; Vandever Avenue Proj. No. 01303-0177
 Surface Elev. 10.10 ft. Total Hole Depth 14 ft. Diameter 6.625 in.
 Top of Casing 9.67 ft. Water Level Initial 2.68 ft. Static _____
 Screen: Dia 4 in. Length 12 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 2 ft. Type SCH 40 PVC
 Fill Material Morie Sand Rig/Core _____
 Drill Co. Lutz Drilling Method HSA
 Driller T. Westover Log By Michael Malone Date 06/2/98 Permit # _____
 Checked By M. Malone License No. _____

See Site Map
For Boring Location

COMMENTS:

*Denotes sample interval submitted for laboratory analysis.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							SAND AND GRAVEL: black, dry
2		34.0	SS-1*	80% 9,8,5,4		GM	SAND AND GRAVEL: black, moist.
4		239	SS-2*	80% 8,8,11,14			SAND: brown with black staining, wet, medium grain.
6		334	SS-3	80% 8,11,8,12			SAND: brown, wet, medium grain, some gravel, some pebbles, some silt.
8		428	SS-4	80% 5,3,7,7			SAND: brown, wet to saturated, medium grain, black staining.
10		241	SS-5	40% 7,3,4,4		SM	SAND: brown, wet to saturated, medium grain, black staining, with thin white silty clay lenses.
12		241	SS-6	30% 4,4,4,4			SAND: brown, wet to saturated, medium to coarse grain, some gravel, some pebbles, trace silt.
14		20.0	SS-7	80% 12,1,1			End of Exploration at 14 feet.
16							
18							
20							
22							
24							

Drilling Log

Monitoring Well **MW-17**

Project Amtrak-Wilmington, DE Owner AMTRAK-APU
 Location Former fueling facility Proj. No. 01303-0177
 Surface Elev. _____ Total Hole Depth 14 ft. Diameter 6.625 in.
 Top of Casing _____ Water Level Initial 2.35 ft. Static _____
 Screen: Dia 4 in. Length 12 ft. Type/Size 0.020 in.
 Casing: Dia 4 in. Length 2 ft. Type SCH 40 PVC
 Fill Material Marie Sand Rig/Core HSA
 Drill Co. Lutz Drilling Method Split Spoon
 Driller T. Westover Log By Michael Malone Date 06/1/98 Permit # _____
 Checked By _____ License No. _____

See Site Map
For Boring Location

COMMENTS:

*Denotes sample interval submitted for laboratory analysis.

Depth (ft.)	Well Completion	TIME (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2		5.0	SS-1*	8,11,14,11	GM		SAND AND GRAVEL: black, some silt.
4		148	SS-2*	4,5,4,8			SAND AND GRAVEL: black, moist to wet, some silt. SAND AND GRAVEL: black, wet.
6		105	SS-3	4,2,1,1			CLAY: black-gray, wet, silty. No Recovery.
8		NA	SS-4		OL		CLAY: dark gray, wet, silty, trace sand.
10		150	SS-5				CLAY: dark gray, wet silty, trace sand.
12		45.0	SS-6	1,1,1,1	Pt		ORGANIC MATERIAL: brown, wet, grasses, weeds, etc.
14		55.0	SS-7		Pt		CLAY: dark gray, silty, trace sand. ORGANIC MATERIAL: brown, moist, grasses, weeds, etc.
16							End of Exploration at 14 feet.
18							
20							
22							
24							

SMITH

APPENDIX B
WELL DRILLING LOGS



WELL DRILLING LOG

Well/Boring No.: MW-1Project: Amtrak, Wilmington DelawareSheet 1 of 1BCM Project No. 00-4891-04Logged By: M. Bonaker Date(s): 11/30/92

Well/Boring Location: _____

Drilling Method 4 1/4-inch ID Hollow Stem Auger Drilling Contractor: Hudson-Huber Inc

