Click Here to View Previous Section

Click Here to Return to Main Document

ATTACHMENT B

CENTREDALE MANOR SITE

SOIL AND SEDIMENT SAMPLE RESULTS

DIOXINS/HEXACHLOROXANTHENE

Samples collected by START on 9 September 1998

Table I
Recommendation Summary Table for Dioxins/Furans

J[1]	-	Unacceptable PES results: J detects.
J[2]	-	Verification calibration Ion Ratio outside acceptable range: J detects ; UJ non-detects.
J[3]	-	Calibration verification % outside the acceptable range: J detects; UJ non-detects.
J[4]	-	Blank contamination: The positive results for affected samples listed in the table were reported as estimated detection limits (EDLs) and were estimated (UJ).
J[5]	-	MS/MSD % recovery and/or RPD outside criteria: J detects; UJ non-detects.
J[6]	-	Duplicate RPD >50%: J detects; UJ non-detects.
J[7]	-	Internal standard % recovery and/or ion ratios outside criteria: J detects; UJ non-detects.
J[8]	-	Recovery standard area counts outside criteria: J detects; UJ non-detects.
J[9]	-	Recovery standard ion ratios outside criteria: J detects; UJ non-detects.
J[10]	-	% Solids <30% (but > 10%): J detects
R[1]	-	Unacceptable PES Results: R non-detects
R[2]	-	% Solids < 30%: R non-detects
R[3]	-	Unacceptable homogeneity: R detects; R non-detects.

EPA-NE - Data Validation Worksheet

Overall Evaluation of Data - Data Validation Memorandum - Table II

DIOXIN/FURAN ANALYSIS					
DQO (list all DQOs)	Sampling* and/or Analytical Method Appropriate Yes or No	Measurement Error		Sampling Variability	Potential Usability Issues
		Analytical Error	Sampling Error		
To determine the nature and extent of soil and sediment dioxin/furan contamination along/near the Woonasquatucket River To determine potential sources of dioxin/furan contamination These data will be used to determine potential health effects based upon a dry weight 2378-TCDD TEQ action limit of 1 ppb.	Yes, Sampling Method appropriate for all samples. Yes, Analytical Method appropriate for all samples.	Refer to qualification in R/S Key on Table I: $J^{1,2,3,4,5,7,8,9}$, R^{1}	Refer to qualification in R/S Key on Table I: J^{10}, R^{21}	**	For all samples, the reported TEQs were derived almost solely from 2378-TCDD concentrations. Most of the 2378-TCDD sampling and analysis quality control met acceptance criteria and the 2378-TCDD sample data can be used for the site objectives (with the exception of samples AAL24001 and AAL24044 as discussed below) Sample AAL24001 was rejected in its entirety due to severe problems with homogeneity/representativeness. The initial 10 gram sample extraction yielded a dry weight 2378-TCDD concentration (and TEQ) significantly greater than 1 ppb, whereas the 1 gram re-extraction yielded a dry weight 2378-TCDD concentration (and TEQ) less than 1 ppb. This location should be resampled if it is critical to achievement of the site objectives. Sample homogeneity/representativeness was also negatively impacted in the four sediment samples that had low % solids. AAL2429 (22.7%), AAL24030 (25.1%), AAL24031 (26.9%), and AAL24044 (29.7%). Data usability was impacted as follows: The non-detects for 2378-TCDD, 12378-PeCDD, and 123789-HxCDF in Sample AAL24044 were rejected and that location should be resampled if it is critical to achievement of the site objectives. The positive detects for 2378-TCDD in Samples AAL24029-AAL24031, which were all greater than 1ppb, were estimated (J). For the non-2378-TCDD congeners in Sample AAL24029-AAL24031, the positive detects were estimated (J) and the non-detects were rejected. Sample homogeneity/representativeness problems were also indicated by the poor precision for the non-2378-TCDD congeners in the four sediment field duplicate pairs. It was noted that one field duplicate pair (AAL24026/AAL24027) had wide variability in percent solids content (30.7% and 75.2%) respectively). Another pair (AAL24030/AAL24031) had less than 30% solids as noted above. Those field duplicate pairs also contained the majority of non-2378-TCDD RPDs that did not meet acceptance criteria. Although non-2378-TCDD data were estimated based upon poor precision, no sample values (positive detects or non-detects) were rejected. Four single blind performance evaluation samples were analyzed with this case. 2378-TCDD scored acceptable in all four samples. Nine non-2378-TCDD congeners were scored Action Low (and two were scored Action High) out of the 64 total non-2378-congeners analyzed (16 non-2378-TCDD congeners in each of the four PE samples). Since the samples from this Case were not all extracted and/or analyzed with the PE samples, the ESAT data validator used a conservative approach and applied actions for non-2378-TCDD congeners with low scores to all samples from this Case. For those non-2378-congeners, the positive detects were estimated (the reported concentration may be biased low) and the non-detects were rejected.

