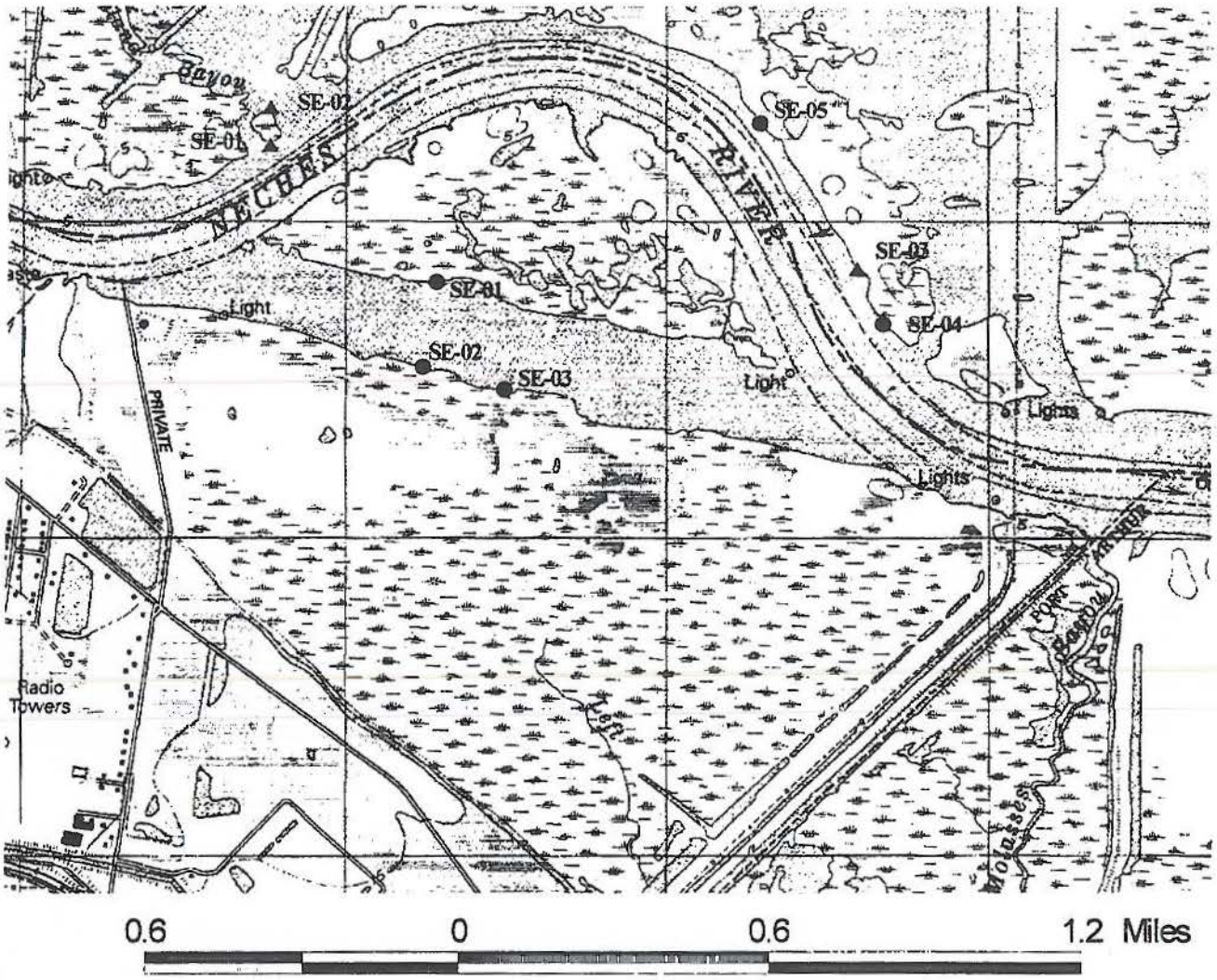
Figure 8 - Background Sample Locations



● Background sample collected during ESI

▲ Background sample collected during SSI

The base data used in this map is a Digital Raster Graphic (DRG), which is a didital version of a U.S. Geological Survey 7.5 Minute Quadrangle. This DRG was produced by the TNRCC using USGS guidelines.

