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Site: Industr. Plex
Break: 3.6
Other: 34150

APPENDIX D3

Hall's Brook Holding Area and
Metals Mobility
Data Validation Documentation

Conventional Parameters Data

April 10, 1992

Mr. Robert Barrick
PTI Environmental Services
15375 S. E. 30th Place
Suite 250
Bellevue, WA

RE: Data Validation Report Letter
Project #:C1320301
Skinner and Sherman Laboratories
Conventionals: Ammonia, Phosphate, Chloride, Nitrate, Sulfate, Chromium (VI)
(See Table 1 for Identification of Samples Reviewed)

Dear Mr. Barrick:

A validation was performed on the conventional analytical data from 43 aqueous samples collected by PTI Environmental Services at the Idustri-Plex site in Woburn, MA. The data were evaluated based on the Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, February, 1989:

- data completeness
* - holding times
- calibration verification
- laboratory and field blank analyses
- matrix spike percent recovery results
* - laboratory and field duplicates
* - detection limit results
- sample results

* All criteria were met for this parameter.

Table 2 summarizes the validation recommendations that were based on the following information:

Data Completeness

The following information is required for all analytes:

- Chain-of-custody information
- Sample preservation
- Analysis run data
- Initial calibration
- ICV/CCV values
- Preparation and CCB values
- Matrix duplicate analyses
- Matrix spike data
- Sample reanalysis/sample dilutions

Ammonia

All criteria met.

Phosphate

All criteria met.

Chloride

All criteria met.

Nitrate

All criteria met.

Sulfate

All criteria met.

Chromium (VI)

For the chromium (VI) values in sample delivery group 91-11-208, initial calibration verification data were missing. Chromium (VI) samples are qualified due to poor matrix spike recovery (67%). Thus, no additional qualification is required due to the missing data.

Calibration

Initial calibration values (ICV) were run immediately after calibration and continuing calibration values (CCV) were run every ten samples, which meets frequency requirements. All ICV/CCV values were within control limits (90-110% recovery) except for the following:

Ammonia

Analyte	Qualifier	Sample Number	Reason
Ammonia-N	J(+)/UJ(ND)	EQ1B-4; EQ1B-29; OW33A; OW1A; OW15; EQ2A-14; EQ2A-36; EQ2B-17,18; OW17; OW17B; OW42; OW47; SM4; OW19A	ICV recovery low (85.9%). Criteria = 90%-110%.
Ammonia-N	J(+)/UJ(ND)	EQ3A-17; EQ3A-37; OW41; OW12	CCV recovery low (87.9%). Criteria = 90-110%.
Ammonia-N	J(+)/UJ(ND)	OW37; OW43; OW11; OW38; OW101; OW48A; SM1	CCV recovery low (89.1%). Criteria = 90-110%.

Phosphate

All criteria met.

Chloride

All criteria met.

Nitrate

Analyte	Qualifier	Sample Number	Reason
Nitrate-N	J(+)/UJ(ND)	EQ2B-AN LOW; OW17; OW17B; OW42	CCV recovery low (86.9%) Criteria = 90-110%.
Nitrate-N	J(+)/UJ(ND)	OW16; OW38; OW48A; OW101; SM1; SM4	CCV recovery low (87.0%). Criteria = 90-110%.

Sulfate

All criteria met.

Chromium (VI)

Final CCV was high (113%). Samples associated with this CCV were below the reporting level (RL). Therefore, no qualification is required.

Laboratory and Field Blank Analyses

Three types of blanks are evaluated for possible contamination affects. These blanks are: initial calibration blanks (ICB), continuing calibration blanks (CCB), and preparation blanks (PB).

For all laboratory blanks, both positive and negative blank values are evaluated, and an action limit of five times the highest associated blank concentration is determined for each affected analyte. For analytes with positive blank values, if the sample results were less than the action limit, it should be considered undetected at the reported concentration and assigned a U qualifier. No data qualifiers are required for undetected sample results. For analytes with negative blank values; the raw data were reviewed, and for each sample raw data results were checked to see if a possible false negative or biased sample results was reported. Samples with possible negative blank contamination are flagged "J" (detected values) or "UJ" (undetected value) due to a possible low bias.

Ammonia

All criteria met.

Phosphate

Analyte	Qualifier	Sample Number	Reason
Phosphate	U at Reported Value	OW41	Value less than 5 times blank concentration.

Chloride

All criteria met.

Nitrate

Analyte	Qualifier	Sample Number	Reason
Nitrate	J(+)/UJ(ND)	EQ2A-18,19,20,21; OW15; OW17B; OW33A; OW37; OW43; EQ1A-36,37,35; EQ2A-37,38,39,40; EQ3A-18,19,20,21; EQ3A-38,39,40,41; EQ2B-AN LOW; OW11; OW12; OW16; OW19A; OW38; OW42; OW47; OW101	Negative blank results reported. Possibility of false negative or biased low sample results.

Sulfate

All criteria met.

Chromium (VI)

All criteria met.

Matrix Spike Sample Analyses

Ammonia

All criteria met.

Phosphate

All criteria met.

Chloride

All criteria met.

Nitrate

All criteria met.

Sulfate

All criteria met.

Chromium (VI)

Analyte	Qualifier	Sample Number	Reason
Chromium (VI)	UJ	EQ3A-11,12; OW12; OW47	MS recovery low (57%). Criteria = 75-125%.
Chromium (VI)	UJ	OW31; OW32; OW36; OW37; OW41	MS recovery low (62%). Criteria = 75-125%.
Chromium (VI)	R	OW11; OW16; OW38; OW48A; OW101; SM1; SM4	MS (27%). Acceptable criteria = 75-125%. All results were reported as ND.

Sample Results

Ammonia

All criteria met.

Phosphate

All criteria met.

Chloride

All criteria met.

Nitrate

Nitrate values were obtained by subtraction of nitrite results from nitrate + nitrite results. Therefore, nitrate values were reported at less than the nitrate + nitrite detection limit of 0.10 mg/L.

Sulfate

All criteria met.

Chromium (VI)

All criteria met.

Overall Assessment

Samples were qualified based on initial/continuing calibration, blank contamination, or matrix spike percent recovery criteria. Chromium (VI) values for Samples OW-11, OW-16, OW-38, OW-48, OW-101, SM-1, and SM-4 were rejected due to poor matrix spike recovery. The remaining data are acceptable as qualified.

Attached are Table 1 - Identification of Samples Reviewed; Table 2 - Recommendation Summary; Table 3 - Data Summary with Qualifiers; and Data Validation Worksheet for Conventional analyses.

Sincerely,

EcoChem, Inc.

Ann Bailey
President

Attachments

Table 1: Identification of Samples Reviewed

Sample Identification

Water:

EQ1B-4	EQ1B-29	EQ1A-12,11,10,9;	EQ1A-36,37,35
EQ1B-17,18	EQ1B-32,33	OW-33A	OW-1A
OW-15	EQ2A-14	EQ2A-36	EQ2B-17,18
EQ2A-11,12	EQ2A-27,28	EQ2A-18,19,20,21	EQ2A-37,38,39,40
EQ2B-AN LOW	OW-17	OW-17B	OW-19A
OW-42	EQ3A-17	EQ3A-37	EQ3A-11,12
EQ3A-27,28	EQ3A-18,19,20,21	EQ3A-38,39,40,41	EQ3B-36,40
OW-12	OW-41	OW-47	OW-31
OW-32	OW-36	OW-37	OW-43
OW-48A	OW-11	OW-16	OW-38
OW-101	SM-1	SM-4	

Table 2: Recommendation Summary for Water Samples.

Analyte	Qualifier
Nitrate	J^1,J^2 UJ^1,UJ^2
Ammonia	J^2, UJ^2
Phosphate	U^1
Chloride	
Sulfate	
Chromium (VI)	UJ^3, R^1

Codes:

If the field is left blank, the qualifier is A - Accept all data.

J^1 - Consider the following detected results estimated due to potential negative bias: EQ2A-18,19,20,21; OW-15; OW-17B; OW-33A; OW-37; OW-43.

U^1 - Consider the following results above the RL and below the blank action level: OW-41.

UJ^1 - Consider the following undetected results as estimated due to potential negative bias: EQ1A-36,37,35; EQ2A-37,38,39,40; EQ3A-18,19,20,21; EQ3A-38,39,40,41; EQ2B-AN LOW; OW-11; OW-12; OW-16; OW-19A; OW-38; OW-42; OW-47; OW-101.

J^2 - Consider the following detected results estimated due to ICV and/or CCV values outside acceptable 90%-110% range. Ammonia: EQ1B-4; EQ1B-29; OW-33A; OW-1A; EQ2A-14; EQ2A-36; EQ2B-17,18; OW-17; OW-17B; OW-19A; OW-42; OW-47; SM-4; EQ3A-17; EQ3A-37; OW-12; OW-37; OW-41; OW-43; OW-11; OW-38; OW-48A; SM-1; Nitrate: OW-17; OW-17B; SM-1; SM-14.

UJ^2 - Consider the following undetected results as estimated due to ICV and/or CCV values outside acceptable 90%-110% range. Ammonia: OW-15; OW-101; Nitrate: EQ2B-AN LOW; OW-42; OW-16; OW-38; OW-48A; OW-101.

UJ^3 - Consider the following undetected results estimated due to matrix spike percent recovery less than 75%. EQ3A-11,12; OW-41; OW-12; OW-47; OW-31; OW-32; OW-36; OW-37; OW-41.

R[1] - Consider the following undetected results rejected due to matrix spike percent recovery less than 30%. OW-11; OW-16; OW-38; OW-48; OW-101; SM-1; SM-4.

Table 3. Conventional Data Summary with Qualifiers

Sample Number:	S32002	S32003	S32004	S32008	S32009	S32010	S32012	S32014	S32015	S32265
Location:	SC-1-14	SC-1-7	SC-1-10	SC-3-1	SC-3-7	SC-2-6	SC-2-2	SC-1-12	SC-1-4	OW-17
Depths (cm):	53.7	24.25	36.3	2.6	38.6	38.6	10.5	43.8	13.15	
Sampling Date:	11/18/91	11/18/91	11/18/91	11/20/91	11/20/91	11/19/91	11/19/91	11/18/91	11/18/91	11/20/91
Units:	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/L)
Chlorine										476000
Chromium Hexavalent										10 U
Ammonia										289000 J
Nitrate										140
Nitrite										40
Total Percent Solids	79.1	16.2	60.2	12.9	43.2	21.5	7.5	77.6	7.8	
Phosphate										250 U
Sulfate										4700000
Total Organic Carbon				13.42	3.12	8.69	13.09	0.02	10.19	

Sample Number:	S32520	S32522	S32524	S32525	S32527	S32982	S32983	S32984	S32985	S32986
Location:	SC-3-1	SC-3-2	SC-3-4	SC-3-6	SC-3-9	SC-1-1	SC-1-3	SC-1-6	SC-1-9	SC-1-12
Depths (cm):	2.6	7.2	20.3	32	47.9	2.1	9.55	20.25	32.45	43.6
Sampling Date:	11/20/91	11/20/91	11/20/91	11/20/91	11/20/91	11/18/91	11/18/91	11/18/91	11/18/91	11/18/91
Units:	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)
Total Dissolved Solids	9	9.8	13.2	32.4	75.6	6.3	10.7	13.4	24.2	76.8

Sample Number:	S32967	S32969	S33413	S33415	S33417B	S33420	S33423	S33427	S33428	S33429
Location:	SC-1-2	SC-1-6	SC-2-1	SC-2-3	SC-2-5	SC-2-7	SC-2-11	SC-2-1B	SC-2-3B	SC-2-6B
Depths (cm):	6	20.25	3.5	17.5	31.55	45.6	72.7	3.5	17.5	38.6
Sampling Date:	11/18/91	11/18/91	11/19/91	11/19/91	11/19/91	11/19/91	11/19/91	11/19/91	11/19/91	11/19/91
Units:	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)
Total Percent Solids	11.1	10.1	9.8	12.6	18.2	23.3	80.9			
Total Dissolved Solids								9.3	13.4	13.9

Sample Number:	S33430	S33431	S33433B	S33437	S33439	S33440	S33441	W10193	W23297	W24201
Location:	SC-2-9B	SC-2-13B	SC-3-2	SC-3-6	SC-3-8	SC-3-9	SC-3-10	OW-43	OW-17B	OW-11
Depths (cm):	59.15	86.7	7.2	32	42.4	47.9	53.5			
Sampling Date:	11/19/91	11/19/91	11/20/91	11/20/91	11/20/91	11/20/91	11/20/91	11/23/91	11/20/91	11/22/91
Units:	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/L)	(µg/L)	(µg/L)
Chlorine								20500	495000	72600
Chromium Hexavalent								10 U	10 U	
Ammonia								30100 J	284000 J	12500 J
Nitrate								100 U	100 U	100 U
Nitrite								130 J	170 J	
Total Percent Solids			12.2	40.4	75	71.4	79.6			
Phosphate								250 U	250 U	250 U
Sulfate								799000	3480000	164000
Total Dissolved Solids	72.6	80.5								

U - The compound was considered not detected. The associated numerical value is the quantitation limit.

UJ - The compound was not detected. The sample quantitation limit is an estimated value.

J - The associated numerical value is an estimated quantity.

unflagged - The data were reviewed and all criteria were met.

Conventional Data Summary with Qualifiers (Continued)

Sample Number:	W24212	W24213	W24218	W24218A	W24239	W24245	W24249	W24250	W24263	W24268
Location:	OW-11	OW-48A	OW-48A	OW-48A	OW-31	OW-31	OW-42	OW-32	OW-36	OW-36
Depths (cm):										
Sampling Date:	11/22/91	11/22/91	11/22/91	11/22/91	11/23/91	11/23/91	11/20/91	11/23/91	11/23/91	11/23/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Chlorine	72600	87000		87000	88700	88700	46900	82700	94100	9410
Chromium Hexavalent					10 UJ		10 U	10 UJ	10 UJ	
Ammonia	12500	22900 J	22900		40400	404000	362000 J	48000	100 U	
Nitrate		100 U			100 U		100 U	100 U	100 U	
Nitrite		180 J	180		18500	1850	100 UJ	690	200	200
Phosphate		250 U			250 U		750	250 U	250 U	
Sulfate	164	952000		952000	111000	1110000	66900	10700	118000	118000

Sample Number:	W24274	W24280	W24286	W24291	W25525	W25980	W25984	W25997	W32202	W32206
Location:	OW-37	OW-37	OW-38	OW-38	OW-43	OW-41	OW-41	OW-42	OW-1A	OW-1A
Depths (cm):										
Sampling Date:	11/23/91	11/23/91	11/22/91	11/22/91	11/23/91	11/21/91	11/21/91	11/20/91	11/18/91	11/18/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Chlorine	18100	18100	25500	25500	20500	53800	53800	46900	6480	6480
Chromium Hexavalent	10 UJ					10			10 U	
Ammonia	10800 J	1080	870 J	870	3010	20500	205000	362000	10800	1080
Nitrate	100 U		100 U			310	310		100 U	
Nitrite	130 J	130	100 UJ		130	80	80		660	660
Phosphate	250 U		250 U			250 U	250	750		
Sulfate	52600	52600	230000	230000	799000	299000	299000	66900	5000 U	

Sample Number:	W32213	W32218	W32225	W32230	W32237	W32243	W32249	W32256	W32267	W32273
Location:	OW-47	OW-47	OW-12	OW-12	OW-15	OW-15	OW-16	OW-16	OW-17	OW-19A
Depths (cm):										
Sampling Date:	11/21/91	11/21/91	11/21/91	11/21/91	11/19/91	11/19/91	11/22/91	11/22/91	11/20/91	11/20/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Chlorine	20400	20400	86200	86200	200	200000	179000	179000	476000	30800
Chromium Hexavalent	10 UJ		10 UJ		10 U					10 U
Ammonia	5560 J	5560	7870000 J	7870000	100 UJ		2330000	2330000	289000	4850 J
Nitrate	100 U		100 U		100 U		100 U		140	100 U
Nitrite	100 UJ		100 UJ		150 J	150	100 UJ		40	100 UJ
Phosphate	250 U		37100	3710	250 U		3510	3510		250 U
Sulfate	1510000	1510000	952000	952000	15500	15500	10000 U		4700000	66200

U - The compound was considered not detected. The associated numerical value is the quantitation limit.

UJ - The compound was not detected. The sample quantitation limit is an estimated value

J - The associated numerical value is an estimated quantity

unflagged - The data were reviewed and all criteria were met.

Conventional Data Summary with Qualifiers (Continued)

Sample Number:	W32279	W32288	W32290	W32506	W32507	W32510	W32511	W32512	W32550	W32552
Location:	OW-19A	OW-33A	OW-33A	EQ-2A-37383940	EQ-2A-27,28	EQ-2A-36	EQ-2A-14	EQ-2A-11,12	EQ-3A-27,28	EQ-3B-36,40
Depths (cm):				-63	-41	-58	-14	-9	-41	-62
Sampling Date:	11/20/91	11/19/91	11/19/91	11/20/91	11/20/91	11/20/91	11/20/91	11/20/91	11/21/91	11/21/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Chlorine	30800	10100	10100	436000						269000
Chromium Hexavalent		10			10 U			10 U	10 U	
Ammonia	4850	570	570			7520 J	28700 J			
Nitrate				100 U						100
Nitrite		140	140	100 UJ						11000
Phosphate						250 U	250 U			
Sulfate	86200	12800	12800	294000						2180000

Sample Number:	W32562	W32587	W32588	W32994	W32997	W32999	W332551	W33304	W33305	W33313
Location:	OW-101	SM-4	SM-1	EQ-2A-18192021	EQ-2B-17,18	EQ-2B-AN-LOW	EQ-3A-11,12	EQ-1B-17,18	EQ-1B-32,33	EQ-1A-35,36,37
Depths (cm):				-25	-27		-9	13	-17	-31
Sampling Date:	11/22/91	11/23/91	11/22/91	11/20/91	11/20/91	11/20/91	11/21/91	11/19/91	11/19/91	11/19/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Chlorine	1000 U	154000	113000	508000		188000				36800
Chromium Hexavalent							10 UJ	10 U	10 U	
Ammonia	100 UJ	21500 J	53300 J		5170 J					
Nitrate	100 U	110 U	180	100 U		100 U				100 U
Nitrite	100 UJ	1740 J	3540 J	170 J		100 UJ				100 UJ
Phosphate	250 U	250 U	250 U		250 U					
Sulfate	5000 U	605000	100000 U	418000		46200				27800

Sample Number:	W33314	W33346	W33354	W33409	W33410	W33444	W33445	W33448	W33447
Location:	EQ-1A-9,10,1112	SM-1	SM-4	EQ-1B-4	EQ-1B-29	EQ-3A-17	EQ-3A-18192021	EQ-3A-37	EQ-3A-38394041
Depths (cm):	21			40	-10	-20	-25	-60	-65
Sampling Date:	11/19/91	11/22/91	11/23/91	11/19/91	11/19/91	11/21/91	11/21/91	11/21/91	11/21/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Chlorine	136000	113000	154000				122000		132000
Ammonia		53300	21500	14500 J	22900 J	6870 J		2700 J	
Nitrate	100 U	180	110				100 U		100 U
Nitrite	980	3540	1740				100 UJ		100 UJ
Phosphate						250 U		250 U	
Sulfate	818000		605000				420000		540000

U - The compound was considered not detected. The associated numerical value is the quantitation limit.