* The evaluation of "sampling error" cannot be completely assessed in the data validation.

** Sampling variability is not assessed in data validation.

Validator: [signature]

Date: 2-11-99

Dioxin/Furan and Hx roxanthene Analysis

SITE: WOONASQUATUCKET RIVER/CENTREDALE MANOR - NORTH PROVIDENCE, RI
REFERENCE NO.: 98-AAL24 SDG NO.: AAL24001

SAMPLE NUMBER:	AAL24001#		AAL24002#		AAL24003#		AAL24004#		AAL24005#		AAL24006#	
STATION LOCATION:	SS-01		SS-02		SS-03		SS-04		SS-05		SS-06	
MATRIX:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
TCDD/TCDF CONC :	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
2,3,7,8-TCDD	R		4672^ J		105.1		6272^ J		3333^ J		2939 J	
1,2,3,7,8-PeCDD	R		UJ	43 52	UJ	2.12	10 63 J		UJ	3 00	12 17 J	
1,2,3,4,7,8-HxCDD	R		UJ	49 88	U	1.56	4 82 J		U	2.27	24 64 J	
1,2,3,6,7,8-HxCDD	R		R		R		19 74 J			7.88*	62 84 J	
1,2,3,7,8,9-HxCDD	R		27.79^ J		UJ	1 53	16 61 J		115.46^		65.74 J	
1,2,3,4,6,7,8-HpCDD	R		615.35 J		UJ	23.03	451 00 J		144.69		1427 J	
OCDD	R		3300^ J		UJ	126.17	3373 J		UJ	735.71	6099 J	
2,3,7,8-TCDF	R		75.46 J		3.80 J			25.11*	29.25 J		39 30 J	
1,2,3,7,8-PeCDF	R		51.62 J		R			6 03*	17 89^ J		3 80 J	
2,3,4,7,8-PeCDF	R		60.59 J		0.43 J			9 68*	U	6.77	15 97 J	
1,2,3,4,7,8-HxCDF	R		71.60^ J		R		29 45 J		26.74 J		38 09 J	
1,2,3,6,7,8-HxCDF	R		68.81 J		R		25 21 J		10 01 J		17 85 J	
1,2,3,7,8,9-HxCDF	R		R		R		R		R		R	
2,3,4,6,7,8-HxCDF	R		24.34^ J		R		14 31 J		7.54 J		R	
1,2,3,4,6,7,8-HpCDF	R		373.56 J			2.18*	327.74 J		140.35 J		168 06 J	
1,2,3,4,7,8,9-HpCDF	R			10.14*	U	0.92	12.28 J		8.21 J		5 98 J	
OCDF	R		424.88 J		R		314.75 J		UJ	124.06	UJ	125 08
Hexachloroxanthene	R		263000^ J		9921		168172^ J		63241		48276 J	
TOXICITY EQUIVALENCY:	R		4745.39J		105.72J		6307.58J		3356 61J		3000 22J	
% SOLIDS:	94.5		79 4		87 1		88 6		75 9		34 8	
DILUTION FACTOR:	1.0		1 0		1 0		1 0		1 0		1 0	
DATE SAMPLED:	09/09/98		09/09/98		09/09/98		09/09/98		09/09/98		09/09/98	
DATE OF RECEIPT:	09/11/98		09/11/98		09/11/98		09/11/98		09/11/98		09/11/98	
SAMPLE EXTRACTION DATE:	10/02/98		10/02/98		10/02/98		10/02/98		10/02/98		10/02/98	
ANALYSIS DATE:	10/20/98		10/20/98		10/21/98		10/21/98		10/21/98		10/21/98	
GC/MS I D.:	AAL24001		AAL24002		AAL24003		AAL24004		AAL24005		AAL24006	