9536818

ORGANIC DATA SUMMARY

Case No.: 26055 SDG: FEY11 Reviewer: Y.M. Liu & W. Doong

Laboratory: CLAYTN Matrix: SOIL Units: ug/Kg

PESTICIDES/PCBs	FLAG	FLAG	FLAG	SE-03 FLAG	SE-04 FLAG	SE-05 FLAG	SE-01 FLAG
EPA SAMPLE NUMBER:	FF-R42	FF-R43	FF-R44	FF-R45	FF-R46	FF-R47	FF-R49
alpha-BHC	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
beta-BHC	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
delta-BHC	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
gamma-BHC (lindane)	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
Heptachlor	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
Aldrin	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
Heptachlor epoxide	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
Endosulfan I	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
Dieldrin	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
4,4'-DDE	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
Endrin	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
Endosulfan II	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
4,4'-DDD	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
Endosulfan sulfate	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
4,4'-DDT	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
Methoxychlor	26 U	24 U	23 U	27 U	29 U	28 U	35 U
Endrin ketone	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
Endrin aldehyde	5.0 U	4.6 U	4.4 U	5.3 U	5.7 U	5.4 U	6.9 U
alpha-Chlordane	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
gamma-Chlordane	2.6 U	2.4 U	2.3 U	2.7 U	2.9 U	2.8 U	3.5 U
Toxaphene	260 U	240 U	230 U	270 U	290 U	280 U	350 U
Aroclor-1016	50 U	46 U	44 U	53 U	57 U	54 U	69 U
Aroclor-1221	100 U	93 U	89 U	110 U	120 U	110 U	140 U
Aroclor-1232	50 U	46 U	44 U	53 U	57 U	54 U	69 U
Aroclor-1242	50 U	46 U	44 U	53 U	57 U	54 U	69 U
Aroclor-1248	50 U	46 U	44 U	53 U	57 U	54 U	69 U
Aroclor-1254	50 U	46 U	44 U	53 U	57 U	54 U	69 U
Aroclor-1260	50 U	46 U	44 U	53 U	57 U	54 U	69 U
Sample wt (g):	30	30	30	30	30	30	30
%Moisture:	34	28	25	38	42	39	52
Dilution Factor:	1	1	1	1	1	1	1

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

ORGANIC DATA SUMMARY

Case No.: 26055 SDG: FEY11 Reviewer: Y.M. Liu & W. Doong

Laboratory: CLAYTN Matrix: SOIL Units: ug/Kg

SE-02

PESTICIDES/PCBs		FLAG	FLAG	FLAG	FLAG	FLAG	FLAG	FLAG
EPA SAMPLE NUMBER:	FF-R50							
alpha-BHC	3.1 U							
beta-BHC	3.1 U							
delta-BHC	3.1 U							
gamma-BHC (lindane)	3.1 U							
Heptachlor	3.1 U							
Aldrin	3.1 U							
Heptachlor epoxide	3.1 U							
Endosulfan I	3.1 U							
Dieldrin	1.8 J							
4,4'-DDE	6.0 U							
Endrin	6.0 U							
Endosulfan II	6.0 U							
4,4'-DDD	6.0 U							
Endosulfan sulfate	6.0 U							
4,4'-DDT	6.0 U							
Methoxychlor	31 U							
Endrin ketone	6.0 U							
Endrin aldehyde	6.0 U							
alpha-Chlordane	3.1 U							
gamma-Chlordane	3.1 U							
Toxaphene	310 U							
Aroclor-1016	60 U							
Aroclor-1221	120 U							
Aroclor-1232	60 U							
Aroclor-1242	60 U							
Aroclor-1248	60 U							
Aroclor-1254	60 U							
Aroclor-1260	60 U							
Sample wt (g):	30							
%Moisture:	45							
Dilution Factor:	1							

Note: For the results listed in the Data Summary Table, ESAT has replaced the laboratory assigned flags with ESAT Organic Data Qualifiers. The ESAT flags indicate the technical usability of the reported results.