UJ - The compound was not detected. The sample quantitation limit is an estimated value.

J - The associated numerical value is an estimated quantity.

unflagged - The data were reviewed and all criteria were met.

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Proj. No.: WA 2

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Affected Samples/Qualifiers:

IX. MATRIX SPIKED SAMPLE ANALYSIS

Matrix spike sample(s) analysis was performed according to method requirements and accuracy (%R) results were within the specified control limits. (75-125%).

Yes ✓ No ___

Exceptions:

NH_3: 199-03 run as matrix spike. %R = 92.5%

PO_4: 199-03 run as matrix spike %R = 78.4%.

Cl: 256-03, 233-03 & 200-09 all samples >4 times spike value so no %R

NO_2: 187-09 run as ms. %R = 92.3%. NO_3: 187-09 run as ms. %R = 109.4%.

SO_4. 187-07 run as ms. %R = 100%. Cr6+: sample 187-14 run as ms. %R = 112%.

Affected Samples/Qualifiers

X. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitations were accurate and reported detection limits were acceptable.

Yes ___ No ___

Exceptions:

NH_3: Everything OK ✓ PO_4: Everything OK Cl: Everything OK

NO_2: everything OK NO_3: everything OK SO_4: everything OK

Cr6+: Everything OK

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Proj. No.: [illegible]

XI. SAMPLE RESULTS

The sample results were reviewed and all identifications were acceptable and met method requirements.

Yes ✓ No ____

Exceptions:

NH_3 OK, PO_4: OK Cl: OK NO_3: on CCV (86.9%) outside ±10%. Lab redid calibration (r > 0.9995) but did not rerun affected samples. NO_2: all OK SO_4: everything OK Cr_6^+: all OK

Affected Samples/Qualifiers

XII. ADDITIONAL METHOD SPECIFIC QC REQUIREMENTS NOT ADDRESSED ABOVE

NH_3: Sample preservation not discussed. MS & matrix dup not performed on any NH_3 sample in this group but on samples from other groups. PO_4: Same * Cl: No additional QC requirements. NO_2: No additional QC criteria. SO_4: no additional method specific QC. Cr_6^+: Standard additions discussed but [illegible] not required

XIII. OVERALL ASSESSMENT

NH_3 Samples qualified due to ICV/CCV values outside ±10% criteria. 187-01, 02, 08, 12, 16 NO_2: Samples 199-08, 200-05, 06, 07 qualified J due to poor CCV value (86.9%)

* info regarding sample preservation found in another packet while this should be in every data packet, not qualification is required since the samples appear to be preserved correctly.

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Proj. No.: 1092

DATA COMPLETENESS CHECKLIST

METHOD/ANALYSIS: Misc

Documentation

- X Case Narrative
- ✓ Chain of Custody/Sample Tracking Information
- ___ Other: ___

Instrument Performance

- ✓ Initial Calibration
- ✓ Continuing Calibration
- ___ Other: ___

Quality Control Sample Data

- ✓ Laboratory Method Blank
- NR Surrogate Recovery Values
- ✓ Laboratory Duplicate
- ✓ Matrix Spike/Matrix Spike Duplicate Results
- NR Lab Control/Blank Spike Sample Results
- ✓ Field Duplicate Results (blind)
- ✓ Raw data - QC samples
- ___ Other: ___
- ___ Other: ___

All NH3 deliverables present

PO4: Ditto

Cl: ditto

EcoChem, Inc.

Proj. No.: W912

Analytical Data

✓ Sample Result Summary Sheets

✓ Chronological list of all samples run for each instrument/method

✓ Raw data - sample results

____ Other: _____

____ Other: _____

Phone Log

Discuss all contacts with client and/or laboratory regarding resubmission of data.

Include date/time, contact name, deliverables missing and resolution.

Note: Direct contact with the laboratory is permissable only if agreed upon by the client.

91-11-187

TABLE I
HOLDING TIMES

Sample ID Lab #	Client ID	Matrix (S:W)	Date Sampled	NH3 Analysis Date	PO4 Analysis Date	Cl- Analysis Date	[illegible] Analysis Date	NO3 Nitrate NO2 (N Analysis Date
187-01	EQ1B4	Water	11/19/91	12/06/91	12/17/91	UR	UR	UR
02	EQ1B29	↓	↓	↓	↓	↓	↓	↓
03	EQ1A 12 10.9			UR		12/11/91	11/21/91	11/21/91
04	EQ1A 16.17 24					↓	↓	UR
05	EQ1B 17 18			↓		UR	UR	UR
06	EQ1B 32 33					↓		↓
07	OW 33 A			↓		12/[illegible]	↓	
08	OW 33 A			12/04/91	12/17/91	UR	↓	↓
09	OW 33 A			UR		↓	11/21/91	11/21/91
10	OW 33 B			↓		↓	UR	UR
11	OW 1 A			↓		12/11/91	↓	↓
12	OW 1 A			12/04/91	12/17/91	UR	↓	↓
13	OW 1 A			UR		↓	11/21/91	11/21/91
14	OW 1 A			↓		↓	UR	UR
15	OW 15			↓		12/11/91	↓	↓
16	OW 15			12/04/91	12/17/91	UR	↓	↓
17	OW 15			↓		↓	11/21/91	11/21/91
18	OW 15	↓	↓	↓		↓	UR	UR

VTSR = Validated Time of Sample Receipt

EcoChem, Inc.

91-11-187

TABLE I
HOLDING TIMES

Sample ID Lab #	Client ID	Matrix (S:W)	Date Sampled	Cr 6+ ~~NH3 Analysis Date~~	SO4 ~~PO4 Analysis Date~~	~~Cl- Analysis Date~~	NO3 Nitrate ~~[illegible] Analysis Date~~	NO2 (Nitr ~~NO3 (Nitr Analysis Date~~
187-01	EQ1B4	Water	11/19/91	UR				
02	EQ1B27							
03	EQ1A 12 20 9				11/25/91			
04	EQ14 16 17 25							
05	EQ18 17 18			11/20/91				
06	EQ18 32 33							
07	OW 22 A			UR	11/25/91			
08	OW 23 A							
09	OW 23 A							
10	OW 22 A			11/20/91				
11	OW 1A			UR	11/25/91			
12	OW 1A							
13	OW 1A							
14	OW 1A			11/20/91				
15	OW 15			UR	11/25/91			
16	OW 15							
17	OW 15							
18	OW 15			11/20/91				

VTSR = Validated Time of Sample Receipt

EcoChem, Inc.

EcoChem, Inc.

Proj. No.: 609.2

91-11-187

VALIDATION WORKSHEET (NON-CLP METHODS)

Reviewer: Leigh Meredith 04/04/92

SAS No. (if appropriate):

Methods Validated: Chloride (325.2 modified) Cr VI (SW846, 7197) NH3 EPA 600 method 350.1, NO2 EPA 600 Method 353.2 Com. NO3 EPA 600 353.2 (mod.), PO4 Standard methods 4500 C & E, SO4 Standard methods 4500 C

Methods Modifications (if appropriate):

I. DELIVERABLES

All deliverables were present as specified for the method(s) and QC level.

Yes ✓ No ____

If "no", see the attached Deliverables Checklist(s) for a list of omissions.

Samples Affected/Qualifiers:

NH3: All deliverables present. PO4: All present Cl: all present. NO3: all present NO2: all present SO4: all present Cr6+: all present

II. HOLDING TIMES

All method holding times were met.

Yes ✓ No ____

If no, exceptions have been circled on the attached Holding Times Table.

Affected samples/action taken:

NH3 - No holding time limit specified PO4: Same as NH3
Cl - Same as NH3. NO3 - same as for NH3 NO2: Same as for NH3
SO4: Same as NH3

III. INSTRUMENT CALIBRATION(S): INITIAL AND CONTINUING

Initial instrument calibrations were performed according to method requirements and met the specified control limits.

Yes ____ No ✓

Exceptions:

NH3 - 6 pt calibration. 0 to 5.0 mg/l (raw area) ICV: 85.9
PO4 - 5 pt calibration, 0 to 3.0 mg/l. ICV = 106.9% R
Cl - 7 pt initial cal performed. 0 to 20 mg/l. ICV's within ±10%.
NO3 - 5 pt initial cal performed 0 to 5.0 mg/l. ICV = 94.1%. R
NO2 - 5 pt initial cal performed 0 to 3.1 mg/l ICVs within ±10%
SO4 - 6 pt initial cal performed 0 to 40 mg/l. ICV = 100.8% R
CRb6+ - 4 pt " " " 0 to 50 mg/l. ICV = ICV = 104.5%

Samples Affected/Qualifiers:

~~NH3: ICV - 85.9%~~ NH3 ICV - 85.9% Samples affected: 187-01, 02, 04, 12, 16

Continuing instrument calibration was performed according to method requirements and met specified control limits. (± 10 %)

Yes ____ No ✓

Exceptions:

NH_3: CCB (Final) 97.9% PO_4: All CCVs within ± 10%, Cl: All CCVs within ± 10%. NO_2 all CCVs within ± 10% except one at 86.9%. NO_3: all CCVs within ± 10%. SO_4: all CCVs within ± 10%. Cr6+: all CCVs within ± 10%

Samples Affected/Qualifiers:

~~NH3: 298-01(9) 20 [illegible] 16 [illegible]~~ NH_3 Samples already estimated due to over [illegible] values. NO NO_2 Samples from SDG 187 associated with low CCV [illegible]

IV. LABORATORY (METHOD) BLANK SAMPLE ANALYSIS

Blanks were analyzed at a frequency of one per 20 samples, or pe sample delivery group (whichever is more frequent), per matrix type.

Yes ✓ No ____

There were no contaminants in the Method Blank above the ~~CRQL~~ ~~MDL~~ RL.

Yes ____ No ✓

If no list below:

Method/Blank ID	Contaminant	RL / ~~MDL~~ max	Conc.	Action Level	
NH_3	NH_3	0.010	0.11 ~~0.014 mg/l~~	0.55 ~~0.055~~ mg/l	
PO_4 / CCB	PO_4	0.25	0.069 mg/l	0.34 mg/l	X
Cl / PB	Cl		0.85 mg/l	4.25 mg/l	X
NO_3 / PB	NO_3	0.1	0.037 mg/l	0.18 mg/l	
NO_2 / PB & CCBs	NO_2		Ø mg/l	Ø mg/l	
SO_4 / CCB	SO_4		2.19 mg/l	11.0 mg/l	
Cr6+ / PB & CCBs	Cr6+	0.01 mg/l	0.0 mg/l	0.0 mg/l	

91-11-187 PB: -4 mAu. = 0.037 mg/l -20 to 20 mAu

		NO_3				
187-04	EQ 1A 36,37,35	<0.10	UJ	✓		✓
~~04~~	~~EQ 1A 36,37,35~~	~~<0.10~~	~~UJ~~			
187-09	OW33A	0.14	J	✓		✓
187-17	OW15	0.15	J	✓		✓

91-11-199 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 mA

-06	EQ2A 18 19 20 21	0.17	J	✓		✓
-07	EQ2A 37, 38, 39, 40	<0.10	UJ			✓
	EQ2B AN-Low	<0.10	UJ			✓

91-11-200 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 mA

05	OW17B	0.17	J	✓		✓
07	OW42	<0.10	UJ			✓
08	OW1A	<0.10	UJ			✓

208 PB = -5 mA.u so -25 to 25 mA.u.

					(mAu)	
208-4	EQ3A 38,39,40,41	<0.10	UJ	✓	(-65)	✓
208-05	EQ3A 18,19,20,21	<0.10	UJ	✓	(5)	✓
208-15	OW 47	<0.10	UJ	✓	(3)	✓
208-17	OW1A	<0.10	UJ	✓	(8)	✓

	233	PB = -2	-2 mA.u	-10 to 10 mAu	
				(mAu)	
233-10	OW36	0.03	TX (accept)	16 OK	✓
233-16	OW37	0.13	J ✓	(5)	✓
233-19	OW43	0.13	J ✓	(4)	✓

	235	PB: -4 mA.u		SO -20 to 20	
				(mAu)	
235-3	OW11	<0.10	LT ✓	(17)	✓
-7	OW16	<0.10	LT ✓	(-63)	✓
-11	OW38	<0.10	LT ✓	(-2)	✓
-15	OW101	<0.10	LT ✓	(-3)	✓
-19	OW424	0.19	(accept)	29	

Samples Affected/Qualifiers:

NO_2: 194-09 194-17:U, PO_4: None Cl: None NH_3: None
NO_3: None SO_4: None Cr_{6+}: none

V. SURROGATE RECOVERY

Surrogate spiked sample analyses were performed and the results met the method specific criteria.

Yes _____ No ✓ (1)

Exceptions:

(1) NH_3 - No surrogates required. PO_4: Same Cl: Same NO_2: Same
NO_3 same as for NH_3 SO_4: same as for NH_3
Cr_{6+} - same as for NH_3

Affected Samples/Qualifiers:

VI. LABORATORY CONTROL/BLANK SPIKE SAMPLE ANALYSIS

Laboratory Control/Blank Spike samples were analyzed and the results were within the specified control limits.

Yes _____ No ✓ (1)

Exceptions:

(1) NH_3 - No blank spike (LCS) found. Not specified by the method.
PO_4 - Same as for NH_3 Cl - same as for NH_3 NO_2 - same as for NH_3
NO_3 - same as for NH_3 SO_4: same as for NH_3 Cr_{6+}: same as for NH_3

Affected Samples/Qualifiers:

VII. LABORATORY DUPLICATE SAMPLE ANALYSIS

Laboratory duplicate analyses were performed according to the method requirements and the precision (RPD) results were within the specified control limits. (<20%)

Yes ✓ No ____

Exceptions:

NH_3 - 199-03 run as duplicate. RPD = 3.3%

PO_4 - 199-03 run as duplicate RPD = NC (both values < 0.25 mg/l

Cl - 233-03 & 256-03 & 200-09 RPDs < 20% (0.6, 0.7, & 10%) [illegible]

NO_3 - 187-03 run as duplicate. RPD = 16.9%. NO_2 - 187-9 run as duplicate. [illegible] RPD Not calculated since both values < RL. Sample 206-01 duplicate. RPD = 3.2%.

Affected Samples/Qualifiers: SO_4

VIII. FIELD DUPLICATE SAMPLE ANALYSIS

Field duplicate analyses were performed according to the contract requirements and the precision (RPD) results were within the specified control limits.

Yes ✓ No ____

Exceptions:

(1) NH_3: No field duplicate PO_4: same Cl: same NO_3: same

NO_2: same as for NH_3 SO_4: same as for NH_3

Samples 2W17 & 2W17B are field dups. All RPDs acceptable

Cr^{6+}: Sample 187-14 run as duplicate. RPD not calculated since both samples were below the RL.

91-11-199

VALIDATION WORKSHEET (NON-CLP METHODS)

Reviewer: Leigh Meredith 04/04/92

SAS No. (if appropriate): _____

Methods Validated: Chloride (325.2 mod) Cr VI (SW 846: 7197) NH_3 EPA 600: 350.1, NO_2 EPA 600: 353.2 (mod), NO_3 EPA 6 353.2, PO_4 Standard Methods (for Analysis of waters & wastes): 424 C SO_4 Standard Methods: 426 C

Methods Modifications (if appropriate): _____

I. DELIVERABLES

All deliverables were present as specified for the method(s) and QC level.

Yes ✓ No ____

If "no", see the attached Deliverables Checklist(s) for a list of ommissions.

Samples Affected/Qualifiers:

NH_3 – All deliverable present
Cl – All deliverables present
NO_2 All deliverables present
Cr6+ – all deliverables present
PO_4: All deliverables present
NO_3: All deliverables present
SO_4: All present

II. HOLDING TIMES

All method holding times were met.

Yes ✓ No ____

If no, exceptions have been circled on the attached Holding Times Table.

Affected samples/action taken:

NH_3 - No holding time limit specified. PO_4: same as NH_3
Cl: same as NH_3. NO_2: same as for NH_3 NO_3: same as
NH_3. SO_4: same as NH_3 Cr_{6+}: same as for NH_3
Run NO_2 & Cr_{6+} asap though.

III. INSTRUMENT CALIBRATION(S): INITIAL AND CONTINUING

Initial instrument calibrations were performed according to method requirements and met the specified control limits.

Yes ____ No ✓

Exceptions:

NH_3 - 6pt calibration 0 to 5.0 mg/l, ICV = 85.9%.
PO_4 - 5pt calibration 0 to 3.0 mg/l ICV = 106.9%
Cl: 7pt calibration 0 to 40 mg/l. ICVs within ±10%.
NO_2: 5pt initial calibration run. 0 to 5.0 mg/l. ICV - 94.1%.
NO_3: 5pt initial calibration run. 0 to 3.1 mg/l ICV within ±10%
SO_4: 6pt " " 0 to 40 mg/l ICV = 100.8%
Cr_{6+} 4pt " " " 0 to 50 µg/l ICV = 105%

Samples Affected/Qualifiers:

NH_3: Samples 199.01 .02 .03 flagged J or UJ

Continuing instrument calibration was performed according to method requirements and met specified control limits. (CCVs ± 10%)

Yes ____ No ✓

Exceptions:

NH_3 : CCV run every 10 samples. Final CCV - 87.9%
PO_4: All CCV's within ± 10%. Cl : All CCV's within ± 10%.
NO_2 : One CCV outside ± 10% (86.9%) NO_3 : all CCVs within ± 10%.
SO_4: all CCVs within ± 10% Cr 6+ : final CCV was 113%
Since

Samples Affected/Qualifiers:
NH_3: No samples affected by low (Final) CCV
NO_2: Sample 199-08 ~~2000~~ ~~0.07~~ qualified J or UJ
Cr6+ : Since both samples 199-04 & 199-05 were < 10 µg/l (RL) then I did not qualify the samples as UJ since the final CCV was high and the bias would probably be high.

IV. LABORATORY (METHOD) BLANK SAMPLE ANALYSIS

Blanks were analyzed at a frequency of one per 20 samples, or per sample delivery group (whichever is more frequent), per matrix type.

Yes ✓ No ____

There were no contaminants in the Method Blank above the ~~CRDL~~ RL.