Depth to Groundwater: _____ Date: _____ Reference: _____

Elevations: Ground Surface: _____ Inner Casing: _____ Outer Casing: _____

Water Table: _____ Date: _____ Reference: _____

Remarks Samples scanned using HNU for volatiles. Soil samples collected for analysis from 0-2, 2-4 and Shelby tube from 10-12. Developed 12/1/94 50 gallons

DEPTH	SAMPLE NO.	RECOVERY	BLOWS	GRAPHICAL LOGS		ELEVATION
				STRATA	WELL CONSTRUCTION	
0	①	16	3,5,6,6			HNU
	②	13	3,4,4,5		1.9	NIR
5						0.4
10		37	Shelby Tube			
13						

①: Bluish silt and loams, trace
 - u-biotite and mica fragments and
 quartz, black, gray
 sand: medium, some fine, little
 (1.9) sand; irregular orange, clay
 Sand: Same as above, quartzite
 angular gravel @ 3.5, 5.5, 11.5
 range @ 3.7 to 4.

Gray claysilt @ bottom of well
 End of boring @ 13'

SMITH

APPENDIX B
WELL DRILLING LOGS

SMITH

APPENDIX B
WELL DRILLING LOGS



WELL DRILLING LOG

Well/Boring No.: MW-1Project: Amtrak, Wilmington DelawareSheet 1 of 1BCM Project No. 00-4891-04Logged By: M. BonakerDate(s): 11/30/92

Well/Boring Location: _____

Drilling Method 4 1/4-inch ID Hollow Stem Auger Drilling Contractor: Huber-Huber Inc

Depth to Groundwater: _____ Date: _____ Reference: _____

Elevations: Ground Surface: _____ Inner Casing: _____ Outer Casing: _____

Water Table: _____ Date: _____ Reference: _____

Remarks Samples scanned using HNU for volatiles. Soil samples collected for analysis from 0-2, 2-4 and Shelby tube from 10-12. Developed 12.194 50 gallons

DEPTH	SAMPLE NO.	RECOVERY	BLOWS		GRAPHICAL LOGS		ELEVATION
					STRATA	WELL CONSTRUCTION	
0	①	16	3,5,6,6				HNU N/R
	②	13	5,4,4,5	fill: 8" blue silt and loam, trace of shell, and brick fragments and gravel, brown, clay sand: medium, some fine, little (Lower Sand) somewhat orange, clay 1.9' Sand: same as above, quartzite angular gravel @ 3', slightly rough @ 3.7 to 4'.	1.9		0.4
5							
10		37	Shelby tube	very clay silt @ bottom of tube End of boring @ 13'			
13							



WELL DRILLING LOG

Well/Boring No.: MW-2Project: Amtrak, Wilmington DelawareSheet 1 of 1BCM Project No. 00-4891-04Logged By: M. BonakerDate(s): 11/29/94

Well/Boring Location: _____

Drilling Method 4 1/4-inch ID Hollow Stem Auger Drilling Contractor: Horton-Huber Inc

Depth to Groundwater: _____ Date: _____ Reference: _____

Elevation... Ground Surface: _____ Inner Casing: _____ Outer Casing: _____

Water Table: _____ Date: _____ Reference: _____

Remarks Samples scanned using HNU for volatiles. Soil samples collected for analyses from 0-2 and 2-4. Developed 12/2/94

DEPTH	SAMPLE NO.	RECOVERY	BLOWS	GRAPHICAL LOGS		ELEVATION
				STRATA	WELL CONSTRUCTION	
0	①	20	1, 1, 1, 1	Fill: Fine black (clayey) material, Silt, some fine-coarse gravel/plate clay		HNU NIR
2	②	22	2, 2, 1, 1, 1, 1	Fill: Same as above; intermingled with fine-medium orange sand (spoon wet outside)	35	HNU NIR
5	③	22	3, 4, 3, 5	Sand: fine to medium, well subdivided coarse sand and subangular gravel (quartzite); orange, wet. Sand medium - coarse and tan from 5.2-6		HNU NIR
10						
14				End of boring @ 14'		
15						
20						