#4

EPA United States Environmental Protection Agency Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 26055

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		6	TNRCC		Airborne Express

Regional Information

Sampler (Name): Daniel Benson

Airbill Number: 5442769533

Non-Superfund Program

Sampler Signature: Daniel Benson

5. Clayton Environmental Consultants
22345 Roethel Drive
Novi, MI 48375
Attn: Kelly Kolb
(810) 344-1770

Site Name: Star Lake Canal

City, State: Port Neches TX

Site Spill ID

3. Purpose*

Lead: [X] SF [ ] PRP [ ] ST [ ] FED

Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [ ] SI [X] ESI

Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform Eval. — = Not a QC Sample)
FFR49	5	LOW	GRAB	5	X				6-162230-31	SE-1	3/10/98 910	MFHL77	TC	—
FFR50	5	LOW	COMP	5	X				6-162236-37	SE-2	3/10/98 930	MFHL78	TC	—
FFR45	5	LOW	GRAB	5	X				6-162242-43	SE-3	3/10/98 950	MFHL73	TC	—
FFR46	5	LOW	GRAB	5	X				6-162250-51	SE-4	3/10/98 1020	MFHL74	TC	—
FFR47	5	LOW	GRAB	5	X				6-162256-57	SE-5	3/10/98 1040	MFHL75	TC	—
FFR43	5	LOW	COMP.	5	X				6-162268-69	SE-7	3/10/98 1235	MFHL71	TC	—
FEY40	5	LOW	COMP	5	X				6-164661-62	SE-31	3/10/98 950	MF6Q15	DB	—
FEY14	5	MED	COMP.	5	X				6-164667-68	SE-32	3/10/98 1010	MF6Q20	DB	—
FEY15	5	LOW	GRAB	5	X				6-164673-74	SE-33	3/10/98 1040	MF6Q19	DB	—
FEY16	5	LOW	COMP.	5	X				6-164679-80	SE-34	3/10/98 1053	MF6Q19	DB	—

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
Y	1 of 1	FFR50	Todd Carter	

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Daniel Benson	3/11/98 1200				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

368844

00034

4.1.2 DRINKING WATER THREAT

The drinking water threat was not evaluated due to lack of targets for this component. The documentation for an observed release to surface water follows, then scoring will proceed to the environmental threat.

4.1.2.1 LIKELIHOOD OF RELEASE

4.1.2.1.1 OBSERVED RELEASE

An observed release to a qualifying surface water body can be documented in the HRS system by two methods: a) direct observation and b) chemical analysis. We will document the observed release by chemical analysis in this ESI Report.

Chemical Analysis

An observed release has been documented to the surface water pathway for the Star Lake Canal site by chemical analysis. Establishing an observed release by chemical analysis requires attributing the hazardous substance(s) to the site, and also requires determining background, demonstrating that the concentration of the hazardous substance(s) in a release sample is significantly increased above background, and attributing some portion of the significant increase to the site. In order to document a significant increase above background, it is necessary to establish the presence of hazardous substance(s) at concentrations three times above a designated background level when the hazardous substance(s) have been detected in the background sample or at concentrations above the release samples' and the background samples' SQLs when a hazardous substance(s) has been reported as not detected in background samples (Ref. 1, p. 51589).

Background Concentration

The following table provides a summary of the designated background levels for the organic and inorganic hazardous substances of concern for this site.

Three (3) background sediment samples, SE-01(FEY92/MFGP55), SE-02 (FEY93/MFGP56) and SE-03 (FEY94/MFGP57) were collected during the SSI and five (5) background sediment samples, SE-01 (FFR49/MFHL77), SE-02 (FFR50/MFHL78), SE-03 (FFR45/MFHL73), SE-04 (FFR46/MFHL74) and SE-05 (FFR47/MFHL75) were collected during the ESI. See Figure 8 for the locations of all background sediment samples collected. A summary of the highest constituent concentrations detected in the background sediment samples is presented in Table 3.