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
^ = Results reported from reextraction and reanalysis

Dioxin/Furan and Hexachloroxanthene Analysis

SITE: WOONASQUATUCKET RIVER/CENTREDALE MANOR - NORTH PROVIDENCE, RI
REFERENCE NO.: 98-AAL24 SDG NO.: AAL24001

SAMPLE NUMBER:	AAL24007#		AAL24008#		AAL24009#		AAL24010#		AAL24011#		AAL24012#	
STATION LOCATION:	SD-01		SD-02		SD-03		SD-04		SD-05		SD-06	
MATRIX:	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
TCDD/TCDF CONC.:	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
2,3,7,8-TCDD	119.77 J		86.81 J		31.9 J		404.87 J		18 12 J		16 52	
1,2,3,7,8-PeCDD	UJ	7.49	UJ	1.78		0 52*		3.16*	UJ	2.14	U	0 73
1,2,3,4,7,8-HxCDD		3.14*	UJ	1.09	UJ	0.28	5 99 J		UJ	0 82	U	0 54
1,2,3,6,7,8-HxCDD	7.59 J			3.18*		2.25*	16 35 J		R			2 47*
1,2,3,7,8,9-HxCDD	7.55 J			4 40*		2.30*		15.78*	UJ	0 80		1 51*
1,2,3,4,6,7,8-HpCDD		215.42*	UJ	87 40	UJ	43 07	340 57 J		UJ	15 84	UJ	45 12
OCDD	UJ	1304	UJ	416 06	UJ	263 21	UJ	1897.26	UJ	131.13	UJ	255 92
2,3,7,8-TCDF	9.32 J		4.09 J			3 94*	20 18 J		1.33 J			4 96*
1,2,3,7,8-PeCDF		4.83*	R			0 83*	1 86 J		R		R	
2,3,4,7,8-PeCDF		3 71*	UJ	0 67		1.16*		2.36*	U	0.95	U	0 79
1,2,3,4,7,8-HxCDF	R		R		2.77 J			5 13*	1.26 J		4 72 J	
1,2,3,6,7,8-HxCDF	5.25 J		R		1.51 J			3.32*	R		2 02 J	
1,2,3,7,8,9-HxCDF	R		R		R		R		R		R	
2,3,4,6,7,8-HxCDF		5.12*	R			1.18*		2.44*	R			1 04*
1,2,3,4,6,7,8-HpCDF	78.59 J		UJ	3.26		21.82*	28.39 J		UJ	0.98		17 57*
1,2,3,4,7,8,9-HpCDF	UJ	6.25	UJ	2.54		1 26*	UJ	1.48	UJ	1.16	2 00	
OCDF	UJ	129.07	R		UJ	27.87	UJ	53 52	UJ	14.71	UJ	22 68
Hexachloroxanthene	49351 J		21868 J		UJ	414 58	6842 J		UJ	11.82	UJ	356 77
TOXICITY EQUIVALENCY	128.59J		87 98J		34 41J		418 33J		18 38J		18 39J	
% SOLIDS	77.0		87.8		91 9		72 2		88 8		96 7	
DILUTION FACTOR:	1 0		1.0		1 0		1 0		1 0		1 0	
DATE SAMPLED:	09/09/98		09/09/98		09/09/98		09/09/98		09/09/98		09/09/98	
DATE OF RECEIPT:	09/11/98		09/11/98		09/11/98		09/11/98		09/11/98		09/11/98	
SAMPLE EXTRACTION DATE:	10/02/98		10/02/98		10/14/98		10/14/98		10/06/98		10/06/98	
ANALYSIS DATE:	11/12/98		10/21/98		10/28/98		10/28/98		10/22/98		10/22/98	
GC/MS I.D.:	AAL24007		AAL24008		AAL24009		AAL24010		AAL24011		AAL24012	

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
^ = Results reported from reextraction and reanalysis