Yes ____ No ✓

If no list below:

Method/Blank ID	Contaminant	RL	Conc.	Action Level	
NH_3	NH_3	0.01	0.11 mg/l	0.55 mg/l	X
PO_4 /CCB	PO_4	0.25	0.069 mg/l	0.34 mg/l	X
Cl / PB	Cl		0.85 mg/l	4.25 mg/l	X
NO_3 / PB	NO_3	[illegible] mg/l	0.037 mg/l	0.18 mg/l	✓
NO_2 / PB & CCBs	NO_2		0.0 mg/l	0.0 mg/l	X
SO_4 / CCB	SO_4	2.0	2.19 mg/l	11.0 mg/l	X
Cr6+ / CCB (Final)	Cr6+	10 µg/l	7.1 µg/l	35.5 µg/l	X

91-11-187 PB: -4 mAu. = 0.037 mg/l -20 to 20 mAu

		NO_3			
187-04	EQ 1A 36 37 35	<0.10	uJ	✓	✓
~~04~~	~~EQ 1A 36 37 35~~	~~<0.10~~	~~uJ~~		
187-09	~~OW~~ OW 33A	0.14	J	✓	
187-17	OW15	0.15	J	✓	✓

91-11-199 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 m

-06	EQ2A 18 19 20 21	0.17	J	✓	✓
-07	EQ2A 37, 38, 39 40	<0.10	uJ		✓
	EQ2B AN-Low	<0.10	uJ		✓

91-11-200 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 m

05	~~OW~~ OW 17B	0.17	J	✓	✓
07	OW42	<0.10	uJ		
08	OW1mA	<0.10	uJ		

208 PB = -5 mA.u so -25 to 25 mA.u.

					(mAu)	
208-4	EQ3A 38, 39, 40, 41	<0.10	uJ	✓	(-65)	✓
208-05	EQ3A 18, 19, 20, 21	<0.10	uJ	✓	(5)	✓
208-15	OW 47	<0.10	uJ	✓	(3)	✓
208-17	OW1A	<0.10	uJ	✓	(8)	✓

	233	PB = -2	-2 mA.u	-10 to 10 mAu	
				(mAu)	
233-10	Ow36	0.03	TX (accept)	16	ok ✓
233-16	Ow37	0.13	T ✓	(5)	✓
233-19	Ow43	0.13	T ✓	4	✓
	235	PB: -4 mA.u		so -20 to 20	
				(mAu)	
235-3	Ow11	<0.10	NT ✓	(17)	✓
-7	Ow16	<0.10	NT ✓	(-63)	✓
-11	Ow38	<0.10	NT ✓	(-2)	✓
-15	Ow101	<0.10	NT ✓	(-3)	✓
-19	Ow42A	0.18	(accept)	29	

Samples Affected/Qualifiers:

NH_3 - None PO_4: None Cl: None NO_3: non-soil. NO_2: -
SO_4 - none Cr_6+: none

V. SURROGATE RECOVERY

Surrogate spiked sample analyses were performed and the results met the method specific criteria.

Yes _____ No ✓ (1)

Exceptions:

(1) NH_3 - No surrogate required PO_4: same as NH_3
Cl: same as NH_3, NO_3: same as for NH_3 NO_2: None
SO_4: same as NH_3 Cr_6+: same as for NH_3

Affected Samples/Qualifiers:

VI. LABORATORY CONTROL/BLANK SPIKE SAMPLE ANALYSIS

Laboratory Control/Blank Spike samples were analyzed and the results were within the specified control limits.

Yes _____ No ✓ (1)

Exceptions:

(1) NH_3 - No LCS (spiked blank) run - Not specified on method
PO_4: same as NH_3, Cl: same as NH_3 NO_3: same as for NH_3
NO_2: same as for NH_3 SO_4: same as for NH_3
Cr_6+: same as for NH_3

Affected Samples/Qualifiers:

VII. LABORATORY DUPLICATE SAMPLE ANALYSIS

Laboratory duplicate analyses were performed according to the method requirements and the precision (RPD) results were within the specified control limits. (RPD < 20%)

Yes ✓ No ____

Exceptions:

NH_3 duplicate 199-03 RPD = 3.3%
PO_4: duplicate 199-03 RPD = NC (both samples < 0.25 mg/L) =>
Cl: 233-03, 256-03, 200-09 RPD < 20% (0.6, 0.7, & 0.0% respectively)
NO_2: 187-03 run as duplicate. RPD = 16.9%. NO_3: 187-09 run as duplicate. RPD not calculated since both samples were < RL. SO_4: 206-01 run as duplicate RPD = 3.29

Affected Samples/Qualifiers:

VIII. FIELD DUPLICATE SAMPLE ANALYSIS

Field duplicate analyses were performed according to the contract requirements and the precision (RPD) results were within the specified control limits.

Yes ✓ No ____

Exceptions:

(1) NH_3 no field duplicate. PO_4: same as NH_3 Cl: same as NH_3
NO_2: same as for NH_3 NO_3: same as for NH_3 SO_4: same as for NH_3
Cr^{6+}: same as for NH_3. Samples OW17 & OW17B are field dups. All RPDs acceptable

Cr^{6+}: Sample 200-16 run as duplicate. RPD = 5.9%.

EcoChem, Inc.

Proj. No.: 1092

Affected Samples/Qualifiers:

IX. MATRIX SPIKED SAMPLE ANALYSIS

Matrix spike sample(s) analysis was performed according to method requirements and accuracy (%R) results were within the specified control limits.

Yes ✓ No ___

Exceptions:

NH_3 - 199-03 run as matrix spike %R = 92.5%
PO_4 - 199-03 run as matrix spike %R = 78.2%
Cl - all samples > 4 times spiked levels so no %R criteria applicable
NO_2 - 187-03 run as MS, %R = 92.3% NO_3: 187-09 run as MS. %R = 109.4%
SO_4: 187-07 run as MS. %R = 100% CR 6+: Sample 200-16 run as MS. %R = 121.

Affected Samples/Qualifiers

X. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitations were accurate and reported detection limits were acceptable.

Yes ___ No ___

Exceptions:

NH_3: Everything OK PO_4: Everything OK Cl: Everything OK.
NO_2: everything OK NO_3 everything OK SO_4: everything OK
Cr6+: everything OK

EcoChem, Inc.

XI. SAMPLE RESULTS

The sample results were reviewed and all identifications were acceptable and met method requirements.

Yes ✓ No ____

Exceptions:

NH_3: calculations OK PO_4: Calculations OK Cl: calculations OK NO_3: calculations OK NO_2: calculations OK SO_4: Calculations OK $Cr6+$: calculations OK

Affected Samples/Qualifiers

XII. ADDITIONAL METHOD SPECIFIC QC REQUIREMENTS NOT ADDRESSED ABOVE

NH_3: sample preservation not discussed. PO_4: same as NH_3: Cl: No additional method specific QC required. NO_3: No additional QC criteria required. NO_2: no additional QC criteria required. SO_4: no additional QC criteria required. $Cr6+$: method specific standard additions for unusual matrices. (but not required)

XIII. OVERALL ASSESSMENT

NH_3 values qualified J or UJ due to ICV/CCV values outside ± 10%.
NO_3: Samples 199-08, 200-05 06, 07 qualified J or UJ
$Cr6$: accept samples even though final CCV is high since values were undetected (below 10 mg/L)

Data found in another data packet. No qualification required since preservation was done as required.

EcoChem, Inc.

Proj. No.: C0912

DATA COMPLETENESS CHECKLIST

METHOD/ANALYSIS: Misc

Documentation

X Case Narrative

✓ Chain of Custody/Sample Tracking Information

____ Other: _____

Instrument Performance

✓ Initial Calibration

✓ Continuing Calibration

____ Other: _____

Quality Control Sample Data

✓ Laboratory Method Blank

NR Surrogate Recovery Values

✓ Laboratory Duplicate

✓ Matrix Spike/Matrix Spike Duplicate Results

NR Lab Control/Blank Spike Sample Results

✓ Field Duplicate Results (blind)

✓ Raw data - QC samples

____ Other: _____

____ Other: _____

EcoChem, Inc.

Proj. No.: 60[illegible]

Analytical Data

✓ Sample Result Summary Sheets

✓ Chronological list of all samples run for each instrument/method

✓ Raw data - sample results

____ Other: _____

____ Other: _____

Phone Log

Discuss all contacts with client and/or laboratory regarding resubmission of data.

Include date/time, contact name, deliverables missing and resolution.

Note: Direct contact with the laboratory is permissable only if agreed upon by the client.

91-11-199

TABLE I
HOLDING TIMES

Sample ID		Matrix (S:W)	Date Sampled	NH_3 Analysis Date	PO_4 Analysis Date	Cl^- Analysis Date	~~[illegible]~~ Analysis Date	NO_3 (Nitrate) NO_2 (Nitrite) Analysis Date
199-01	EQ 24-14	Water	11/20/91	12/04/91	12/17/91	UR	UR	UR
02	EQ 2A 36							
03	EQ 2B 17,18							
04	EQ 2A 11,12			UR	UR			
05	EQ 2A 27,28							
06	EQ 2A 13,14 20 N					12/11/91	11/21/91	11/21/91
07	EQ 2A 37,38,39 40							
08	EQ 2A 4N-LOW							

VTSR = Validated Time of Sample Receipt

EcoChem, Inc.

91-11-199

TABLE I

HOLDING TIMES

Sample ID		Matrix (S:W)	Date Sampled	NH3 Analysis Date	SO4 Analysis Date	Cr6+ Analysis Date	CN- Analysis Date	NO3 (Nitrate) Analysis Date	NO2 (Nitrite) Analysis Date
199-01	EQ2A14	Water	11/20/91	UK	UK				
02	EQ 2A36								
03	EQ2B 17,18								
04	EQ2A 11,12				11/21/91				
05	EQ2A 27,28								
06	EQ2A 18,19 20 N			11/25/91	UK				
07	EQ2A 37,38,39 40								
08	EQ2A AN-LOW								

VTSR = Validated Time of Sample Receipt

Received: 11/21/91 12/20/91 14:23:00

REPORT TO
PTI Environmental Services
2995 Baseline Road,Suite 202
Boulder, CO 80303

ATTEN Chris Sellstone

PREPARED BY
TMA / Skinner & Sherman Labs.
300 Second Avenue
P.O. Box 521
Waltham, MA 02254

ATTEN Client Services
PHONE (617) 890-7200

CERTIFIED BY

CONTACT DP

CLIENT PTI SAMPLES 8
COMPANY PTI Environmental Services
FACILITY

WORK ID Metals Mobility
TAKEN By Client
TRANS Hand Delivered
TYPE Water
P.O. # C1320301
INVOICE under seperate cover

SAMPLE IDENTIFICATION

01 E02A14
02 E02A36
03 E02B 17,18
04 E02A 11,12
05 E02A 27,28
06 E02A 18,19,20,21
07 E02A 37,38,39,40
08 E02B AN-LOW

TEST CODES and NAMES used on this workorder

CL W Chloride - Aqueous
CRHEXC Hex Chromium-Chelat/AA
NH3 W Ammonia as Nitrogen
NO2 W Nitrite - Aqueous
NO3 W Nitrate - Aqueous
PO4 W Phosphate
SO4 W Sulfate - Aqueous

91-11-200

VALIDATION WORKSHEET (NON-CLP METHODS)

Reviewer: Leigh Meredith 04/04/92

SAS No. (if appropriate):

Methods Validated: Chloride (325.2 modified) Cr VI (SW846 7197) NH_3 EPA 600 method 350.1, NO_2 EPA 600 method 353.2 (mod.) NO_3 EPA 600 353.2 (mod.), PO_4 Standard methods 424C 4 5, SO_4 Standard methods 426 C

Methods Modifications (if appropriate):

I. DELIVERABLES

All deliverables were present as specified for the method(s) and QC level.

Yes ✓ No ____

If "no", see the attached Deliverables Checklist(s) for a list of ommissions.

Samples Affected/Qualifiers:

NH_3: All deliverables present Cl: All deliverables present
PO_4: Same as NH_3 NO_2: Same as for NH_3 NO_3: Same as for NH_3
SO_4: Same as for NH_3 Cr^{6+}: Same as for NH_3

II. HOLDING TIMES

All method holding times were met.

Yes ✓ No ____

If no, exceptions have been circled on the attached Holding Time Table.

Affected samples/action taken:

NH_3 - No method specified holding limit PO4: Same as NH_3
Cl: Same as NH_3 NO_3: Same as for NH_3 NO_2: Same as for U
SO4: Same as for NH_3 Cr6+: Same as for NH_3
NO_2 & Cr 6+ need to be analyzed ASAP (and were)

III. INSTRUMENT CALIBRATION(S): INITIAL AND CONTINUING

Initial instrument calibrations were performed according to method requirements and met the specified control limits. (±10%).

Yes ____ No ✓

Exceptions:

NH_3 - 6 pt initial calibration 0 to 5 mg/l ICV = 85.9%
PO4: 5 pt initial calibration 0 to 3.0 mg/l, ICV = 106.9%
Cl: 7 pt initial calibration 0 to 40 mg/l. ICVs within ±10%
NO_3: 5 pt initial calibration 0 to 5.0 mg/l. ICV value: 94.1%
NO_2: 5 pt initial calibration 0 to 3.1 mg/l ICV value 105.9%
SO4: 7 pt " " 0 to 40 mg/l ICV = 100.8
Cr6+: 4 pt " " 0 to 50 ug/l ICV = 105%

Samples Affected/Qualifiers:

NH_3 - 200-01 02 03 04

Continuing instrument calibration was performed according to method requirements and met specified control limits. (±10%)

Yes _____ No ✓

Exceptions:

NH3: CCV run every 10 samples. Final CCV value - 87.9%
PO4: All CCV values within ± 10%
Cl: All CCVs values within ± 10%) NO2: One CCV value 86.9%.
NO3: all CCV's within ± 10% SO4: all CCVs within ± 10%
Cr6+: Final CCV was 113%.

Samples Affected/Qualifiers:

NH3: 200-01 02.03.04 NO2: ~~199-03~~, 200-05 06 07 qualified Jur
Cr6+: samples affected: 200-13, 14, 15, 16. All samples had values < RL (undetected) so because the CCV bias is high no samples were qualified due to the Final CCV va

IV. LABORATORY (METHOD) BLANK SAMPLE ANALYSIS

Blanks were analyzed at a frequency of one per 20 samples, or per sample delivery group (whichever is more frequent), per matrix type.

Yes ✓ No _____

There were no contaminants in the Method Blank above the ~~CRDL~~ RL.

Yes _____ No ✓

If no list below:

Method/Blank ID	Contaminant	RL	Conc.	Action Level	
NH3	NH3	.010	0.11 mg/l	0.55 mg/l	X
PO4/CCB	PO4	0.25	0.069 mg/l	0.34 mg/l	X
Cl/PB	Cl		0.85 mg/l	4.25 mg/l	X
NO3/PB	NO3	0.10	0.037 mg/l	0.18 mg/l	
NO2/PB & CCBs	NO2				
SO4/CCB	SO4	2.0	0.19	[illegible] mg/l	X
Cr6+/CCB	Cr6+	10.0 mg/l	7.1 ug/l	35.5 mg/l	X

91-11-187 PB: -4 mAu. = 0.037 mg/l -20 to 20 mAu

		NO_3				
187- 04	EQ 1A 36 37 35	<0.10	uJ	✓		✓
~~04~~	~~EQ 1A 36 37 35~~	~~<0.10~~	~~uJ~~			
187- 09	OW 33A	0.14	J	✓		✓
187- 17	OW 15	0.15	J	✓		✓

91-11- 199 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 mA

- 06	EQ 2A 18 19 20 21	0.17	J	✓		✓
07	EQ 2A 37, 38, 39, 40	<0.10	uJ			✓
	EQ 2B AN-Low	<0.10	uJ			✓

91-11- 200 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 m

05	OW 17B	0.17	J	✓		✓
07	OW 42	<0.10	uJ			✓
08	OW 1 A	<0.10	uJ			✓

208 PB = -5 mA.u so -25 to 25 mA.u.

					(mAu)	
208- 4	EQ 3A 38, 39, 40, 41	<0.10	uJ	✓	(-65)	✓
208- 05	EQ 3A 18, 19, 20, 21	<0.10	uJ	✓	(5)	✓
208- 15	OW 47	<0.10	uJ	✓	(3)	✓
208- 17	OW 2	<0.10	uJ	✓	(8)	✓

Samples Affected/Qualifiers:

NH_3: No samples qualified PO_4: None Cl: None NO_2: 200-05
NO_3: none SO_4: None Cr_6+: None

V. SURROGATE RECOVERY

Surrogate spiked sample analyses were performed and the results met the method specific criteria.

Yes _____ No ✓ (1)

Exceptions:

(1) NH_3: No surrogate required as per method
PO_4: Same as for NH_3 Cl: same as for NH_3 NO_2: same as for NH_3
NO_3: Same as for NH_3 SO_4: same as for NH_3
Cr_6+: Same as for NH_3

Affected Samples/Qualifiers:

VI. LABORATORY CONTROL/BLANK SPIKE SAMPLE ANALYSIS

Laboratory Control/Blank Spike samples were analyzed and the results were within the specified control limits.

Yes _____ No ✓ (1)

Exceptions:

(1) NH_3: No blank spike (LCS) ~~sp~~ required by the method
PO_4: Same as NH_3 Cl: Same as NH_3 NO_2: Same as for NH_3
NO_3: same as NH_3 SO_4: Same as NH_3 Cr_6+: Same as for Cr_6+

Affected Samples/Qualifiers:

VII. LABORATORY DUPLICATE SAMPLE ANALYSIS

Laboratory duplicate analyses were performed according to the method requirements and the precision (RPD) results were within the specified control limits. (< RPD < 20 %)

Yes ✓ No ____

Exceptions:

NH_3: duplicate sample (199-03) RPD = 3.3 %
PO_4: duplicate sample (199-03) RPD not calculated (both values < 0.25 mg/l)
Cl: 233-03, 256-03, 200-09 all RPD < 20 %, (0.6, 0.7, 0.0 % RPD respectively)
NO_2: 187-03 run as duplicate RPD = 15.9 %. NO_3: 187-09 run as duplicate. RPD not calculated due to both sample values < RL. SO_4: Sample 206-1 run as dup. RPD = 3.2 %.

Affected Samples/Qualifiers:

VIII. FIELD DUPLICATE SAMPLE ANALYSIS

Field duplicate analyses were performed according to the contract requirements and the precision (RPD) results were within the specified control limits.