Table 3
Surface Water Pathway
Summary of Highest Organic and Inorganic Constituents Detected in Background Sediment Samples

Inorganic Constituent	Station/ CLP No. (event)	Highest Concentration [SQL] mg/Kg	3 x Highest Background Concentration mg/Kg	Reference
Arsenic	SE-05/MFHL75 (ESI)	9.8 [0.95]	29.4	Ref. 12, pp. 001-007, p. 012, p.027
Barium	SE-01/MFHL77 (ESI)	127 [0.39]	381	Ref. 12, pp. 001-007, p. 012, p. 038
Beryllium	SE-01/MFHL77 (ESI)	1.3 [0.39]	3.9	Ref. 12, pp. 001-007, p. 012, p. 038
Chromium	SE-01/MFGP55 (SSI)	20.3 [2.4]	60.9	Ref. 9, pp. 001-007, p. 011, p. 027
Cobalt	SE-04/MFHL74 (ESI)	9.9 [0.35]	29.7	Ref. 12, pp. 001-007, p. 011, p. 036
Copper	SE-01/MFGP55 (SSI)	13.9 [0.9]	41.7	Ref. 9, pp. 001-007, p. 011, p. 027
Lead	SE-01/MFGP55 (SSI)	47.4 [0.47]	142.2	Ref. 9, pp. 001-007, p. 011, p. 027
Manganese	SE-05/MFHL75 (ESI)	958 [0.32]	2874	Ref. 12, pp. 001-007, p. 012, p. 037
Mercury	SE-01/MFGP55 (SSI)	0.17 [0.1]	0.51	Ref. 9, pp. 001-007, p. 011, p. 027
Nickel	SE-02/MFHL78 (ESI)	17.2 [0.34]	51.6	Ref. 12, pp. 001-007, p. 012, p. 039
Selenium	SE-01/MFHL77 (ESI)	ND [1.5]	N/A [1.5]	Ref. 12, pp. 001-007, p. 012, p. 038
Silver	SE-01/MFHL77 (ESI)	ND [0.38]	N/A [0.38]	Ref. 12, pp. 001-007, p. 012, p. 038
Thallium	SE-01/MFGP55 (SSI)	0.81 Jv [0.47]	2.43	Ref. 9, pp. 001-007, p. 011, p. 027

Table 3 continued ...

Table 3
Surface Water Pathway
Summary of Highest Organic and Inorganic Constituents Detected in Background Sediment Samples

Inorganic Constituent	Station/ CLP No. (event)	Highest Concentration [SQL] mg/Kg	3 x Highest Background Concentration mg/Kg	Reference
Vanadium	SE-01/MFGP55 (SSI)	39 [0.9]	117	Ref. 9, pp. 001-007, p. 011, p. 027
Zinc	SE-04/MFHL74 (ESI)	66.7 Jv [0.35]	200.1	Ref. 12, pp. 001-007, p. 011, p. 036
Cyanide	SE-01/MFHL77 (ESI)	0.12 [0.09]	0.36	Ref. 12, pp. 001-007, p. 012, p. 038

Volatile or Semivolatile Organic Constituent	Station/ CLP No. (event)	Highest Concentration [SQL] μg/Kg	3 x Highest Background Concentration μg/Kg	Reference
Acetone	SE-01/FFR49 (SSI)	ND [20]	N/A [20]	Ref. 10, pp. 001-010, p. 014, pp. 074-075
Chloroform	SE-01/FFR49 (SSI)	ND [20]	N/A [20]	Ref. 10, pp. 001-010, p. 014, pp. 074-075
Benzene	SE-01/FFR49 (SSI)	ND [20]	N/A [20]	Ref. 10, pp. 001-010, p. 014, pp. 074-075
Toluene	SE-01/FFR49 (SSI)	ND [20]	N/A [20]	Ref. 10, pp. 001-010, p. 014, pp. 074-075
Chlorobenzene	SE-01/FFR49 (SSI)	ND [20]	N/A [20]	Ref. 10, pp. 001-010, p. 014, pp. 074-075
Ethylbenzene	SE-01/FFR49 (SSI)	ND [20]	N/A [20]	Ref. 10, pp. 001-010, p. 014, pp. 074-075
Styrene	SE-01/FFR49 (SSI)	ND [20]	N/A [20]	Ref. 10, pp. 001-010, p. 014, pp. 074-075
Xylenes (total)	SE-01/FFR49 (SSI)	ND [20]	N/A [20]	Ref. 10, pp. 001-010, p. 014, pp. 074-075

Table 3 continued ...