Dioxin/Furan & He roxanthene Analysis

SITE: WOONASQUATUCKET RIVER/CENTREDALE MANOR - NORTH PROVIDENCE, RI
REFERENCE NO.: 98-AAL24 SDG NO.: AAL24001

SAMPLE NUMBER:	AAL24013#		AAL24014#		AAL24015#		AAL24016#		AAL24017#		AAL24018#	
STATION LOCATION:	SD-07		SD-08		SD-09		SD-10		SD-11		SD-12	
MATRIX:	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
TCDD/TCDF CONC.:	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
2,3,7,8-TCDD	48.47 J		194.88 J		28.63 J		160.94 J		264.41 J		19.16 J	
1,2,3,7,8-PeCDD	UJ	0.81	1.99 J		UJ	0.53		0.89*		0.84*	UJ	0.65
1,2,3,4,7,8-HxCDD	UJ	0.39		3.24*	UJ	0.58	1.48 J			1.62*	UJ	0.50
1,2,3,6,7,8-HxCDD	R		9.66 J			0.93*	3.12 J		4.00 J		R	
1,2,3,7,8,9-HxCDD		0.90*	10.66 J		1.70 J			3.60*	4.33 J			1.40*
1,2,3,4,6,7,8-HpCDD	UJ	11.03	190.18 J		UJ	19.54	UJ	77.21	UJ	89.34	UJ	9.86
OCDD	UJ	76.69	UJ	1778	UJ	118.69	UJ	360.87	UJ	559.17	UJ	69.19
2,3,7,8-TCDF	51.64 J		19.13 J		UJ	0.43		7.85*		7.00*		0.70*
1,2,3,7,8-PeCDF		1.66*	1.91 J			0.62*	R			0.32*		0.80*
2,3,4,7,8-PeCDF		1.45*		2.55*		0.92*	UJ	2.33		1.38*		0.71*
1,2,3,4,7,8-HxCDF		2.21*	5.08 J		R		R		5.76 J		1.40 J	
1,2,3,6,7,8-HxCDF		1.88*	4.09 J			1.26*	R		3.60 J			0.64*
1,2,3,7,8,9-HxCDF	R		R		R		R		R		R	
2,3,4,6,7,8-HxCDF		0.98*	2.62 J			1.10*	R		3.30 J		R	
1,2,3,4,6,7,8-HpCDF	UJ	1.25		51.23*	UJ	0.40		14.62*	142.38 J			4.60*
1,2,3,4,7,8,9-HpCDF	UJ	2.37	UJ	0.82	UJ	0.48		2.33*	1.02 J		UJ	0.89
OCDF	R		UJ	71.34	UJ	8.79	UJ	28.81	UJ	58.40	UJ	7.82
Hexachloroxanthene	UJ	721.48	UJ	3390	UJ	1502	UJ	5036	UJ	4369	UJ	377.83
TOXICITY EQUIVALENCY:	55.04J		205.10J		29.62J		163.16J		269.83J		20.02J	
% SOLIDS:	89.4		82.9		95.2		56.0		82.4		92.9	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	09/09/98		09/09/98		09/09/98		09/09/98		09/09/98		09/09/98	
DATE OF RECEIPT:	09/11/98		09/11/98		09/11/98		09/11/98		09/11/98		09/11/98	
SAMPLE EXTRACTION DATE:	10/06/98		10/06/98		10/06/98		10/06/98		10/06/98		10/06/98	
ANALYSIS DATE:	10/22/98		10/30/98		10/26/98		10/26/98		10/26/98		10/26/98	
GC/MS I.D.:	AAL24013		AAL24014		AAL24015		AAL24016		AAL24017		AAL24018	

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
^ = Results reported from reextraction and reanalysis