Yes ✓ No ____

Exceptions:

NH_3: No field duplicate specified PO_4: same as NH_3
Cl: same as NH_3 NO_2: same as for NH_3 NO_3: same as for NH_3
SO_4: same as for NO_3. Sample OW17 & OW17B Field dup. All Acceptable

Sample 200-16 run as duplicate RPD = 5.9 %

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Affected Samples/Qualifiers:

IX. MATRIX SPIKED SAMPLE ANALYSIS

Matrix spike sample(s) analysis was performed according to method requirements and accuracy (%R) results were within the specified control limits. (+75% - -25%)

Yes ✓ No ___

Exceptions:

NH_3: Sample 199-03 run as matrix spike. % R = 92.5%
PO_4: Sample 199-03 run as matrix spike. % R = 78.4%
Cl: All samples > 4 times spike amounts. Criteria (75-125%) recovery not valid
NO_3: 187-03 run as MS. % R = 92.3%. NO_2: 187-09 run as MS. % R = 109.4%
SO_4: 187-07 run as MS. % R = 100%. Cr6: [illegible]

Affected Samples/Qualifiers

X. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitations were accurate and reported detection limits were acceptable.

Yes ___ No ___

Exceptions:

NH_3: Everything OK. PO_4: Everything OK Cl: Everything OK
NO_2: everything OK NO_3: everything OK SO_4: everything OK
Cr6+: everything OK

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XI. SAMPLE RESULTS

The sample results were reviewed and all identifications were acceptable and met method requirements.

Yes ✓ No ____

Exceptions:

NH_3: calculations OK PO_4: calculations OK Cl: calculations
NO_2: calculations correct NO_3: calculations OK SO_4: calculations OK
Cr^{6+}: calculations correct

Affected Samples/Qualifiers

XII. ADDITIONAL METHOD SPECIFIC QC REQUIREMENTS NOT ADDRESSED ABOVE

NH_3: Sample preservation not discussed.
PO_4: Sample preservation not discussed. (found in another data
Cl: No additional method specific QC requirements. NO_2: No additional method specific QC. NO_3: no additional method specific QC.
Cr^{6+}: [illegible] not [illegible] for different matrices

XIII. OVERALL ASSESSMENT

NH_3: Sample values qualified J or UJ due to ICV/CCV values outside ±10%. NO_2: Samples 199-08, 200-05, -06, -07 qualified J or UJ due to CCV outside ±10%. Cr^{6+}: Samples 200-13, 14, 15, 16 not qualified since CCV (final was higher than 110%) would bias samples high, so the undetected values are OK without qualification

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Proj. No.: [illegible]

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DATA COMPLETENESS CHECKLIST

METHOD/ANALYSIS: misc

Documentation

X Case Narrative

✓ Chain of Custody/Sample Tracking Information

____ Other: _____

Instrument Performance

✓ Initial Calibration

✓ Continuing Calibration

____ Other: _____

Quality Control Sample Data

✓ Laboratory Method Blank

NR Surrogate Recovery Values

✓ Laboratory Duplicate

✓ Matrix Spike/Matrix Spike Duplicate Results

NR Lab Control/Blank Spike Sample Results

✓ Field Duplicate Results (blind)

✓ Raw data - QC samples

____ Other: _____

____ Other: _____

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Analytical Data

- ✓ Sample Result Summary Sheets
- ✓ Chronological list of all samples run for each instrument/method
- ✓ Raw data - sample results
- ____ Other: _____
- ____ Other: _____

Phone Log

Discuss all contacts with client and/or laboratory regarding resubmission of data.

Include date/time, contact name, deliverables missing and resolution.

Note: Direct contact with the laboratory is permissable only if agreed upon by the client.

TABLE I

91-11-200

HOLDING TIMES

Sample ID		Matrix (S:W)	Date Sampled	NH_3 Analysis Date	PO_4 Analysis Date	Cl^- Analysis Date	NO_2 (Nitrite) Analysis Date	NO_3 (Nitrate) Analysis Date
20-01	DW 17	Water	11/20/91	12/16/91	12/17/91	NR	NR	NR
02	DW 17R							
03	DW 42							
04	DW 19A							
05	DW 17			NR	NR		11/21/91	11/21/91
06	DW 17R							
07	DW 42							
08	DW 19A							
09	DW 17					12/11/91	NR	NR
10	DW 17R							
11	DW 42							
12	DW 19A							
13	DW 17					NR		
14	DW 17R							
15	DW 42							
16	DW 19A							

VTSR = Validated Time of Sample Receipt

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	233	PB = -2	-2 mA.u	-10 to 10 mAu	
				(mAu)	
233-10	OW36	0.00	TX (accept)	116 OK	✓
233-16	OW37	0.13	T ✓	(5)	✓
233-19	OW43	0.13	T ✓	(4)	✓

	235	PB: -4 mA.u		50 -20 to 20	
				(mAu)	
235-3	OW11	<0.10	UT ✓	(17)	✓
-7	OW16	<0.10	UT ✓	(-63)	✓
-11	OW38	<0.10	UT ✓	(-2)	✓
-15	OW101	<0.10	UT ✓	(-3)	✓
-19	OW484	0.18	(accept)	29	

91-11-200

TABLE I
HOLDING TIMES

Sample ID		Matrix (S:W)	Date Sampled	~~NH3 Analysis Date~~	~~Phos Analysis Date~~ SO4	~~Cl- Analysis Date~~	~~Nitrate Analysis Date~~ Cr6+	~~Nitrite Analysis Date~~
200-01	OW 17	Water	111201 91	UR	UR			
02	OW 17B							
03	OW 42							
04	OW 19A							
05	OW 17							
06	OW 17B							
07	OW 42							
08	OW 19A							
09	OW 17			11/25/91				
10	OW 17B							
11	OW 42							
12	OW 19A							
13	OW 17			UR	11/21/91			
14	OW 17B							
15	OW 42							
16	OW 19A							

VTSR = Validated Time of Sample Receipt

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ecochem, inc

Proj. No.: 60912

91-11-235

VALIDATION WORKSHEET (NON-CLP METHODS)

Reviewer: Leigh Meredith 04/04/92

SAS No. (if appropriate):

Methods Validated: Chloride (325.2 mod) Cr VI (SW 846: 7197) NH3 EPA 600: 350.1, NO2 EPA 600: 353.2 (mod), NO3 EPA 353.2, PO4 Standard methods (for Analysis of waters & wastes): 424 C, SO4 Standard Methods: 426 C

Methods Modifications (if appropriate):

I. DELIVERABLES

All deliverables were present as specified for the method(s) and QC level.

Yes ✓ No ____

If "no", see the attached Deliverables Checklist(s) for a list of ommissions.

Samples Affected/Qualifiers:

NH3: All method required deliverables provided
PO4: Same as NH3, Cl: same as for NH3 NO3: Same as for NH3
NO2: Same as for NH3 SO4: Same as for NH3
Cr6+: Same as for NH3

II. HOLDING TIMES

All method holding times were met.

Yes ✓ No ____

If no, exceptions have been circled on the attached Holding Times Table.

Affected samples/action taken:

NH3: no method specified holding time given PO4: same as NH3
Cl: same as for NH3 NO3: same as for NH3 NO2 same as for NH3
SO4 same as for NH3 Cr 6+: same as for NH3
NO2 & Cr 6+ should be run asap & where!?

III. INSTRUMENT CALIBRATION(S): INITIAL AND CONTINUING

Initial instrument calibrations were performed according to method requirements and met the specified control limits. (ICVs within ±10%)

Yes ____ No ✓

Exceptions:

NH3: 6pt initial calibration run. ICV (2nd) - 85.9%
PO4: 5pt initial calibration run 0 to 3.0 mg/l. ICV - 106.9%.
Cl: 7pt initial calibration run 0 to 90 mg/l ICVs within ± 10%
NO3: Initial 5pt calibration run 0 to 5.0 mg/l. ICVs within ± 10%
NO2: Initial 5pt calibration run 0 to 3.1 mg/l ICV - 107.1
SO4 Initial 6pt " " 0 to 40 mg/l. ICV - 98.5%
Cr 6+ " 4pt " " 0 to 50 mg/l ICV = 106%

Samples Affected/Qualifiers:

NH3: 235-04

Continuing instrument calibration was performed according to method requirements and met specified control limits.

Yes _____ No ✓

Exceptions:

NH_3: CCV value 89.1%. PO_4: All CCV values within ±10%. Cl: All CCVs within ±10%. NO_3: One CCV (final) value outside ±10% (87.0%) NO_2: all CCVs within ±10%. SO_4: All CCVs within ±10%. CCVs: one CCV was higher than ±10% (111.5%) however all Cr6+ values were qualified due to poor ms% rec.

Samples Affected/Qualifiers:

NH_3: 235-04 12, 16 18, 21 NO_2: OW-11, OW-33 OW-40 OW-101, SM-1 SM-4

IV. LABORATORY (METHOD) BLANK SAMPLE ANALYSIS

Blanks were analyzed at a frequency of one per 20 samples, or per sample delivery group (whichever is more frequent), per matrix type.

Yes ✓ No _____

There were no contaminants in the Method Blank above the ~~CRDL~~ RL.

Yes _____ No ✓

If no list below:

Method/Blank ID	Contaminant	RL	Conc.	Action Level	
NH_3	NH_3	0.10	0.11 mg/l	0.55 mg/l	X
PO_4 / CCB	PO_4	0.25	0.06 mg/l	0.34 mg/l	X
Cl / PB	Cl		0.85 mg/l	4.25 mg/l	X
NO_3 / CCB & PB	NO_3		0.0 mg/l	0.0 mg/l	X
NO_2 / CCB & PB	NO_2		0.0 mg/l	0.0 mg/l	X
SO_4 / CCB	SO_4	2.0	2.07 mg/l	10.4 mg/l	X
Cr6+ / CCB	Cr6+	10.0 µg/l	3.4 µg/l	17.0 µg/l	X

91-11-187 PB: -4 mAu. = 0.037 mg/l -20 to 20 mAu

		NO_3				
187-04	EQ 1A 36,37,35	<0.10	uJ	✓		✓
~~04~~	~~EQ 1A 36,37,35~~	~~<0.10~~	~~uJ~~			
187-09	OW 33A	0.14	J	✓		✓
187-17	OW15	0.15	J	✓		✓

91-11-199 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 mAu

-06	EQ2A 18 19 20 21	0.17	J	✓		✓
-07	EQ2A 37, 38, 39 40	<0.10	uJ			✓
	EQ2B AN-low	<0.10	uJ			✓

91-11-200 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 mA

05	OW 17B	0.17	J	✓		✓
07	OW 42	<0.10	uJ			✓
08	OW 1A	<0.10	uJ			✓

208 PB = -5 mA.u so -25 to 25 mA.u.

					(mAu)	
208-4	EQ3A 38, 39, 40, 41	<0.10	uJ	✓	(-65)	✓
208-05	EQ3A 18, 19, 20, 21	<0.10	uJ	✓	(5)	✓
208-15	OW 47	<0.10	uJ	✓	(3)	✓
208-17	OW12	<0.10	uJ	✓	(8)	✓

233 PB = -2 -2 mA.u - -10 to 10 mAu

(mAu)

233-10	OW36	0.00 J X (accept)	(16)	OK	✓
233-16	OW37	0.13 J ✓	(5)		✓
233-19	OW43	0.13 J ✓	(4)		✓

235 PB: -4 mA.u 50 -20 to 20

(mAu)

235-3	OW11	<0.10 UJ ✓	(17)		✓
-7	OW16	<0.10 UJ ✓	(-63)		✓
-11	OW38	<0.10 UJ ✓	(-2)		✓
-15	OW101	<0.10 UJ ✓	(-3)		✓
-19	OW48A	0.18 (accept)	(29)		

Samples Affected/Qualifiers:

V. SURROGATE RECOVERY

Surrogate spiked sample analyses were performed and the results met the method specific criteria.

Yes _____ No ✓(1)

Exceptions:

(1) NH_3 ; No surrogates required by this method PO_4: Same as NH_3
Cl: same as for NH_3 NO_2: same as for NH_3 NO_3: Same as for NH_3
SO_4: Same as for NH_3 Cr 6+: Same as for NH_3

Affected Samples/Qualifiers:

VI. LABORATORY CONTROL/BLANK SPIKE SAMPLE ANALYSIS

Laboratory Control/Blank Spike samples were analyzed and the results were within the specified control limits.

Yes _____ No ✓(1)

Exceptions:

(1) NH_3: No LCS (spiked blank) required by this method
PO_4: Same as NH_3 Cl: same as for NH_3
NO_3: Same as for NH_3 NO_2: Same as for NH_3
SO_4: Same as for NH_3 Cr 6+: Same as for NH_3

Affected Samples/Qualifiers:

VII. LABORATORY DUPLICATE SAMPLE ANALYSIS

Laboratory duplicate analyses were performed according to the method requirements and the precision (RPD) results were within the specified control limits. (RPD < 20%)

Yes ✓ No ____

Exceptions:

NH_3: Sample: 233-13 and 199-03 run as matrix duplicates. RPD: 2.8 and 3.2% respectively. PO_4: sample 199-03 run as matrix dup. Rpd not calculated since both values were < RL (0.25 mg/L). Cl: 233-03, 256-03, 200-09, all RPDs < 20% (0.6, 0.7 & 0.0% respectively)

Affected Samples/Qualifiers:

VIII. FIELD DUPLICATE SAMPLE ANALYSIS

Field duplicate analyses were performed according to the contract requirements and the precision (RPD) results were within the specified control limits.

Yes ✓ No ____

Exceptions:

NH_3: No information concerning field duplicates provided on chain-of-cus. info. PO_4: Same as NH_3. Cl: Same as for NH_3. NO_3: Same as for N. NO_2: Same as for NH_3. Samples OW-17 & OW-17D Field dup. RPDs acceptable

NO_3: 208-18 run as duplicate. %RPD = 1.2%. NO_2: 208-18 run as Duplica. RPD = 0.0%. SO_4: Sample 235-10 run as duplicate. RPD = 2.8%. Cr6+: Sample 02-98 run as matrix duplicate. RPD not calculated since both samples were < RL.

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Affected Samples/Qualifiers:

IX. MATRIX SPIKED SAMPLE ANALYSIS

Matrix spike sample(s) analysis was performed according to method requirements and accuracy (%R) results were within the specified control limits. (75% to 125%)

Yes ___ No ✓

Exceptions:

NH_3: Samples 199-03 and 233-13 run for ms. % recovery values 104 & 92.4% respectively. PO_4: Sample 199-03 run as ms sample. %R = 78.4%. Cl: Samples > 4 times spike amount so ms criteria not applicable. NO_2: 208-18 run for ms. %R = 81.1%. NO_3: 208-18 run as ms. %R = 102.6%. SO_4: Sample 233-18 run as ms. %R not calculated since sample value > 4 times spike value. Cr6+: sample ow-48 run as ms. %R =

Affected Samples/Qualifiers

Cr6+: all samples rejected since no sample had values above the RL, and the matrix spike recoveries were < 30%. Samples OW-1, 16, 38, 48, 101 & SM-1 & SM-4

X. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitations were accurate and reported detection limits were acceptable.

Yes ___ No ___

Exceptions:

NH_3: Everything acceptable PO_4: everything OK Cl: everything OK
NO_2: everything acceptable NO_3: everything acceptable
SO_4: everything acceptable Cr6+: everything acceptable

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XI. SAMPLE RESULTS

The sample results were reviewed and all identifications were acceptable and met method requirements.

Yes ✓ No ____

Exceptions:

NH_3: calculations acceptable. PO_4: Calculations acceptable
Cl: calculations acceptable NO_3: Calculations acceptable
NO_2: calculations acceptable SO_4: calculations acceptable
Cr 6+: all calculations acceptable

Affected Samples/Qualifiers

XII. ADDITIONAL METHOD SPECIFIC QC REQUIREMENTS NOT ADDRESSED ABOVE

NH_3: No additional method specific QC. PO_4: same as NH_3
Cl: same as for NH_3 NO_3 same as for NH_3 NO_2: Same as for NH_3
SO_4: Same as for NH_3 Cr6: method of standard additions recommended (but not required) for unusual sample matrices.

XIII. OVERALL ASSESSMENT

NH_3: Sample 235-24 qualified J due to ICV value outside ±10% criteria. Samples 235-02, 12, 16, 18, & 21 qualified due to CCV values outside ±10% criteria
NO_2 Samples OW-16, OW-38, OW-48, OW-101, SM-1, SM-4
CR6+: all samples Rejected due to matrix spike % R < 30% (27%) - Samples OW-11, 16, 38, 48, 101, SM-1 & SM-4

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Proj. No.: C0912

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DATA COMPLETENESS CHECKLIST

METHOD/ANALYSIS: Misc

tion

s run for each

Case Narrative

Chain of Custody/Sample Tracking Information

Other:

t Performance

Initial Calibration

Continuing Calibration

Other:

boratory regarding

g and resolution.

ntrol Sample Data

sable only if agreed

Laboratory Method Blank

Surrogate Recovery Values

Laboratory Duplicate

Matrix Spike/Matrix Spike Duplicate Results

Lab Control/Blank Spike Sample Results

Field Duplicate Results (blind)

Raw data - QC samples

Other:

Other:

No data missing for NH_3
Ditto for PO_4
" " Cl
" " NO_3/NO_2
SO_4

TABLE I
HOLDING TIMES

Sample ID Lab ID	Client ID	Matrix (S:W)	Date Sampled	NH_3 Analysis Date	PO_4 Analysis Date	Cl^- Analysis Date	NO_3 (Nitrate) Analysis Date	NO_2 (Nitrite) Analysis Date
235-01	OW 11	Water	11/22/91	UR	UR	UR	UR	UR
02	OW 11	↓	↓	↓	↓	12/11/91	↓	↓
03	OW 11			↓	↓	UR	11/23/91	11/23/
04	OW 11			12/04/91	12/17/91	↓	UR	UR
05	OW 16			UR	UR	↓	↓	↓
06	OW 16			↓	↓	12/11/91	↓	↓
07	OW 16			↓	↓	UR	11/23/91	11/23/
08	OW 16			12/04/91	12/17/91	↓	UR	UR
09	OW 38			UR	UR	↓	↓	↓
10	OW 38			↓	↓	12/11/91	↓	↓
11	OW 38			↓	↓	UR	11/23/91	11/23/91
12	OW 38			12/04/91	12/17/91	↓	UR	UR
13	OW 101			UR	UR	↓	↓	↓
14	OW 101			↓	↓	12/11/91	↓	↓
15	OW 101			↓	↓	UR	11/23/91	11/23/91
16	OW 101			12/04/91	12/17/91	↓	UR	UR
17	OW 49 A			UR	UR	↓	↓	↓
18	OW 49 A			12/04/91	12/17/91	↓	↓	↓
19	OW 49 A			UR	UR	↓	11/23/91	11/23/
20	Sm 1			↓	↓	12/11/91	↓	UR
21	Sm 1			12/04/91	12/17/91	UR	UR	↓
22	Sm 1			UR	UR	↓	↓	↓
23	Sm 4			↓	↓	12/11/91	11/23/91	11/23
24	Sm 4			12/04/91	12/17/91	UR	UR	UR
25	Sm 4	↓	↓	UR	UR	↓	↓	↓

VTSR = Validated Time of Sample Receipt

TABLE I

HOLDING TIMES

Sample ID Lab ID	Client ID	Matrix (S:W)	Date Sampled	~~NH3 Analysis Date~~	SO4 Cr6+ Analysis Date	~~Cl- Analysis Date~~	~~NO3 (Nitrate) Analysis Date~~	NO2 (Nitrite) ~~Analysis Date~~
235-01	OW 11	Water	11/22/91	UR	11/23/91			
02	OW 11			12/16/91	UR			
03	OW 11			UR				
04	OW 11							
05	OW 16				11/23/91			
06	OW 16			12/16/91	UR			
07	OW 16			UR				
08	OW 16							
09	OW 38				11/23/91			
10	OW 38			12/16/91	UR			
11	OW 38			UR				
12	OW 38							
13	OW 101				11/23/91			
14	OW 101			12/16/91	UR			
15	OW 101			UR				
16	OW 101							
17	OW 49 A				11/23/91			
18	OW 49 A				UR			
19	OW 49 A							
20	Sm 1			12/16/91				
21	Sm 1			UR				
22	Sm 1				11/23/91			
23	Sm 4			12/16/91	UR			
24	Sm 4			UR				
25	Sm 4				11/23/91			

VTSR = Validated Time of Sample Receipt

ecochem, inc.