Table 3
Surface Water Pathway
Summary of Highest Organic and Inorganic Constituents Detected in Background Sediment Samples

Semivolatile Organic Constituent	Station/ CLP No. (event)	Highest Concentration [SQL] µg/Kg	3 x Highest Background Concentration µg/Kg	Reference
Phenol	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
2,2'-Oxybis(1-chloropropane)	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Naphthalene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Acenaphthylene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Acenaphthene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Dibenzofuran	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Fluorene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Phenanthrene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Fluoranthene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Anthracene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Pyrene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Benzo(a)anthracene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Chrysene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137

Table 3 continued ...

Table 3
Surface Water Pathway
Summary of Highest Organic and Inorganic Constituents Detected in Background Sediment Samples

Semivolatile Organic Constituent	Station/ CLP No. (event)	Highest Concentration [SQL] µg/Kg	3 x Highest Background Concentration µg/Kg	Reference
Benzo(b)fluoranthene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Benzo(k)fluoranthene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Benzo(a)pyrene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Indeno(1,2,3-cd)pyrene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Dibenz(a,h)anthracene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137
Benzo(g,h,i)pyrelene	SE-01/FFR49 (SSI)	ND [690]	N/A [690]	Ref. 10, pp. 001-010, pp. 019-020, pp. 135-137

Pesticide Constituent	Station/ CLP No. (event)	Highest Concentration [SQL] µmg/Kg	3 x Highest Background Concentration µg/Kg	Reference
Heptachlor	SE-01/FFR49 (SSI)	ND [3.5]	N/A [3.5]	Ref. 10, pp. 001-010, p. 025, p. 158
Heptachlor epoxide	SE-01/FFR49 (SSI)	ND [3.5]	N/A [3.5]	Ref. 10, pp. 001-010, p. 025, p. 158
Aldrin	SE-01/FFR49 (SSI)	ND [3.5]	N/A [3.5]	Ref. 10, pp. 001-010, p. 025, p. 158
Dieldrin	SE-01/FFR49 (SSI)	ND [6.9]	N/A [6.9]	Ref. 10, pp. 001-010, p. 025, p. 158
Endrin	SE-01/FFR49 (SSI)	ND [6.9]	N/A [6.9]	Ref. 10, pp. 001-010, p. 025, p. 158

Table 3 continued ...

Table 3
Surface Water Pathway
Summary of Highest Organic and Inorganic Constituents Detected in Background Sediment Samples

Pesticide Constituent	Station/ CLP No. (event)	Highest Concentration [SQL] μmg/Kg	3 x Highest Background Concentration μg/Kg	Reference
Endosulfan II	SE-01/FFR49 (SSI)	ND [6.9]	N/A [6.9]	Ref. 10, pp. 001-010, p. 025, p. 158
Endosulfan sulfate	SE-01/FFR49 (SSI)	ND [6.9]	N/A [6.9]	Ref. 10, pp. 001-010, p. 025, p. 158
4,4'-DDD	SE-01/FFR49 (SSI)	ND [6.9]	N/A [6.9]	Ref. 10, pp. 001-010, p. 025, p. 158
4,4'-DDT	SE-01/FFR49 (SSI)	ND [6.9]	N/A [6.9]	Ref. 10, pp. 001-010, p. 025, p. 158
Methoxychlor	SE-01/FFR49 (SSI)	ND [35]	N/A [35]	Ref. 10, pp. 001-010, p. 025, p. 158
alpha-Chlordane	SE-01/FFR49 (SSI)	ND [3.5]	N/A [3.5]	Ref. 10, pp. 001-010, p. 025, p. 158
Aroclor-1254	SE-01/FFR49 (SSI)	ND [69]	N/A [69]	Ref. 10, pp. 001-010, p. 025, p. 158

ND = Not detected. Concentrations for these constituents were not detected at the reported quantitation limit in sediment samples considered for the development of sediment background levels.
[ ] = SQL values for each constituent.
N/A = Not Applicable

A complete listing of all background values is included as Appendix N.