Dioxin/Furan & Hexachloroxanthene Analysis

SITE: WOONASQUATUCKET RIVER/CENTREDALE MANOR - NORTH PROVIDENCE, RI
REFERENCE NO.: 98-AAL24 SDG NO.: AAL24001

SAMPLE NUMBER:	AAL24019#		AAL24020#		AAL24021#		AAL24022#		AAL24023#		AAL24024#	
STATION LOCATION:	SD-13		SD-14		SD-15		SD-16		SD-17		SD-18	
MATRIX:	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
TCDD/TCDF CONC.:	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
2,3,7,8-TCDD	112.27 J		28.86 J		UJ	0.70	469.12 J		611.06 J		7987.02 J	
1,2,3,7,8-PeCDD	UJ	1.14	UJ	0.56	UJ	0.66		1.26*		1.94*		7.22*
1,2,3,4,7,8-HxCDD	1.28 J		UJ	0.28	UJ	0.58	UJ	1.65	UJ	1.35		7.56*
1,2,3,6,7,8-HxCDD	6.16 J			1.97*	R			7.27*	8.72 J		42.16 J	
1,2,3,7,8,9-HxCDD	5.34 J			1.68*		0.48*		16.48*	9.14 J		42.19 J	
1,2,3,4,6,7,8-HpCDD	UJ	96.51	UJ	24.68	UJ	0.92	UJ	158.67	UJ	220.25	709.87 J	
OCDD	UJ	878.26	UJ	162.86	UJ	25.06	UJ	942.23	UJ	1575.88	4568.52 J	
2,3,7,8-TCDF	6.06 J		UJ	0.48	UJ	0.57	UJ	0.88	5.74 J		24.96 J	
1,2,3,7,8-PeCDF		2.24*		.0.22*	R			1.28*		1.61*		7.45*
2,3,4,7,8-PeCDF	2.35 J			0.64*	UJ	0.37		2.08*	2.82 J			12.58*
1,2,3,4,7,8-HxCDF	7.50 J		R		R			3.19*	12.19 J			33.56*
1,2,3,6,7,8-HxCDF	2.71 J		1.39 J		R			1.29*	4.47 J		23.64 J	
1,2,3,7,8,9-HxCDF	R		R		R		R		R		R	
2,3,4,6,7,8-HxCDF		2.38*	0.98 J		R		R		2.86 J		12.11 J	
1,2,3,4,6,7,8-HpCDF		38.92*		8.95*	UJ	0.57		21.80*	UJ	3.13		353.98*
1,2,3,4,7,8,9-HpCDF		1.76*	UJ	0.53	UJ	0.81	UJ	1.19	UJ	3.39	UJ	5.25
OCDF	UJ	54.19	UJ	11.31	R		UJ	33.08	UJ	86.48	UJ	311.23
Hexachloroxanthene	UJ	2472	UJ	603.03	UJ	2022	15011 J		15478 J		166500 J	
TOXICITY EQUIVALENCY:	117.11J		29.88J		0.05J		473.90J		617.83J		8031.13J	
% SOLIDS:	72.4		99.0		81.1		46.3		34.5		40.0	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	09/09/98		09/09/98		09/09/98		09/09/98		09/09/98		09/09/98	
DATE OF RECEIPT:	09/11/98		09/11/98		09/11/98		09/11/98		09/11/98		09/11/98	
SAMPLE EXTRACTION DATE:	10/06/98		10/06/98		10/14/98		10/14/98		10/14/98		10/14/98	
ANALYSIS DATE:	10/26/98		10/26/98		11/17/98		10/27/98		10/27/98		11/17/98	
GC/MS I.D.:	AAL24019		AAL24020		AAL24021		AAL24022		AAL24023		AAL24024	

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
^ = Results reported from reextraction and reanalysis