Proj. No.: 0912

91-11-243

VALIDATION WORKSHEET (NON-CLP METHODS)

Reviewer: Leigh Meredith 04/04/92

SAS No. (if appropriate):

Methods Validated: Chloride (325.2 mod) Cr VI (SW 846: 7197) NH3 ~~DHS~~ EPA 600 : 350.1, NO2 EPA 600 : 353.2 (mod), NO3 EPA 353.2, PO4 Standard methods (for Analysis of waters & wastes) : 424 C, SO4 Standard Methods : 426 C

Methods Modifications (if appropriate):

I. DELIVERABLES

All deliverables were present as specified for the method(s) and QC level.

Yes ✓ No ____

If "no", see the attached Deliverables Checklist(s) for a list of ommissions.

Samples Affected/Qualifiers:

NH3: All method required deliverables provided PO4: Same as NH3 Cl: Same as NH3 NO2: Same as for NH3 NO3: Same as for NH3 SO4: Same as for NH3 Cr6+: Same as for NH3

II. HOLDING TIMES

All method holding times were met.

Yes ✓ No ____

If no, exceptions have been circled on the attached Holding Times Table.

Affected samples/action taken:

NH_3: No specific holding time [illegible] method. PO_4: Same as NH_3
Cl: Same as NH_3 NO_2: Same as for NH_3. NO_3: same as for NH_3
SO_4: Same as for NH_3 $Cr6+$. Same as for NH_3
NO_3 & $Cr6+$ method specifies analysis ASAP [illegible]

III. INSTRUMENT CALIBRATION(S): INITIAL AND CONTINUING

Initial instrument calibrations were performed according to method requirements and met the specified control limits. (ICV within ±10%)

Yes ____ No ✓

Exceptions:

NH_3: initial 6 pt calibration performed. 0 to 5 mg/l. ICV = 106.1%, 2nd ICV = 85.[illegible]
PO_4: initial 5 pt calibration performed. 0 to 3.0 mg/l. ICV = 106.9%
Cl: initial 7 pt calibration performed. 0 to 90 mg/l. ICVs within ±10%
NO_2: initial 5 pt calibration performed. 0 to 5.0 mg/l. ICVs within ±10%.
NO_3: initial 5 pt calibration run 0 to 3.1 mg/l ICV = 108.3%
SO_4: initial 6 pt " " 0 to 40 mg/l ICV = 98.5%
$Cr6+$ initial 4 pt " " 0 to 50 mg/l ICV = 103%

Samples Affected/Qualifiers:

NH_3: No samples qualified [illegible] ±10%

Continuing instrument calibration was performed according to method requirements and met specified control limits. (CCVs < ±10

Yes _____ No ✓

Exceptions:

NH_3: CCV values 89.1%, 85.9%, and 87.9%.
PO_4: All CCV values within ±10%.
Cl: All CCVs within ±10%. NO_3: all CCVs within ±10%.
NO_2: All CCVs within ±10%. SO_4: All CCVs within ±10%.
Cr6+: all CCVs within ±10%.

Samples Affected/Qualifiers:

NH_3: 233-13, 130, 135, 20

IV. LABORATORY (METHOD) BLANK SAMPLE ANALYSIS

Blanks were analyzed at a frequency of one per 20 samples, or per sample delivery group (whichever is more frequent), per matrix type.

Yes ✓ No _____

There were no contaminants in the Method Blank above the ~~CRDL~~ RL.

Yes _____ No ✓

If no list below:

Method/Blank ID	Contaminant	RL	Conc.	Action Level	
NH_3	NH_3	0.10	0.11 mg/l	0.55 mg/l	X
PO_4 /CCB	PO_4	0.25	0.069 mg/l	0.34 mg/l	X
Cl / PB	Cl		0.85 mg/l	4.25 mg/l	X
NO_3 /PB & CCBs	NO_3		0.0 mg/l	0 mg/l	X
NO_2 /PB & CCBs	NO_2	0.1	0.092 mg/l	0.46 mg/l	X
SO_4 / CCB	SO_4	2.0	2.07	10.4 mg/l	X
Cr6+ / CCB	Cr6+	10.0 ug/l	1.9 ug/l	9.5 ug/l	X

91-11-187 PB: -4 mAu. = 0.037 mg/l -20 to 20 mAu

		NO_3				
187-04	EQ 1A 36, 37, 35	<0.10	UJ	✓		✓
~~04~~	~~EQ 1A 36, 37, 35~~	~~<0.10~~	~~UJ~~			
187-09	OW 33A	0.14	J	✓		✓
187-17	OW 15	0.15	J	✓		✓

91-11-199 PB: -4 mAU = 0.037 mg/l so -20 mAu to 20 mA

-06	EQ2A 18, 19, 20, 21	0.17	J	✓		✓
-07	EQ2A 37, 38, 39, 40	<0.10	UJ			✓
	EQ2B AN-low	<0.10	UJ			✓

91-11-200 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 mA

05	OW 17B	0.17	J	✓		✓
07	OW 42	<0.10	UJ			✓
08	OW 19A	<0.10	UJ			✓

208 PB = -5 mA.U so -25 to 25 mA.U.

					(mAu)	
208-4	EQ3A 38, 39, 40, 41	<0.10	UJ	✓	(-45)	✓
208-05	EQ3A 18, 19, 20, 21	<0.10	UJ	✓	(5)	✓
208-15	OW 47	<0.10	UJ	✓	(3)	✓
208-17	OW 1A	<0.10	UJ	✓	(8)	✓

233 PB = -2 -2 mA.u -10 to 10 mAu

(mAu)

233-10	0w36	0.20 J X (accept)	(16)	OK	✓
233-16	0w37	0.13 J ✓	(5)		✓
233-19	0w43	0.13 J ✓	(4)		✓

235 PB: -4 mA.u so -20 to 20

(mAu)

235-3	0w11	<0.10 UJ ✓	(17)	✓
-7	0w16	<0.10 UJ ✓	(-63)	✓
-11	0w38	<0.10 UJ ✓	(-2)	✓
-15	0w101	<0.10 UJ ✓	(-3)	✓
-19	0w484	0.18 (accept)	(29)	

Samples Affected/Qualifiers:

NH_3: No samples PO_4: No samples Cl: No samples NO_2: None
NO_3: none SO_4: none Cr_{6+}: None

V. SURROGATE RECOVERY

Surrogate spiked sample analyses were performed and the results met the method specific criteria.

Yes _____ No ✓ (1)

Exceptions:

(1) NH_3: No surrogate required on the method PO_4: Same as NH_3
Cl: Same as NH_3 NO_2: Same as for NH_3 NO_3: Same as for
SO_4: Same as for NH_3 Cr_{6+}: Same as for NH_3

Affected Samples/Qualifiers:

VI. LABORATORY CONTROL/BLANK SPIKE SAMPLE ANALYSIS

Laboratory Control/Blank Spike samples were analyzed and the results were within the specified control limits.

Yes _____ No ✓ (1)

Exceptions:

(1) NH_3: No LCS (Spiked blank) required on the method PO_4: Same as NH_3
Cl: Same as NH_3 NO_2: Same as for NH_3 NO_3: Same as for NH_3
Same as for NH_3 Cr_{6+}: Same as for NH_3

Affected Samples/Qualifiers:

VII. LABORATORY DUPLICATE SAMPLE ANALYSIS

Laboratory duplicate analyses were performed according to the method requirements and the precision (RPD) results were within the specified control limits. (RPD < 20%)

Yes ✓ No ____

Exceptions:

NH_3: Sample 233-13 run as matrix duplicate. RPD = 2.8% OK
PO_4: Sample 199-03 run as matrix duplicate. Rpd not calculated since one value < RL (0.02 mg/l). (Cl: 233-03 233-03 200-07 - all RPDs < 20% (0.6, 0.7)
NO_3: OW-36 run as duplicate. RPD = 3% OK [illegible] NO_2: OW-36 run as duplicate. RPD Not Calculated (both values < RL). SO_4: Sample 235-10 run as duplicate. RPD = 2.8%.

Affected Samples/Qualifiers:

VIII. FIELD DUPLICATE SAMPLE ANALYSIS

Field duplicate analyses were performed according to the contract requirements and the precision (RPD) results were within the specified control limits.

Yes ✓ No ____

Exceptions:

NH_3: No samples described as field duplicates on chain-of-custody in
PO_4: Same as NH_3 Cl: same as NH_3 NO_2: Same as for NH_3
NO_3: Same as for NH_3 SO_4: same as for NH_3. Samples OW017 & OW178
Field dups All RPDs were acceptable

Cr6+ Sample OW-31 run as ~~Sample~~ matrix duplicate. RPD not calculated since both sample values were < RL

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Proj. No.: 6092

Affected Samples/Qualifiers:

IX. MATRIX SPIKED SAMPLE ANALYSIS

Matrix spike sample(s) analysis was performed according to method requirements and accuracy (%R) results were within the specified control limits. (75% to 125%).

Yes ___ No ✓

Exceptions:

NH_3: Sample 233-13 run as MS. %R = 104%. OK ✓

PO_4: Sample 199-03 run as MS. %R = 78.4%. OK ✓

Cl: Sample was > 4 times spike so %R criteria not applicable.

NO_2: Sample OW-36 run as MS. %R = 81.6% & 109.5% (run twice)

NO_3: OW-36 run as MS. %R = 109.5%. SO_4: Sample 233-18 run as MS. %R not calculated since sample value > 4 times spike value.

Affected Samples/Qualifiers Cr6+ Sample OW-31 run as MS. %R = 68%

All Cr6+ values qualified UJ: OW-31, 32, 36, 37 & 41

X. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitations were accurate and reported detection limits were acceptable.

Yes ___ No ___

Exceptions:

NH_3: Everything OK. PO_4: Everything OK Cl: Everything OK

NO_2: Everything OK NO_3: everything OK SO_4: everything OK

Cr6+: everything OK

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Proj. No.: [illegible]

Page 7 of [illegible]

XI. SAMPLE RESULTS

The sample results were reviewed and all identifications were acceptable and met method requirements.

Yes ✓ No ____

Exceptions:

NH_3: everything OK PO_4: everything OK Cl: everything OK
NO_3: everything OK NO_2: everything OK SO_4: everything OK
$Cr6+$: everything OK

Affected Samples/Qualifiers

XII. ADDITIONAL METHOD SPECIFIC QC REQUIREMENTS NOT ADDRESSED ABOVE

NH_3: no additional method specific QC requirements.
PO_4: same as NH_3. Cl: same as NH_3
NO_3: same as for [illegible] NO_2: same as for NH_3 SO_4: same as for NH_3 $Cr6+$: method specific QC met if no problems occur but this is only suggested not required

XIII. OVERALL ASSESSMENT

NH_3: Samples 233-13 and 233-20 qualified "J" (estimated) due to RPD values outside ± 10% criteria. $Cr6+$: Samples: OW-31, 32, 36, 37, 41 qualified UJ due to ~~poor~~ matrix spike recoveries < 75%, R (62%).

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Proj. No.: 109

Analytical Data

✓ Sample Result Summary Sheets

✓ Chronological list of all samples run for each instrument/method

✓ Raw data - sample results

____ Other: _____

____ Other: _____

Phone Log

Discuss all contacts with client and/or laboratory regarding resubmission of data.

Include date/time, contact name, deliverables missing and resolution.

Note: Direct contact with the laboratory is permissable only if agreed upon by the client.

91-11-233

TABLE I
HOLDING TIMES

Sample ID Lab #	Client ID	Matrix (S:W)	Date Sampled	NH_3 Analysis Date	PO_4 Analysis Date	Cl^- Analysis Date	~~NO_2 Chloride~~ Analysis Date	~~NO_3 Chloride~~ Analysis Date
233-01	OW 21	Water	11/23/91	UR	UR	UR	11/25/91	11/25
02	OW 31			12/4/91	12/17/91		UR	UR
03	OW 31			UR	UR	12/11/91		
04	OW 31					UR		
05	OW 32							
06	OW 32						11/25/91	11/25
07	OW 32					12/11/91	UR	UR
08	OW 32			12/06/91	12/17/91	UR		
09	OW 36							
10	OW 36			UR	UR		11/25/91	11/25
11	OW 36						UR	UR
12	OW 36					12/11/91		
13	OW 37			12/06/91	12/17/91	UR		
14	OW 37			UR	UR			
15	OW 37					12/11/91		
16	OW 37					UR	11/25/91	11/25
17	OW 43						UR	UR
18	OW 43					12/11/91		
19	OW 43					UR	11/25/91	11/25
20	OW 43			12/06/91	12/17/91		UR	UR
21	OW 43A			UR	UR	12/11/91		

VTSR = Validated Time of Sample Receipt

91-11-233

TABLE I
HOLDING TIMES

Sample ID Lab #	Client ID	Matrix (S:W)	Date Sampled	NH3 Analysis Date	PO4 Analysis Date	Cl- Analysis Date	Nitrate Analysis Date	Nitrite Analysis Date
				SO4	Cr6+		NO3 (Nitrate)	NO2 (Nitr
233-01	OW 21	Water	11/23/91	NR	NR			
02	OW 21			↓	↓			
03	OW 21			12/16/91	↓			
04	OW 21			NR	11/24/91			
05	OW 32			↓	↓			
06	OW 32			↓	NR			
07	OW 32			12/16/91	↓			
08	OW 32			NR	↓			
09	OW 36				↓			
10	OW 36			↓	↓			
11	OW 36			↓	11/24/91			
12	OW 36			12/16/91	NR			
13	OW 37			NR	↓			
14	OW 37			↓	11/24/91			
15	OW 37			12/16/91	NR			
16	OW 37			NR	↓			
17	OW 43			↓	11/24/91			
18	OW 43			12/16/91	NR			
19	OW 43			↓	↓			
20	OW 43			↓	↓			
21	OW 43A	↓	↓	12/16/91	↓			

VTSR = Validated Time of Sample Receipt

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DATA COMPLETENESS CHECKLIST

METHOD/ANALYSIS: Misc

Documentation

X	Case Narrative
✓	Chain of Custody/Sample Tracking Information
	Other:

Instrument Performance

✓	Initial Calibration
✓	Continuing Calibration
	Other:

Quality Control Sample Data

✓	Laboratory Method Blank
NR	Surrogate Recovery Values
✓	Laboratory Duplicate
✓	Matrix Spike/Matrix Spike Duplicate Results
NR	Lab Control/Blank Spike Sample Results
✓	Field Duplicate Results (blind)
	Raw data - QC samples
	Other:
	Other:

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Analytical Data

- ✓ Sample Result Summary Sheets
- ✓ Chronological list of all samples run for each instrument/method
- ✓ Raw data - sample results
- ____ Other: _____
- ____ Other: _____

Phone Log

Discuss all contacts with client and/or laboratory regarding resubmission of data.

Include date/time, contact name, deliverables missing and resolution.

Note: Direct contact with the laboratory is permissable only if agreed upon by the client.

91-11-208

TABLE I
HOLDING TIMES

Sample ID (Lab = Client ID)		Matrix (S:W)	Date Sampled	NH_3 Analysis Date	PO_4 Analysis Date	Cl^- Analysis Date	~~[illegible]~~ Analysis Date	NO_3 Nitrate NO_3-N Analysis Date
208-01	EQ3A17	W	11/21/91	12/04/91	12/17/91	UR	UR	UR
02	EQ3[illegible]	↓	↓	↓	↓	↓	↓	↓
03	EQ3B36,40			UR	UR	12/11/91	11/23/91	11/23
04	EQ3A38,39,40,41			↓	↓	↓	↓	↓
05	EQ3A18,19,20,21			↓	↓	↓	↓	↓
06	EQ3A 11,12			↓	↓	UR	UR	UR
07	EQ3A 27,28			↓	↓	↓	↓	↓
08	DW 41			↓	↓	↓	↓	↓
09	DW 47			↓	↓	12/11/91	↓	↓
10	DW 12			↓	↓	UR	↓	↓
11	DW 41			↓	↓	12/11/91	↓	↓
12	DW 12			↓	↓	↓	↓	↓
13	DW 47			↓	↓	UR	↓	↓
14	DW 47			12/04/91	12/17/91	↓	↓	↓
15	DW 47			UR	UR	↓	11/23/91	11/23/91
16	DW 12			12/04/91	12/17/91	↓	UR	UR
17	DW 12			UR	UR	↓	11/23/91	11/23
18	DW 41			↓	↓	↓	↓	↓
19	DW 41	↓	↓	12/04/91	12/17/91	↓	UR	UR

VTSR = Validated Time of Sample Receipt

91-11-208

TABLE I
HOLDING TIMES

Sample ID (Lab # / Client ID)		Matrix (S:W)	Date Sampled	~~NH3 Analysis Date~~	SO4 ~~PO4 Analysis Date~~	Cr6+ ~~Cl- Analysis Date~~	NO3 Nitrate ~~Nitrate Analysis Date~~	NO2 Nitrite ~~Nitrite Analysis Date~~
208-01	EQ3A17	Water	11/21/91	NR	NR			
02	EQ3A17	↓	↓	↓	↓			
03	EQ3B 36,40			11/25/91				
04	EQ3A 38 39 40,41			↓	↓			
05	EQ3A 18 20 21			↓	↓			
06	EQ3A 11,12			NR	11/22/91			
07	EQ3A 27,28			↓	↓			
08	OW 41			↓	↓			
09	OW 47			11/25/91	NR			
10	OW 12			NR	11/22/91			
11	OW 41			11/25/91	NR			
12	OW 12			↓	↓			
13	OW 47			NR	11/22/91			
14	OW 47			↓	NR			
15	OW 47			↓	↓			
16	OW 12			↓	↓			
17	OW 12			↓	↓			
18	OW 41			↓	↓			
19	OW 41	↓	↓	↓	↓			

VTSR = Validated Time of Sample Receipt

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Proj. No.: C0912

91-11-208

VALIDATION WORKSHEET (NON-CLP METHODS)

Reviewer: Leigh Meredith 04/04/92

SAS No. (if appropriate):

Methods Validated: Chloride (375.2 mod) Cr VI (SW 846: 7197) NH3 ~~[illegible]~~ EPA 600 : 350.1, NO2 EPA 600 : 353.2 (mod), NO3 EPA 353.2, PO4 Standard Methods (for Analysis of Waters & Wastes) : 424 C SO4 Standard Methods : 426 C

Methods Modifications (if appropriate):

I. DELIVERABLES

All deliverables were present as specified for the method(s) and QC level.