Dioxin/Furan & Hex roxanthene Analysis

SITE: WOONASQUATUCKET RIVER/CENTREDALE MANOR - NORTH PROVIDENCE, RI
REFERENCE NO : 98-AAL24 SDG NO.: AAL24001

SAMPLE NUMBER:	AAL24025#		AAL24026#		AAL24027#		AAL24028#		AAL24029#		AAL24030#	
STATION LOCATION:	SD-19		SD-20		SD-21		SD-22		SD-23		SD-24	
MATRIX:	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
TCDD/TCDF CONC :	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
2,3,7,8-TCDD	18.11 J		3534.20^ J		4098 98 J		7468 07 J		10050 80 J		5788.14 J	
1,2,3,7,8-PeCDD	UJ	1.93		13 46*	3.15 J		12 90 J			19 12*		9 57*
1,2,3,4,7,8-HxCDD	UJ	1.09		23.52*	3 61 J		23.32 J			35.64*	22 52 J	
1,2,3,6,7,8-HxCDD	4.15 J		71 42 J		9 21 J		70.57 J		68.81 J		79 44 J	
1,2,3,7,8,9-HxCDD	UJ	1.07	66.99 J		10 87 J		84 43 J			76.08*	73 80 J	
1,2,3,4,6,7,8-HpCDD	UJ	67.73	1423.96 J		175.58 J		1787.11 J		1607 00 J		1408 63 J	
OCDD	UJ	414.75	8641.61 J		UJ	939.76	11541 64 J		9155.60 J		8302 96 J	
2,3,7,8-TCDF	UJ	0 65	45.28^ J		14 89 J			42 55*	47.11 J		35 59 J	
1,2,3,7,8-PeCDF	R			9 42*		1 86*		9 17*	7 91 J		5 61 J	
2,3,4,7,8-PeCDF	UJ	0 79		11 50*	UJ	1.04	18 05 J			19 49*		10 77*
1,2,3,4,7,8-HxCDF	R			44.70*	11.68 J		R		52 36 J		36 68 J	
1,2,3,6,7,8-HxCDF	R			34.34*	8.78 J		32.50 J		36 01 J		26 48 J	
1,2,3,7,8,9-HxCDF	R		R		R		R		R		R	
2,3,4,6,7,8-HxCDF		0.98*		21.29*		3 89*	22 05 J		17 96 J		13 96 J	
1,2,3,4,6,7,8-HpCDF	UJ	1.53	644.30^ J		82 00 J		UJ	8.13	R		R	
1,2,3,4,7,8,9-HpCDF	UJ	1 62		20 58*	4 35 J		29 61 J			30.95*		8 66*
OCDF	UJ	34.12	UJ	581.98	UJ	56 41	1158.06 J		R		R	
Hexachloroxanthene	UJ	705.16	75570 J		99202 J		183333 J		384758 J		135060 J	
TOXICITY EQUIVALENCY:	18.62J		3607.43J		4109 58J		7542 41J		10129 43J		5849 91J	
% SOLIDS:	81.4		30.7		75 2		30 0		22 7		25 1	
DILUTION FACTOR:	1.0		1.0		1 0		1 0		1 0		1 0	
DATE SAMPLED:	09/09/98		09/09/98		09/09/98		09/09/98		09/09/98		09/09/98	
DATE OF RECEIPT:	09/11/98		09/11/98		09/11/98		09/11/98		09/11/98		09/11/98	
SAMPLE EXTRACTION DATE:	10/14/98		10/14/98		10/14/98		10/14/98		10/16/98		10/16/98	
ANALYSIS DATE:	10/28/98		10/28/98		10/28/98		10/28/98		11/17/98		10/29/98	
GC/MS I.D.:	AAL24025		AAL24026		AAL24027		AAL24028		AAL24029		AAL24030	

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
^ = Results reported from reextraction and reanalysis

Dioxin/Furan & Hexachloroxanthene Analysis

SITE: WOONASQUATUCKET RIVER/CENTREDALE MANOR - NORTH PROVIDENCE, RI
REFERENCE NO.: 98-AAL24 SDG NO.: AAL24001

SAMPLE NUMBER:	AAL24031#		AAL24032#		AAL24033#		AAL24034#		AAL24035#		AAL24036#	
STATION LOCATION:	SD-25		SD-26		SD-27		SD-28		SD-29		SD-30	
MATRIX:	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
TCDD/TCDF CONC.:	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
2,3,7,8-TCDD	5178.90 J		92.24 J		1332.96 J		UJ	2.13	54.60 J		15738.10^ J	
1,2,3,7,8-PeCDD	R		UJ	1.58	0.41 J		UJ	0.94	UJ	1.93	20.04^ J	
1,2,3,4,7,8-HxCDD		13.54*	UJ	1.30	UJ	0.48		0.50*		1.42*	16.87 J	
1,2,3,6,7,8-HxCDD		41.3*	R		2.01 J			2.72*	5.48 J		38.68 J	
1,2,3,7,8,9-HxCDD		45.91*	UJ	1.30	UJ	0.47		1.67*		7.46*	51.47 J	
1,2,3,4,6,7,8-HpCDD	757.71 J		UJ	10.54	UJ	23.65	UJ	25.32	UJ	117.46	909.95 J	
OCDD	6473.10 J		UJ	48.80	UJ	103.82	UJ	122.21	UJ	746.93	4653.86 J	
2,3,7,8-TCDF		11.75*		1.35*	2.60 J			0.80*	1.36 J		587.64 J	
1,2,3,7,8-PeCDF	R		R		0.58 J		R		R		151.03 J	
2,3,4,7,8-PeCDF		4.20*	UJ	2.10	0.70 J			0.60*		1.10*	UJ	18.64
1,2,3,4,7,8-HxCDF	12.67 J		R		2.24 J			0.60*	R		41.35 J	
1,2,3,6,7,8-HxCDF		9.20*		1.38*	1.48 J			0.33*	R		20.06 J	
1,2,3,7,8,9-HxCDF	R		R		R		R		R		R	
2,3,4,6,7,8-HxCDF	5.34 J		R		1.06 J			0.66*	1.29 J			8.04*
1,2,3,4,6,7,8-HpCDF	R			9.79*		16.42*		16.40*		34.41*	73.79 J	
1,2,3,4,7,8,9-HpCDF	R		UJ	3.24	UJ	1.03	UJ	1.07	UJ	2.41	6.85 J	
OCDF	R		UJ	8.33	UJ	7.65	UJ	7.07	UJ	41.05	UJ	88.31
Hexachloroxanthene	88476 J		UJ	2636.70	50523 J		UJ	281.32	UJ	582.52	93773 J	
TOXICITY EQUIVALENCY:	5209.02J		92.61		1335.05J		1.19J		57.20J		15846.64J	
% SOLIDS:	26.9		82.3		86.1		86.1		72.1		54.6	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	09/09/98		09/09/98		09/09/98		09/09/98		09/09/98		09/09/98	
DATE OF RECEIPT:	09/11/98		09/11/98		09/11/98		09/11/98		09/11/98		09/11/98	
SAMPLE EXTRACTION DATE:	10/16/98		10/16/98		10/16/98		10/16/98		10/16/98		10/23/98	
ANALYSIS DATE:	10/29/98		10/29/98		10/29/98		10/29/98		10/30/98		11/02/98	
GC/MS I.D.:	AAL24031		AAL24032		AAL24033		AAL24034		AAL24035		AAL24036	

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
^ = Results reported from reextraction and reanalysis

Dioxin/Furan & He... ...oroxanthene Analysis

SITE: WOONASQUATUCKET RIVER/CENTREDALE MANOR - NORTH PROVIDENCE, RI
REFERENCE NO.: 98-AAL24 SDG NO.: AAL24001

SAMPLE NUMBER:	AAL24037#		AAL24038#		AAL24039#		AAL24040#		AAL24041#		AAL24042#	
STATION LOCATION:	SD-31		SD-32		SD-33		SD-34		SD-35		SD-36	
MATRIX:	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
TCDD/TCDF CONC.:	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
2,3,7,8-TCDD	UJ	1.84	UJ	1.56	19.07 J		UJ	9.68	UJ	2.41	UJ	1.00
1,2,3,7,8-PeCDD	UJ	0.65	UJ	0.86	UJ	8.19	UJ	3.54	UJ	3.06	UJ	1.21
1,2,3,4,7,8-HxCDD		1.68*	1.38 J		UJ	5.40	5.83 J		2.26 J		UJ	1.24
1,2,3,6,7,8-HxCDD	4.34 J		3.92 J		50.56 J		36.17 J			6.09*	R	
1,2,3,7,8,9-HxCDD	4.75 J		3.45 J		24.08 J		26.80 J		3.92 J		UJ	1.18
1,2,3,4,6,7,8-HpCDD	UJ	74.85	UJ	76.84	351.33 J		UJ	238.32	UJ	82.56	UJ	25.15
OCDD	UJ	390.99	UJ	427.67	UJ	740.46	UJ	1151.08	UJ	482.22	UJ	133.50
2,3,7,8-TCDF		0.81*	UJ	0.68	78.53 J		10.34 J			3.40*		0.88*
1,2,3,7,8-PeCDF		0.26*	R		9.61 J			6.44*		1.39*	0.82 J	
2,3,4,7,8-PeCDF		0.63*	UJ	0.42	52.40 J			7.19*	2.10 J			0.94*
1,2,3,4,7,8-HxCDF	R		0.74 J		148.93 J		33.22 J		R			1.72*
1,2,3,6,7,8-HxCDF		0.71*	R		60.38 J		14.25 J			3.68*	R	
1,2,3,7,8,9-HxCDF	R		R		R			4.86*	R		R	
2,3,4,6,7,8-HxCDF	R		R		26.07 J		9.25 J			2.93*		1.16*
1,2,3,4,6,7,8-HpCDF	-	7.12*	5.47 J		547.45 J			186.31*	UJ	1.50	9.70 J	
1,2,3,4,7,8,9-HpCDF	UJ	1.00	U	2.17		47.60*		8.99*	UJ	1.35	UJ	0.68
OCDF	UJ	6.02	UJ	10.02	398.16 J		UJ	42.23	UJ	16.76	UJ	15.77
Hexachloroxanthene	UJ	1352.01	UJ	1941.52	UJ	2693.37	UJ	2708.86	UJ	2100.94	UJ	521.68
TOXICITY EQUIVALENCY:	1.63J		1.00J		94.47J		19.94J		3.35J		0.98J	
% SOLIDS:	82.1		85.5		72.4		39.5		42.6		80.7	
DILUTION FACTOR:	1.0		1.0		1.0		1.0		1.0		1.0	
DATE SAMPLED:	09/09/98		09/09/98		09/09/98		09/09/98		09/09/98		09/09/98	
DATE OF RECEIPT:	09/11/98		09/11/98		09/11/98		09/11/98		09/11/98		09/11/98	
SAMPLE EXTRACTION DATE:	10/23/98		10/23/98		11/23/98		10/23/98		10/14/98		10/23/98	
ANALYSIS DATE:	11/02/98		11/02/98		11/24/98		11/03/98		11/03/98		11/03/98	
GC/MS I.D.:	AAL24037		AAL24038		AAL24039		AAL24040		AAL24041		AAL24042	