Yes ✓ No ✓

If "no", see the attached Deliverables Checklist(s) for a list of ommissions.

Samples Affected/Qualifiers:

NH3 : All deliverables present PO4 : Same as NH3
Cl : Same as NH3 NO2 : all present NO3 : all present
SO4 : all present Cr6+ : initial calibration data not found.

II. HOLDING TIMES

All method holding times were met.

Yes ✓ No ____

If no, exceptions have been circled on the attached Holding Times Table.

Affected samples/action taken:

NH3 - No method specific holding time given
PO4 - Same as NH3 Cl - Same as NH3 NO2: Same as for NH3
NO3 - Same as NH3 SO4: Same as for NH3 Cr6+: Same as for NH3
Cr 6+ & NO2 - need to be run ASAP (time were)

III. INSTRUMENT CALIBRATION(S): INITIAL AND CONTINUING

Initial instrument calibrations were performed according to method requirements and met the specified control limits. (ICV ±10

Yes ____ No ✓

Exceptions:

NH3: 6pt initial calibration 0 to 5 mg/l, ICV = 85.9%
PO4: 5pt initial calibration 0 to 3.0 mg/l ICV = 106.9%
Cl: 7pt initial calibration 0 to 50 mg/l ICV within ±10%
NO2: 5pt initial calibration 0 to 5.0 mg/l ICVs within ±10%
NO3: 5pt initial calibration 0 to 3.1 mg/l ICV = 107.1%
SO4 6pt " " 0 to 40 mg/l ICV = 100.8%
Cr6+ initial calibration not found ICV not found

Samples Affected/Qualifiers:

NH3: 208-01, 02, 14, 16

Continuing instrument calibration was performed according to method requirements and met specified control limits. C ±10% for

Yes ____ No ✓

Exceptions:

NH_3: CCV's run every 10 samples CCV values outside ±10% criteria Final CCV = 87.9%.
PO_4: All CCVs within ±10% criteria. Cl: All CCVs within ±10
NO_3: All CCV within ±10%. NO_2: all CCVs within ±10%
SO_4: All CCVs within ±10%. Cr6+: CCVs within ±10% (except to

Samples Affected/Qualifiers:

NH_3: 708-01 (4x) -02 (8x), 16 (250x), 19 (100x)

IV. LABORATORY (METHOD) BLANK SAMPLE ANALYSIS

Blanks were analyzed at a frequency of one per 20 samples, or pe sample delivery group (whichever is more frequent), per matrix type.

Yes ✓ No ____

There were no contaminants in the Method Blank above the ~~CRDL~~ RL.

Yes ____ No ✓

If no list below:

Method/Blank ID	Contaminant	RL	Conc.	Action Level	
NH_3	NH_3	0.010	0.11 mg/l	0.55 mg/l	X
PO_4/CCB	PO_4	0.25	0.069 mg/l	0.34 mg/l	✓
Cl / PB	Cl		0.85 mg/l	4.25 mg/l	X
NO_3/PB & CCBs	NO_3		0.0 mg/l	0.0 mg/l	X
NO_2/PB & CCBs	NO_2		0.0 mg/l	0.0 mg/l	X
SO_4 / CCB	SO_4	2.0	2.19 mg/l	11.0 mg/l	X
Cr6+ / CCB	Cr6+	10.0	1.1 mg/l	5.5 mg/l	X

91-11-187 PB: -4 mAu. = 0.03 T mg/l -20 to 20 mAu

		NO_3				
187-04	EQ 1A 36, 37, 35	<0.10	uJ	✓		✓
~~04~~	~~EQ 1A 36, 37, 35~~	~~<0.10~~	~~uJ~~			
187-09	OW 33A	0.14	J	✓		✓
187-17	OW 15	0.15	J	✓		✓

91-11-199 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 mAu

-06	EQ 2A 18, 19, 20, 21	0.17	J	✓		✓
-07	EQ 2A 37, 38, 39, 40	<0.10	uJ			✓
	EQ 2B AN-Low	<0.10	uJ			✓

91-11-200 PB: -4 mAu = 0.037 mg/l so -20 mAu to 20 mAu

05	OW 17B	0.17	J	✓		✓
07	OW 42	<0.10	uJ			✓
08	OW 1m A	<0.10	uJ			✓

208 PB = -5 mA.u so -25 to 25 mA.u.

					(mAu)	
208-4	EQ 3A 38, 39, 40, 41	<0.10	uJ	✓	(-65)	✓
208-05	EQ 3A 18, 19, 20, 21	<0.10	uJ	✓	(5)	✓
208-15	OW 47	<0.10	uJ	✓	(3)	✓
208-17	OW 2	<0.10	uJ	✓	(8)	✓

	233	PB = -2	-2 mA.u	-10 to 10 mAu	
				(mAu)	
233-10	Ow36	0.02	TX (accept)	(16) OK	✓
233-16	Ow37	0.13	T ✓	(5)	✓
233-19	Ow43	0.13	T ✓	(4)	✓

	235	Pb: -4 mA.u		so -20 to 20	
				(mAu)	
235-3	Ow11	<0.10	LT ✓	(17)	✓
-7	Ow16	<0.10	LT ✓	(-63)	✓
-11	Ow38	<0.10	LT ✓	(-2)	✓
-15	Ow101	<0.10	LT ✓	(-3)	✓
-19	Ow484	0.18	(accept)	(29)	

d/Qualifiers:

s qualified PO4 : 708-19 U
s qualified NO2: No sample qualified
qualified SO4: None Cr6+: No samples qualified

ECOVERY

l sample analyses were performed and the results
pecific criteria.
No ✓(1)

ed according to the
)) results were within
)

ates required by this method. PO4: Same as NH3
: NO2: same as for NH3 NO3: same as for NH3
NH3 Cr6+ : Same as for NH3

d (both values < 0.25 mg/l - R:
2.6-0.7 & 0.0 % respectively)
708-18 run as dupe RPD=0.0

Qualifiers:

ONTROL/BLANK SPIKE SAMPLE ANALYSIS

ol/Blank Spike samples were analyzed and the
in the specified control limits.
s ✓(1)

according to the contract
ults were within the

ke (LCS) required by this method. PO4: Same as NH3
3 NO2: Same as for NH3 NO3 same as
same as for NH3 Cr6+: Same as for NH3

in-of-custody info.
NH3 NO2: Same as for NH3
for NH3 Cr6+: Same as for NH
acceptable
) not calibrated

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XI. SAMPLE RESULTS

The sample results were reviewed and all identifications were acceptable and met method requirements.

Yes ✓ No ____

Exceptions:

NH_3: Calculations correct PO_4: Calculations correct.
Cl: Calculations correct NO_2: Calculations correct
NO_3: Calculations OK SO_4: Calculations OK
$Cr6+$: Calculations OK

Affected Samples/Qualifiers

XII. ADDITIONAL METHOD SPECIFIC QC REQUIREMENTS NOT ADDRESSED ABOVE

NH_3: No additior QC requirements. PO_4: same as NH_3
Cl: same as NH_3 NO_2: same as for NH_3 NO_3: same as for NH_3 SO_4: no additional method specific QC.
$Cr6+$: method of Standard Additions recommended by method (but not required)

XIII. OVERALL ASSESSMENT

NH_3: Sample values qualified due to ICV/CCV values outside ±10%.
$Cr6+$: samples qualified due to MS % Recovery less than 75% (57%)

April 10, 1992

Mr. Robert Barrick
PTI Environmental Services
15375 S.E. 30th Place
Suite 250
Bellevue, WA 98007

RE: Data Validation
PTI Project #C132031
Huffman Laboratories: DOC fractionation, 28 aqueous samples
CSU Soil Testing Laboratory: Total Organic Carbon (TOC), six soil samples
Battelle Marine Sciences Laboratory: Arsenic speciation, 28 aqueous samples
(see Table 1 for Identification of Samples Reviewed)

Dear Mr. Barrick:

A review was performed on the above referenced analytical results from samples collected by PTI Environmental Services at the Industri-Plex site in Woburn, MA. A validation based on EPA Functional Guidelines could not be performed as the methods used by the above laboratories are not EPA methods, and do not specify similar quality control requirements.

The following are over-all observations of the submitted data, and any recommended qualifiers.

DOC Fractionation

Data Completeness: The laboratory report contained chain-of-custodies, case narrative, quality control summary and data summary forms. It should be noted that reported results are not corrected for sample dilutions. No raw data from instrument readouts were included.

Holding Times: The case narrative stated the samples were held at 4°C. Analysis dates were not clearly stated on the data summary forms. If the date stated on the form is the analysis date, then holding times prior to analysis were from 31 to 67 days. No holding times requirements were stated, but the length of holding times should be considered when comparing results.

Blanks: The case narrative states that results were blank corrected based on the daily laboratory blank. One field blank was submitted (OW101). The laboratory reported the results as Sample OW10. Results for the field blank were greater than the reported laboratory blank. No data are qualified based on the field blank, as the common Functional Guidelines method for blank qualification (i.e., five times rule) is judged by this reviewer as inappropriate for this type of low-level analysis. However, the field blank results should be considered by the data user when interpreting the data.

Laboratory Duplicates: The laboratory states in a December 30, 1991 letter that all samples were analyzed in duplicate. However, the report summaries do not provide the duplicate results or indicate if values are averages. Results for one duplicate (OW12) were reported at both 1:20 and 1:70 dilutions. The discrepancies between duplicates was attributed by the laboratory to particulate matter.

Field Duplicates: One field duplicate was submitted (OW17/OW17B). DOC, total hydrophobics, and total hydrophilic results were identical for the two samples. The splits between the base, acids, and neutral, however, indicated high variability (>100%).

Laboratory Check Standards: The laboratory stated in their QC Summary that 26 check standards were analyzed with a mean recovery of 104% with a relative standard deviation of 3%. Time of analysis, concentration, or source of the check standard was not provided, but stated results indicate good laboratory quality control.

Overall Assessment: No data qualifiers for DOC are recommended based upon the data package submitted, as the DOC method is not a routine analysis with established data review guidelines. The laboratory submitted blank and check standard recovery results that indicate quality control checks were maintained during the analysis. Laboratory duplicate analysis results indicate high variability may be expected due to particulate matter in the samples, and the field duplicate results indicate that the base/acids/neutral fractionation may be highly variable.

TOC

Data Completeness: The laboratory submitted the laboratory standard operating procedure and the instrument raw data. The method does not include any quality control guidelines, or reference a published method. No chain-of-custodies were submitted with the data.

Holding Times: According to the laboratory report samples were received on 12/10/91. Analysis was performed on 1/13/92. As the samples are air dried and ground prior to analysis, it is unlikely holding time would have an effect on results.

Blanks: Laboratory method blanks were analyzed before and after sample analysis. Results for Sample SC1-12 were not significantly different than the blank results. Therefore it is recommended this result be qualified as non-detected (U).

Laboratory and Field Duplicates: No laboratory or field duplicates were noted.

Overall Assessment: As no laboratory quality control checks were noted, other than blanks, it is difficult to judge the quality or comparability of the data. One sample result (SC1-12) is judged not to be significantly different than the blank, and is recommended to be qualified as U at the reported value. As the method used is not an EPA method with data review guidelines, no additional qualifiers are recommended.

Arsenic Speciation

Data Completeness: The laboratory reported a data summary with associated Standard Reference Material (SRM), replicates, and matrix spike results.

Holding Times: Holding times or dates of analyses were not provided.

Blanks: Laboratory blank results were not reported. One field blank (OW101) was submitted. Total inorganic arsenic was reported as 0.11 μg/L and methyl arsenic as not detected in the field blank. One sample results (OW15) was within five times the field blank results and is recommended to be qualified as non-detected at the reported value (0.10 μg/L).

Laboratory and Field Duplicates: Results for two laboratory duplicates and one laboratory triplicate were reported. Relative percent differences between replicates were less than 10%, indicating good precision. One field duplicate was submitted (OW17/OW17B). Total inorganic arsenic results for the field replicate were significantly different (0.57 μg/L and 11.1 μg/L). This difference in field duplicate results should be considered when interpreting the data.

Laboratory Control Sample Results: Results for three SRM analyses were reported. All results were within the confidence interval listed for the SRM.

Matrix Spike Results: Results for three matrix spikes were reported. Recoveries ranged from 79% to 105% indicating good analytical recovery.

Overall Assessment: The laboratory results reported for the duplicates, SRM, and matrix

spikes indicated good laboratory precision and recovery. One sample results (OW15) is recommended to be qualified as non-detected (U), because the associated field blank concentration was within five times the sample results. Field replicate precision was poor and should be considered when interpreting the data.

Sincerely,

Ann K. Bailey
President
EcoChem, Inc.

Attachments

Table 1. Identification of Samples Reviewed

Sample Identification

DOC:

OW101	OW41	OW4A	OW17
OW38	OW32	OW36	OW37
OW43	OW11	OW16	OW31
SM1	SM4	EQ1B-3941	EQ1B-2627
EQ2B-7,8,9	EQ3B-6,7,8,9	EQ3B-31,32,33	EQ2B-31,32,34
OW1A	OW15	OW33A	OW12
OW17B	OW47	OW42	OW19A

TOC:

SC14	SC112	SC22	SC26
SC31	SC37		

Arsenic Speciation:

OW1A	OW15	OW17B	OW42
OW33A	OW38	OW101	OW47
OW41	OW17	OW12	OW19A
OW16	OW32	OW11	EQ1A-3
OW373	OW363	OW313	OW483
OW48A	EQ3B-23	EQ3B-3	EQ2A-3
EQ2B-22	EQ3A-31	SM1	SM4

APPENDIX D3

Hall's Brook Holding Area and
Metals Mobility
Data Validation Documentation

Dissolved Organic Carbon,
Total Organic Carbon and
Arsenic Speciation Data

Table 3. Non-standard data with limited qualifiers.

Sample Number:	W33119100	W33308	W33310	W32548	W32513	W32546	W32557	W32560	W32573
Location:	DI-WATER-LAB	EQ-1B-26,27	EQ-1B-39,41	EQ-2B-31,32,34	EQ-2B-7,8,9	EQ-3B-31,32,33	EQ-3B-6,7,8,9	OW-101	OW-11
Depth (cm):		-6	-33	-51.5667	-3	-51	-2		
Sampling Date:	12/19/91	11/19/91	11/19/91	11/20/91	11/20/91	11/21/91	11/21/91	11/22/91	11/22/91
Dilution*:	1	3	2.5	2	2	20	25	1	2
)TAL DISSOLVED ORGANIC CARBON (mg/L)	0.2	27	8	19.6	6.6	146	247.5	1.6	13.2
)TAL ORGANIC CARBON (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA
)TAL HYDROPHOBIC FRACTION (mg/L)	0.2	11.7	5.5	3.4	3.4	28	60	0.4	4.4
/DROPHOBIC BASE (mg/L)	0	0	0.25	0	0.2	2	2.5	0	0.2
/DROPHOBIC ACID (mg/L)	0	8.4	2	0.6	0.6	10	30	-0.1	1.2
/DROPHOBIC NEUTRAL (mg/L)	0.2	3.3	3.5	2.8	2.4	14	27.5	0.4	2.8
)TAL HYDROPHILIC FRACTION (mg/L)	0	15.3	2.25	16.2	3.4	116	187.5	1.4	8.8
/DROPHILIC BASE (mg/L)	-0.1	1.2	1	0.4	0.4	12	15	0.1	3
/DROPHILIC ACID (mg/L)	0	13.5	1	5.4	2.4	86	162.5	0.2	4
/DROPHILIC NEUTRAL (mg/L)	0	0.6	0.25	10.4	0.6	20	12.5	1	1.8

Sample Number:	W32227	W32227A	W32239	W32670	W32263	W24227	W32968	W33861	W33371
Location:	OW-12	OW-12	OW-15	OW-16	OW-17	OW-17B	OW-19A	OW-1A	OW-31
Depth (cm):									
Sampling Date:	11/21/91	11/21/91	11/19/91	11/21/91	11/20/91	11/20/91	11/20/91	11/18/91	11/23/91
Dilution*:	20	70	1	10	40	40	1	1	20
)TAL DISSOLVED ORGANIC CARBON (mg/L)	144	168	1.7	226	460	460	3.3	9.2	194
)TAL ORGANIC CARBON (%)	2.4	NA	NA	NA	NA	NA	NA	NA	NA
)TAL HYDROPHOBIC FRACTION (mg/L)	32	-21	0.7	112	60	60	1.6	3.5	72
/DROPHOBIC BASE (mg/L)	2	14	0.1	2	4	4	0	0.1	2
/DROPHOBIC ACID (mg/L)	40	56	0.1	99	148	36	0.6	1.9	42
/DROPHOBIC NEUTRAL (mg/L)	-10	-91	0.6	10	-92	20	1	1.5	28
)TAL HYDROPHILIC FRACTION (mg/L)	112	189	1	114	400	400	1.7	5.7	122
/DROPHILIC BASE (mg/L)	-78	119	0.5	22	24	260	-0.1	1.1	4
/DROPHILIC ACID (mg/L)	182	42	0.2	84	356	136	1.3	4.5	110
/DROPHILIC NEUTRAL (mg/L)	8	28	0.3	8	20	8	0.5	0.1	8

*- Results are reported at the undiluted concetrations. No additional corrections are required.

NA- Not analyzed.

Table 3. Non-standard data with limited qualifiers (Continued).

Sample Number:	W33377	W32287	W33383	W33389	W24288	W25981	W25993	W32579	W32215
Location:	OW-32	OW-33A	OW-36	OW-37	OW-38	OW-41	OW-42	OW-43	OW-47
Depth (cm):									
Sampling Date:	11/23/91	11/19/91	11/23/91	11/23/91	11/22/91	11/21/91	11/20/91	11/23/91	11/21/91
Dilution*:	2	1	2	2	2	5	4	2	2
TOTAL DISSOLVED ORGANIC CARBON (mg/L)	17	1.8	9	10	16.8	34.5	30	16.8	13.2
TOTAL ORGANIC CARBON (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HYDROPHOBIC FRACTION (mg/L)	7.4	1.3	6.6	3.4	8.4	14	11.6	7.4	7.4
HYDROPHOBIC BASE (mg/L)	0.2	0	0.2	0	0	0	0	0.2	0.2
HYDROPHOBIC ACID (mg/L)	3.4	0.2	3.6	1.2	4	8.5	7.6	3.4	3
HYDROPHOBIC NEUTRAL (mg/L)	4	1	2.8	2.2	4.2	5.5	4	3.8	4.2
TOTAL HYDROPHILIC FRACTION (mg/L)	9.6	0.6	2.4	6.6	8.4	20.5	18.4	9.4	5.8
HYDROPHILIC BASE (mg/L)	0	0	-1	0.2	0.4	7	6.8	1.2	0.8
HYDROPHILIC ACID (mg/L)	9.2	0	3.2	2.6	3.2	10	10.4	6.4	4.2
HYDROPHILIC NEUTRAL (mg/L)	0.2	0.5	0.2	3.8	4.8	3.5	1.2	1.6	0.8

Sample Number:	W24215	W3351	W33359
Location:	OW-48A	SM-1	SM-4
Depth (cm):			
Sampling Date:	11/22/91	11/22/91	11/22/91
Dilution*:	1	10	5
TOTAL DISSOLVED ORGANIC CARBON (mg/L)	8.7	88	34.5
TOTAL ORGANIC CARBON (%)	NA	NA	NA
TOTAL HYDROPHOBIC FRACTION (mg/L)	3.1	45	16
HYDROPHOBIC BASE (mg/L)	0.2	3	0.5
HYDROPHOBIC ACID (mg/L)	2.1	32	12.5
HYDROPHOBIC NEUTRAL (mg/L)	0.8	11	3.5
TOTAL HYDROPHILIC FRACTION (mg/L)	5.6	43	18.5
HYDROPHILIC BASE (mg/L)	0.8	3	2
HYDROPHILIC ACID (mg/L)	3.9	40	15.5
HYDROPHILIC NEUTRAL (mg/L)	0.9	0	1

*- Results are reported at the undiluted concetrations. No additional corrections are required.

NA- Not analyzed.

Table 3. Non-standard data with limited qualifiers (Continued).

Sample Number:	W33317		W32545		W32559		W33363		W32576		W32269A		W32259		W32271		W33368B	
Location:	EQ-1A-30,31		EQ-3B-23,24		EQ-3B-3,4		OW--48A		OW-11		OW-16		OW-18		OW-17		OW-31	
Sampling Date:	11/19/91		11/21/91		11/21/91		11/22/91		11/22/91		11/21/91		11/21/91		11/20/91		11/23/91	
Depth	-19		-33		7													
Units:	(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Total Arsenic	1565		20.2		1673		220		2.63		336		345		6		123	
MMA	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	453		411		1.9	U	133	
DMA	1.76	U	1.76	U	1.76	U	1.76	U	1.76	U	1.76	U	1.76	U	1.79	U	1.76	U
As(III)	1230		10.3		1066		215		1.36	U		NA	3350		1.36	U		NA
As(V)	333		9.9		607		5		1.25			NA	7		4.62			NA

Sample Number:	W33368A		W33366		W33380		W33386		W25069		W33374		W32562		W32562A		W32223	
Location:	OW-31		OW-31		OW-36		OW-37		OW-41		OW-42		OW-43		OW-43		OW-47	
Sampling Date:	1/23/91		11/23/91		11/23/91		11/23/91		11/23/91		11/20/91		11/23/91		11/23/91		11/21/91	
Depth																		
Units:	(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)		(µg/L)	
Total Arsenic	124		135		525		204		93		2.35		59.9		57.4		6.14	
MMA	126		126		1.9	U	1.9	U	26.6		1.9	U	1.9	U	1.9	U	1.9	U
DMA	1.76	U	1.76	U	1.76	U	1.76	U	1.79	U	1.76	U	1.76	U	1.76	U	1.79	U
As(III)		NA	1.36		1.36	U	1.36	U	124		2.22		1.36	U		NA	1.36	U
As(V)		NA	126		524		203				0.13		57.3			NA	4.76	

Sample Number:	W33349	
Location:	SM-1	
Sampling Date:	11/22/91	
Depth		
Units:	(µg/L)	
Total Arsenic	1357	
MMA	1.9	U
DMA	1.76	U
As(III)	108	
As(V)	1249	

U - The compound was considered not detected. The associated numerical value is the quantitation limit.

April 10, 1992

Mr. Robert Barrick
PTI Environmental Services
15375 S.E. 30th Place
Suite 250
Bellevue, WA 98007

RE: Data Validation Report Letter
PTI Project #C1320301
Columbia Analytical Services
Laboratory Work Order Numbers: K916914, K916849, K916827, K916824
BTEX Analyses: See Table 1 for Identification of Samples Reviewed

Dear Mr. Barrick:

A validation was performed on the BTEX analytical data from 44 aqueous samples and 15 soil samples collected by PTI Environmental Services at the Industri-Plex site in Woburn, MA. The data were evaluated based on the Region I Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses, February 1988, for the following parameters:

*	-	data completeness
	-	holding times
	-	calibration
	-	blanks
	-	surrogate recoveries
	-	matrix spike/matrix spike duplicate
*	-	field duplicates
*	-	instrument performance
*	-	compound identification
*	-	compound quantitation

* All criteria were met for this parameter.

Table 2 summarizes the validation recommendations which were based on the following information:

Holding Times

Compound	Qualifier	Sample Number	Reason
Benzene	J	OW17; OW17B; OW31	Dilutions analyzed outside the seven day analysis holding time by 4-5 days.
Toluene	J	OW16	Dilutions analyzed outside the seven day analysis holding time by 4 days.

Samples OW16; OW17; OW17B; and OW31 were initially analyzed within analysis holding times. Dilutions were necessary for one compound in each sample. All four dilutions were analyzed 4 to 5 days outside of analysis holding times. Those positive identifications for which the dilutions were performed have been qualified as estimated quantities. Qualified data are summarized in the table above.

Calibration

Compound	Qualifier	Sample Number	Reason
Benzene	J	OW16; OW31	Continuing calibration exceeded 25%D limit. (%D = 33%).
Toluene	J	OW16; OW31	Continuing calibration exceeded 25%D limit. (%D = 30%).

Continuing calibration criteria ($\leq$25%D) were not met for benzene (33%) and toluene (30%) in one continuing calibration standard that was used for quantitation. All positive benzene and toluene results have been qualified as estimated quantities for samples that were analyzed following this out-of-control sample. Qualified data are summarized in the table above.

Blanks

Compound	Qualifier	Sample Number	Reason
Benzene	U at Reported Value	OW11; OW16; OW38; OW48A; SM4	Field blank contamination greater than CRQL and less than 5 times blank concentration.
Toluene	U at Reported Value	OW32; OW36; OW43; SM1; SM3	Field blank contamination greater than CRQL and less than 10 times blank concentration.

Field blank OW101 contained benzene at 11.3 µg/L and toluene at 5µg/L. For benzene, all positive results in five associated samples that were greater than CRQL but less than five times the field blank contamination have been qualified as not present at the value reported.

For toluene, all positive results in five associated samples that were greater than CRQL but less than ten times the field blank contamination have been qualified as not present at the value reported.

Surrogate Recovery

Compound	Qualifier	Sample Number	Reason
All Compounds	J(+)/ UJ(-)	SC3-2; SC3-4; SC3-6	Surrogate recoveries outside 50 - 130% QC limits. (29-41%)
All Compounds	J(+)/ UJ(-)	EQ3A-5; EQ3A-16; EQ3A-42	Surrogate recoveries outside 60 - 120% QC limits. (37-54%)

Surrogate recoveries were below QC limits for three soil and three water samples. All results for these six samples have been qualified as estimated due to the possible low bias. Qualified data are summarized in the table above.

Matrix Spike/Matrix Spike Duplicate

Results for benzene were not calculated for one soil MS/MSD pair. The sample analyzed just prior to the MS/MSD contained a very high level of benzene. The high level of benzene found in the MS/MSD appeared to be carry over from the benzene found in this sample. Since all other spike results were acceptable for this MS/MSD pair, no qualifications of associated data are recommended.

Results for benzene, toluene and ethylbenzene were below QC limits for one soil matrix spike. (Recoveries were 13.6%, 30.6%, and 32.1%, respectively.) All results for the matrix

spike duplicate and the lab control sample were within QC limits. The laboratory suspected the high water content of this sample to be a factor in the low recoveries. No data were qualified based on the spike recoveries alone. Surrogate recoveries were monitored to evaluate the laboratory's ability to recover spiked compounds.

Overall Assessment

Generally, the laboratory performed the BTEX analyses within method specifications. A few problems were found and results have been recommended qualified where it was deemed appropriate. The data, as qualified, are acceptable for use.

Attached are Table 1 - Identification of Samples Reviewed; Tables 2a and 2b - Recommendation Summaries; Table 3 - Data Summary with Qualifiers; and BTEX Data Validation Worksheet.

Sincerely,

Ann K. Bailey
President
EcoChem, Inc.

Attachments

Table 1. Identification of Samples Reviewed

Sample Identification

Water:

EQ1A-4	EQ1A-19	EQ1A-23	EQ1A-34
EQ1A-43	EQ2A-5	EQ2A-	EQ2A-16
EQ2A-24	EQ2A-29	EQ2A-33	EQ2A-1
EQ3A-5	EQ3A-8	EQ3A-16	EQ3A-24
EQ3A-33	EQ3A-42	EQ7-45	EQ7-46
OW1A	OW11	OW12	OW15
OW16	OW17	OW17B	OW19A
OW31	OW32	OW33A	OW36
OW37	OW38	OW41	OW42
OW43	OW47	OW48A	OW100
OW101	SM1	SM3	SM4

Soil:

SC1-1	SC1-3	SC1-6	SC1-9
SC1-12	SC2-B	SC2-3B	SC2-6B
SC2-9B	SC2-3B	SC3-1	SC3-2
SC3-4	SC3-6	SC3-9	

Table 2a: Recommendation Summary for Water Samples.

Analyte	Qualifier
Benzene	J^1, J^2, J^3, U^1
Toluene	J^1, J^2, J^3, U^1
Ethylbenzene	J^3, UJ^1
Xylenes	J^3, UJ^1

Codes:

J^1 Consider positive results estimated (J) due to analysis beyond holding time. Estimated results are biased low.

J^2 Estimate (J) positive results due to out-of-control continuing calibration.

U^1 Consider positive results greater than CRQL and less than blank action level as not detected due to the possibility of false positives based on field blank contamination.

J^3 Estimate positive results (J) due to low surrogate recoveries. Estimated results could be biased low.

UJ^1 Estimate nondetect results (UJ) due to low surrogate recoveries. Estimated CRQLs could be biased high.

NOTE: See report narrative for affected samples

Table 2b (Continued): Recommendation Summary for Soil Samples.

Analyte	Qualifier
Benzene	J[1]
Toluene	UJ[1]
Ethyibenzene	UJ[1]
Xylenes	UJ[1]

Codes:

J[1] Estimate positive results (J) due to low surrogate recoveries. Estimated results could be biased low.

UJ[1] Estimate non detect results (UJ) due to low surrogate recoveries. Estimated CRQLs could be biased high.

NOTE: See report narrative for affected samples

Table 3. BTEX Data Summary with Qualifiers

Sample Number:	K6824-MB	K6824-MB1	K6824-MB2	K6827-MB1	K6827-MB2	K6849-MB	K6914-MB	S32520	S32522	S32524
Location:	COLUMBIA_BLK	COLUMBIA_BLK	COLUMBIA_BLK	COLUMBIA_BLK	COLUMBIA_BLK	COLUMBIA_BLK	COLUMBIA_BLK	SC-3-1	SC-3-2	SC-3-4
Depth (cm):								2.6	7.2	20.3
Sampling Date:	11/26/91	11/22/91	12/02/91	11/22/91	12/02/91	12/02/91	11/27/91	11/26/91	11/26/91	11/26/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/Kg)	(µg/Kg)	(µg/Kg)
Benzene	50 U	0.5 U	0.5 U	50 U	50 U	0.5 U	0.5 U	15400	13200 J	4300 J
Ethylbenzene	50 U	1 U	1 U	50 U	50 U	1 U	1 U	600 U	600 UJ	600 UJ
Toluene	50 U	1 U	1 U	50 U	50 U	1 U	1 U	600 U	600 UJ	600 UJ
Xylene	50 U	1 U	1 U	50 U	50 U	1 U	1 U	700	600 UJ	600 UJ

Sample Number:	S32525	S32527	S32962	S32963	S32963B	S32964	S32965	S32966	S33427	S33428
Location:	SC-3-6	SC-3-9	SC-1-1	SC-1-3	SC-1-3	SC-1-6	SC-1-9	SC-1-12	SC-2-1B	SC-2-3B
Depth (cm):	32	47.9	2.1	9.55	9.55	20.25	32.45	43.6	3.5	17.5
Sampling Date:	11/26/91	11/26/91	11/22/91	11/22/91	11/22/91	11/22/91	11/12/91	11/22/91	11/22/91	11/22/91
Units:	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/Kg)
Benzene	1700 J	180	1900	600	50 U	500 U	50 U	50 U	3900	1000
Ethylbenzene	200 UJ	50 U	500 U	500 U	50 U	500 U	50 U	50 U	500 U	500 U
Toluene	200 UJ	50 U	500 U	500 U	50 U	500 U	50 U	50 U	500 U	500 U
Xylene	200 UJ	60	500 U	500 U	50 U	500 U	50 U	50 U	500 U	500 U

Sample Number:	S33429	S33430	S33431	W10193	W24201	W24213	W24225	W24239	W24250	W24263
Location:	SC-2-6B	SC-2-9B	SC-2-13B	OW-43	OW-11	OW-48A	OW-17B	OW-31	OW-32	OW-36
Depth (cm):	38.6	59.15	86.7							
Sampling Date:	11/22/91	11/22/91	11/22/91	11/23/91	11/26/91	11/22/91	11/25/91	11/26/91	11/26/91	11/26/91
Units:	(µg/Kg)	(µg/Kg)	(µg/Kg)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Benzene	500 U	50 U	50 U	518	2.3 U	19 U	6900 J	16000 J	759	0.5 U
Ethylbenzene	500 U	50 U	50 U	1 U	1 U	0.05 U	17	42	1 U	1 U
Toluene	500 U	50 U	50 U	12 U	255	264	7	92 J	14 U	27 U
Xylene	500 U	50 U	50 U	2	1 U	0.05 U	117	219	2	1 U

Sample Number:	W24274	W24286	W25980	W25991	W32202	W32213	W32225	W32237	W32249	W32261
Location:	OW-37	OW-38	OW-41	OW-42	OW-1A	OW-47	OW-12	OW-15	OW-16	OW-17
Depth (cm):										
Sampling Date:	11/26/91	11/26/91	11/27/91	11/25/91	11/25/91	11/27/91	11/27/91	11/19/91	11/19/91	11/25/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Benzene	0.5 U	2.9 U	140	285	0.5 U	56	900	0.5 U	5.5 U	5700 J
Ethylbenzene	1 U	1 U	3	1 U	1 U	1 U	8	1 U	1 U	17
Toluene	1 U	1 U	39	20	1 U	27	1000	1 U	12000 J	7
Xylene	1 U	1 U	16	3	1 U	2	40	1 U	1 U	118

U - The compound was considered not detected. The associated numerical value is the quantitation limit.

UJ - The compound was not detected. The sample quantitation limit is an estimate.

J - The associated numerical value is an estimated quantity.

unflagged - The data were reviewed and all criteria were met.

BTEX Data Summary with Qualifiers (Continued)

Sample Number:	W32273	W32286	W32529	W32531	W32533	W32536	W32537	W32539	W32568	W32976
Location:	OW-19A	OW-33A	EQ-3A-5	EQ-3A-8	EQ-3A-16	EQ-3A-24	EQ-3A-33	EQ-3A-42	OW-101	EQ-1A-4
Depth (cm):			4	-2	-16	-34	-52	-70		34
Sampling Date:	11/25/91	11/25/91	11/26/91	11/26/91	11/26/91	11/26/91	11/27/91	11/26/91	11/28/91	11/27/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Benzene	1.1	0.5 U	1300 J	983	18 J	15	11	14 J	11.3	243
Ethylbenzene	1 U	1 U	6 J	4	1 UJ	1 U	1 U	1 UJ	1 U	1 U
Toluene	1 U	1 U	200 J	65	1 J	2	1 U	12 J	5	1
Xylene	1 U	1 U	24 J	17	1 UJ	1 U	1 U	1 UJ	1 U	2

Sample Number:	W32979	W32980	W32983	W32984	W32986	W32989	W33315	W33319	W33320	W33322
Location:	EQ-1A-19	EQ-1A-23	EQ-1A-34	EQ-1A-43	EQ-7-45	EQ-7-46	EQ-2A-29	EQ-2A-41	EQ-2A-33	EQ-2A-24
Depth (cm):	4	-18	-26	-44			-44	-68	-52	-34
Sampling Date:	11/27/91	11/27/91	11/27/91	11/27/91	11/25/91	11/27/91	11/26/91	11/25/91	11/26/91	11/26/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Benzene	49	21	2.5	3	0.5 U	0.5 U	5	2.5	3	19
Ethylbenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Sample Number:	W33324	W33326	W33328	W33336	W33339	W33341	W33456
Location:	EQ-2A-16	EQ-2A-8	EQ-2A-5	SM-1	SM-3	SM-4	OW-100
Depth (cm):	-18	-2	4				
Sampling Date:	11/25/91	11/25/91	11/25/91	12/03/91	12/03/91	12/03/91	11/26/91
Units:	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Benzene	40.8	81.5	43.3	153	122	1.4 U	0.5 U
Ethylbenzene	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	1 U	2	1 U	14 U	1 U	1 U
Xylene	1 U	1 U	1	1 U	1	1 U	1 U

U - The compound was considered not detected. The associated numerical value is the quantitation limit.

UJ - The compound was not detected. The sample quantitation limit is an estimate.

J - The associated numerical value is an estimated quantity.

unflagged - The data were reviewed and all criteria were met.

PTI CAS

K91699

CLP DATA VALIDATION FORM Contract No: CO912

PART C: ~~PESTICIDE/PCB~~ ANALYSES SDG No: _____

BTEX

Reviewer: MDA

Sr. Review: AB

Date: 4/8/92

1.0 Chain of Custody and Laboratory Narrative

Yes	No	N/A		
[X]	___	___	1.1	Are the Chain of Custody forms present for all samples?

Action: If no, contact lab for replacement of missing or illegible copies.

Yes	No	N/A		
___	[X]	___	1.2	Do the Chain of Custody or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

Action: Use professional judgement to evaluate the effect on the quality of the data.

Action: If any sample analyzed as a soil contains more than 50% water, all data should be flagged as estimated (J).

2.0 Holding Times
[p. 26 (F.G.'88)]
CLP Form I PEST

Yes	No	N/A		
___	[ ]	[X]	2.1	Have any PEST/PCB extraction holding times, determined from date of collection to date of extraction, been exceeded?