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits.
# = These values are reported on a dry weight basis.
^ = Results reported from reextraction and reanalysis

SITE: WOONASQUATUCKET RIVER/CENTREDALE MANOR - NORTH PROVIDENCE, RI
REFERENCE NO. 98-AAL24 SDG NO.: AAL24001

SAMPLE NUMBER	AAL24043#		AAL24044#		AAL24045#	
STATION LOCATION	SD-37		SD-38		SD 39	
MATRIX	SEDIMENT		SEDIMENT		SEDIMENT	
TCDD/TCDF CONC	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*	ng/Kg	DL/EMPC*
2,3,7,8-TCDD	UJ	4.12	R		UJ	2.16
1,2,3,7,8-PeCDD	UJ	9.39	R		UJ	1.69
1,2,3,4,7,8-HxCDD	UJ	16.36		4.80*	UJ	1.59
1,2,3,6,7,8-HxCDD	R			10.21*	2.23 J	
1,2,3,7,8,9-HxCDD	UJ	16.36		549.73*	78.36 J	
1,2,3,4,6,7,8-HpCDD	UJ	66.12	UJ	199.05	UJ	45.32
OCDD	UJ	561.75	UJ	1128.49	UJ	269.67
2,3,7,8-TCDF	UJ	3.15	6.92 J		3.80 J	
1,2,3,7,8-PeCDF	R		3.43 J		R	
2,3,4,7,8-PeCDF	UJ	3.02		3.51*	2.02 J	
1,2,3,4,7,8-HxCDF	R		10.75 J		R	
1,2,3,6,7,8-HxCDF	R		7.49 J		R	
1,2,3,7,8,9-HxCDF	R		R		R	
2,3,4,6,7,8-HxCDF	R			5.67*	2.14 J	
1,2,3,4,6,7,8-HpCDF		31.86*	57.47 J		48.54 J	
1,2,3,4,7,8,9-HpCDF	UJ	8.21		6.10*	3.20 J	
OCDF	UJ	36.58	UJ	81.86	UJ	16.13
Hexachloroxanthene	UJ	3100.00	UJ	1383.84	UJ	504.32
TOXICITY EQUIVALENCY		0.32J		62.11J		10.18J
% SOLIDS		69.4		29.7		57.9
DILUTION FACTOR		1.0		1.0		1.0
DATE SAMPLED		09/09/98		09/09/98		09/09/98
DATE OF RECEIPT		09/11/98		09/11/98		09/11/98
SAMPLE EXTRACTION DATE		11/03/98		11/03/98		11/03/98
ANALYSIS DATE		11/12/98		11/04/98		11/04/98
QC/MS I.D.		AAL24043		AAL24044		AAL24045

* = These values are EMPCs (Estimated Maximum Possible Concentration); Values without an "*" are the Detection Limits
# = These values are reported on a dry weight basis.
^ = Results reported from reextraction and reanalysis

Click Here to View Next Section