Waters = 7 days
Soils = 14 days

Yes	No	N/A		
~~[X]~~	~~[X]~~	N/A ___	2.2	Have any PEST/PCB analysis holding times, determined from date of extraction to date of analysis, been exceeded?

SUBSTITUTE "BTEX" FOR "PESTICIDE/PCB"

Sample #	Matrix	Date Sampled	Date Extracted	Date Analyzed	Qualifier
OW-16	W	11/22/91		12/3/91	J(+)
OW-31	W	11/23/91		12/4/91	J(+)

(4) OUT FOR DILUTION
(4) POSITIVES ONLY.

Action: If 40 CFR 136 holding times are exceeded, flag all positive results as estimated (J) and sample quantitation limits as estimated (UJ) and document to the effect that holding times were exceeded.

1. If holding times are grossly exceeded, either on the first analysis or upon re-analysis, the reviewer must use professional judgment to determine the reliability of the data and the effect of additional storage on the sample results. The reviewer may determine non-detect data are unusable (R).

2. Due to the limited information concerning holding times for soil samples, it is left to the discretion of the data reviewer to apply water holding time criteria to soil samples.

3.0 **Pesticide/PCB Standards Summary**
[p. 27-29 (F.G.'88]
CLP Forms VIII PEST-1, VIII PEST-2, IX PEST

Yes	No	N/A		
[ ]	___	X	3.1	Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?

Action: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R".

Yes	No	N/A		
[X]	___	___	3.2	Is "Form IX" present and complete for each GC column and 72 hours sequence of analyses?

Action: If no, take action specified above.

Yes	No	N/A		
___	[X]	___	3.3	Are there any transcription/calculation errors between raw data and Form IX?

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Yes	No	N/A		
[X]	___	___	3.4	Do all standard retention times fall within the windows established for the first IND A and IND B analyses?

Yes	No	N/A		
___	[ ]	X	3.5	Has the total breakdown on quantitation or confirmation column exceeded 20% for DDT?
___	[ ]	X		- for Endrin?
___	[ ]	X		- or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DDT and Endrin breakdown exceeded 20%?

Action:

a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last in control standard:
   1. Flag all positive DDT results "J."
   2. If DDT was not detected but DDD and/or DDE are positive, flag the DDT non-detect "R."
   3. Flag positive DDD and DDE results "JN."

   4. If DDT breakdown is >20% on confirmation column and DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether DDT should be reported on Form I (if reported, flag result "N").

b. If Endrin breakdown is >20% on quantitation column, beginning with the samples following the last in control standard:
   1. Flag all positive Endrin results "J."
   2. If Endrin was not detected, but Endrin Aldehyde and/or Endrin Ketone are positive, flag the Endrin non-detect "R."
   3. Flag Endrin Ketone positive results "JN."
   4. If Endrin breakdown is >20% on confirmation column and Endrin is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin should be reported on Form I (if reported, flag result "N").

c. If the combined breakdown is used and is >20% on quantitation column beginning with the last in control standard, take the actions specified a and b above. If the combined breakdown is >20% on confirmation column and Endrin or DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin or DDT should be reported on Form I (if reported flag result "N").

Yes	No	N/A		
[ ]	___	X	3.6	Is the % difference between the evaluation and each analysis (quantitation and confirmation) DBC retention time within QC limits (<1.5% for 0.53mm I.D. Mecabore columns and <0.3% for 0.25/).32mm I.D. narrow bore columns).

Action: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgment to determine the reliability of the analysis and flag results "R," if appropriate.

4.0 **Calibration and GC Performance**
[p. 30-32 (F.G.'88)]
CLP Form VIII PEST-1

4.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) columns present:

Yes	No	N/A		
[X]			a.	Evaluation Standard Mix A
[X]			b.	Evaluation Standard Mix B
[X]			c.	Evaluation Standard Mix C
[ ]		X	d.	Individual Standard Mix A
[ ]		X	e.	Individual Standard Mix B
[ ]		X	f.	Toxaphene
[ ]		X	g.	Aroclors 1016/1260
[ ]		X	h.	Aroclors 1221, 1232, 1242, 1248 and 1254

4-POINT CURVE. ALL HERE

Action: If no, take action specified above.

Yes	No	N/A		
[X]			4.2	Is "Form VIII Pest-1" present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?

Action: If no, take action specified above.

Yes	No	N/A		
	[X]		4.3	Are there any transcription/calculation errors between raw data and Form VIII?

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

4.4 Check Calibration Factors and % RSD

Yes	No	N/A		
[X]*	___	___	4.5	Is the linearity check RSD of all four calibration factors < or = 10% for the quantitation column? * OK. SOME POINTS THROWN OUT. HIGH/LOW OK.

Action: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.

Yes	No	N/A		
[ ]	___	X	4.6	If toxaphene or the DDT series was identified and quantitated, was a 3-point minimum calibration established?

Yes	No	N/A		
[X]	___	___	4.7	Was the proper analytical sequence followed for each 72 hour period of analyses (~~page PEST D-36 in 8/87 SOW).~~ SEQUENCE OK.

Action: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

Yes	No	N/A		
[ ]	X	___	4.8	Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hour sequence) calibration factors? 6 OUT IN 2 STDS. "J" POSITIVES.

Action: If no, flag all associated positive results "J." Use professional judgement to determine whether or not the flag non-detects.

5.0 <u>Blanks (Form IV)</u>
[p. 33-34 (F.G.'88)
CLP Form IV

Yes	No	N/A		
[X]	___	___	5.1	Is the Method Blank Summary (Form IV) present?

Yes	No	N/A		
[ ]	X	___	5.2	Does the Method Blank Analysis(es) contain less than the Contract Required Quantitation Limits (CRQLs) of any ~~pesticide/PCB~~ BTEX or interfering peak?

Action: If a ~~PEST/PCB is~~ BTEX found in the blank but <u>not</u> found in the sample(s), no action is taken.

BENZENE AND TOLUENE.

Any PEST/PCB detected in the sample and also detected in any associated blank must be qualified when the sample concentration is less than 5 times the blank concentration. Use form on next page.

Yes	No	N/A		
[X]	___	___	5.3	Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, medium water, low soil, medium soil), whichever is more frequent? Note: Also review project QAPP.

5.4 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.

Yes	No	N/A	
[X]	___	___	Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?

Action: Use professional judgement to determine the effect on the data.

6.0 <u>Surrogate Recovery (Form II)</u>
[p. 35 (F.G.'88]
CLP Forms II PEST-1, II PEST-2

6.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

Yes	No	N/A		
[X]	___	___	a.	Low Water
[ ]	___	X	b.	Low Soil
[ ]	___	X	c.	Med Soil

6.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

Yes	No	N/A		
X	___	___	a.	Low Water
[ ]	___	X	b.	Low Soil

PROJECT NO. C0912

BLANK ANALYSIS RESULTS

✓ Blank (FormIV)

___ Volatiles
___ Pesticides/PCB

___ Semivolatiles
✓ Other: GC/X

Analysis Date	Blank #	Compound	CRDL	Blank Concentrat'n	Action Level	Samples Affected	Q'fier
11/28/91	OW-101	BENZENE	0.5	11.3	56.5	OW-11, OW-16,	U Q
						OW-38, OW-48A,	RUPDC
						SM-4	VAW
11/28/91	OW-101						
		TOLUENE	1	5	50	OW-32, OW-36,	U Q
						OW-43, SM-1, SM-4	RUPDC
							VAW

Yes	No	N/A		
[ ]	___	X	c.	Med Soil

Action: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

Yes	No	N/A		
X	___	___	6.3	Were outliers marked correctly with an asterisk?

Action: Circle or highlight all outliers.

4-BROMOFLUOROBENZENE

Yes	No	N/A		
___	X	___	6.4	Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?

Action: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J." If recovery is zero, flag positive results "J" and non-detects "R." If recovery for the blank is zero, flag non-detects for all associated samples "R." If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewer's professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

Sample #	Surrogate Recovery	QC Limits	Qualifiers
	All	OK	

Yes	No	N/A		
___	[X]	___	6.5	Are there any transcription/calculation errors between raw data and Form IIs.

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

7.0 **Matrix Spikes**
[p. 36 (F.G.'88)]
CLP Forms III PEST-1, III PEST-2

Yes	No	N/A		
[X]	___	___	7.1	Is the Matrix Spike Duplicate/Recovery Form (Form III) present?

7.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

Yes	No	N/A		
[X]	___	___	a.	Low Water
[ ]	___	X	b.	Low Soil
[ ]	___	X	c.	Med Soil

Action: If any matrix spike data are missing, take the action specified above

7.3 How many PEST/PCB spike recoveries are outside QA limits? List all recoveries outside of QC limits.

Water (0) out of 12	Soils ( ) out of 12	Sample #	Compound	MS %Rec.	MSD %Rec.
		ALL	OK		

7.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside of QC limits. List all RPDs outside of QC limits.

Water (0) out of 6	Soils (0) out of 6	Sample #s	Compound	RPD
		ALL	OK	

Action: If MS and MSD both have less than 10% recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J." The above applies only to the sample used for the MS/MSD analysis. Use professional judgement in applying this criterion to other samples in the package.

8.0 **Field Duplicates**
[p. 36 (F.G.'88)]

Yes No N/A 8.1 Were any field duplicates submitted for ~~PEST/PCB~~ BTEX analysis?

[ ] [X] ___ (LAB DUPLS OK)

Action: Compare the reported results for field duplicates and calculate the relative percent difference.

Action: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should confirmed by contacting the sampler.

9.0 **Pesticide/PCB Identification**
[pp. 37-38 (F.G.'88)]
CLP Forms I PEST, X-PEST

Yes No N/A 9.1 Is Form X complete for every sample in which a pesticide or PCB was detected?

[ ] ___ [X]

Yes	No	N/A		
___	[ ]	[X]	9.2	Are there any transcription/calculation errors between raw data and Form X.

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Yes	No	N/A		
[X]	___	___	9.3	Are retention times of sample compounds within the calculated retention time windows for both quantitation and confirmation analyses?
Yes	No	N/A		Was GC/MS confirmation provided when required (when compound concentration is >10µg/ml in final extract)?
[ ]	___	[X]		

Action: Reject ("R") all positive results (meeting quantitation column criteria, but missing confirmation by a second column or GC/MS (if appropriate). Also, reject ("R") all positive results not meeting retention time window criteria unless associated standard compounds are similarly biased (i.e, base on RRT to DBC).

Yes	No	N/A		
___	[X]	___	9.4	Check chromatogram for false negatives, especially for the multiple peak components toxaphene and PCBs. Were there any false negatives?

9.5 GC/MS Confirmation, if required.

10.0 <u>Compound Quantitation and Reported Detection Limits</u>
[p. 38 (F.G.'88)]

Yes	No	N/A		
___	[X]	___	10.1	Are there any transcription/calculation errors in Form I results? Check at least two positive values. Were any errors found?

Note: Simple peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgment to decide whether a much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an estimated quantity ("JN"). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has obscured the attempt

at an second column confirmation.

Yes	No	N/A		
[X]	[X]	___	10.2	Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

Action: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Action: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is that should not be used, including any in the summary package.

11.0 Chromatogram Quality

Yes	No	N/A		
[X]	___	___	11.1	Were baselines stable?
Yes	No	N/A	11.2	Were any electropositive displacement (negative peaks) or unusual peaks seen?
___	[X]	___		
Yes	No	N/A	11.3	Were early eluting peaks (for early eluting analytes) resolved to baseline?
[X]	___	___		

Action: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

12.0 Contamination

Note: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

Yes	No	N/A		
___	[X]	___	12.1	Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

Yes	No	N/A		
X	[ ]	~~N/A~~	12.2	Do any field/rinse blanks have positive PEST/PCB results?

BENZENE/TOLUENE

Action: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

Note: Only field/rinse blanks taken the same day as the samples are used to qualify data. Blanks may not be qualified because of contamination in another blank. Blanks may be qualified for surrogate, spectral, tuning or calibration QC problems.

Action: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc> CRQL but < 5 x blank	Sample conc < CRQL is < 5 x blank value	Sample conc > CRQL value & > 5 x blank value
Flag sample result with a "U"; cross out "B" flag	Reject sample result and report CRQL; Cross out "B" flag	No qualification is needed

Yes	No	N/A		
[ ]	X	___	12.3.	Are there field/rinse/equipment blanks associated with every sample?

Action: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank.
Exception: samples taken from a drinking water tap do not have associated field blanks.

EcoChem, Inc.

CALCULATION SHEET

911 Western Avenue
Seattle, Washington 98104
(206) 233-9332

Date: 4/5/92	Calculation: 9.RSD	Contract No: C0912	Reviewer: MOG

	Ethyl Benzene	O-Xylene
11/27/91	1.39 E-3	1.33 E-3
	#2) 7.42 E-3	1.56 E-3
	1.50 E-3 (99%)	1.48 E-3 (8.0%)
	1.65 E-3	1.60 E-3
	2.99 E-3	~~2.48 E-3~~
	w/out #2	1.49 E-3
	1.51 E-3 (8.0%)	

	Benzene	Toluene
12/2/91	1.41 E-3	1.62 E-3
	1.65 E-3	1.67 E-3
	1.75 E-3	1.67 E-3
	1.81 E-3 (16.0%)	1.71 E-3 (11.8%)
	#5) 2.25 E-3	2.17 E-3
	#6) 2.00 E-3	1.96 E-3
	1.81 E-3	1.80 E-3
	w/out #5 & #6	
	1.66 E-3 (10.6%)	

PTI

CAS
K916849

CLP DATA VALIDATION FORM

PART C: ~~PESTICIDE/PCB~~ ANALYSES
BTEX

Contract No: C0912

SDG No: _____

Reviewer: MDJ

Sr. Review: AB

Date: 4/8/92

1.0 Chain of Custody and Laboratory Narrative

Yes	No	N/A		
X			1.1	Are the Chain of Custody forms present for all samples?

Action: If no, contact lab for replacement of missing or illegible copies.

Yes	No	N/A		
	X		1.2	Do the Chain of Custody or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

Action: Use professional judgement to evaluate the effect on the quality of the data.

Action: If any sample analyzed as a soil contains more than 50% water, all data should be flagged as estimated (J).

2.0 Holding Times
[p. 26 (F.G.'88)]
CLP Form I PEST

Yes	No	N/A		
		X	2.1	Have any PEST/PCB extraction holding times, determined from date of collection to date of extraction, been exceeded?

Waters = 7 days
Soils = 14 days

Yes	No	N/A		
	X		2.2	Have any PEST/PCB analysis holding times, determined from date of extraction to date of analysis, been exceeded?

SUBSTITUTE "BTEX" FOR "PESTICIDE / PCB"

Sample #	Matrix	Date Sampled	Date Extracted	Date Analyzed	Qualifier
		ALL	OK		

Action: If 40 CFR 136 holding times are exceeded, flag all positive results as estimated (J) and sample quantitation limits as estimated (UJ) and document to the effect that holding times were exceeded.

1. If holding times are grossly exceeded, either on the first analysis or upon re-analysis, the reviewer must use professional judgment to determine the reliability of the data and the effect of additional storage on the sample results. The reviewer may determine non-detect data are unusable (R).

2. Due to the limited information concerning holding times for soil samples, it is left to the discretion of the data reviewer to apply water holding time criteria to soil samples.

3.0 Pesticide/PCB Standards Summary
[p. 27-29 (F.G.'88]
CLP Forms VIII PEST-1, VIII PEST-2, IX PEST

Yes	No	N/A		
[ ]	___	X	3.1	Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?

Action: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R".

Yes	No	N/A		
X	___	___	3.2	Is Form IX present and complete for each GC column and 72 hours sequence of analyses?

Action: If no, take action specified above.

Yes	No	N/A		
___	X	___	3.3	Are there any transcription/calculation errors between raw data and Form IX?

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Yes	No	N/A		
X	___	___	3.4	Do all standard retention times fall within the windows established for the first IND A and IND B analyses?

Yes	No	N/A		
___	[ ]	X	3.5	Has the total breakdown on quantitation or confirmation column exceeded 20% for DDT?
Yes	No	N/A		- for Endrin?
___	[ ]	X		
Yes	No	N/A		- or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DDT and Endrin breakdown exceeded 20%?
___	[ ]	X		

Action:

a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last in control standard:
   1. Flag all positive DDT results "J."
   2. If DDT was not detected but DDD and/or DDE are positive, flag the DDT non-detect "R."
   3. Flag positive DDD and DDE results "JN."
   4. If DDT breakdown is >20% on confirmation column and DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether DDT should be reported on Form I (if reported, flag result "N").

b. If Endrin breakdown is >20% on quantitation column, beginning with the samples following the last in control standard:
   1. Flag all positive Endrin results "J."
   2. If Endrin was not detected, but Endrin Aldehyde and/or Endrin Ketone are positive, flag the Endrin non-detect "R."
   3. Flag Endrin Ketone positive results "JN."
   4. If Endrin breakdown is >20% on confirmation column and Endrin is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin should be reported on Form I (if reported, flag result "N").

c. If the combined breakdown is used and is >20% on quantitation column beginning with the last in control standard, take the actions specified a and b above. If the combined breakdown is >20% on confirmation column and Endrin or DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin or DDT should be reported on Form I (if reported flag result "N").

Yes	No	N/A		
[ ]	___	X	3.6	Is the % difference between the evaluation and each analysis (quantitation and confirmation) DBC retention time within QC limits (<1.5% for 0.53mm I.D. Mecabore columns and <0.3% for 0.25/).32mm I.D. narrow bore columns).

Action: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgment to determine the reliability of the analysis and flag results "R," if appropriate.

4.0 **Calibration and GC Performance**
[p. 30-32 (F.G.'88)]
CLP Form VIII PEST-1

4.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) columns present:

Yes	No	N/A		
[ ]	X		a.	Evaluation Standard Mix A
[ ]	X		b.	Evaluation Standard Mix B
[ ]	X		c.	Evaluation Standard Mix C
X			d.	Individual Standard Mix A, B, C
[ ]		X	e.	Individual Standard Mix B
[ ]		X	f.	Toxaphene
[ ]		X	g.	Aroclors 1016/1260
[ ]		X	h.	Aroclors 1221, 1232, 1242, 1248 and 1254

NO EVEN IN ANOTHER PACKAGE - OK

Action: If no, take action specified above.

Yes	No	N/A		
X			4.2	Is "Form VIII Pest-1" present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?

Action: If no, take action specified above.

Yes	No	N/A		
	X		4.3	Are there any transcription/calculation errors between raw data and Form VIII?

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

4.4 Check Calibration Factors and % RSD

Yes	No	N/A		
[ ]	___	X	4.5	Is the linearity check RSD of all four calibration factors < or = 10% for the quantitation column?

Action: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.

Yes	No	N/A		
[ ]	___	X	4.6	If toxaphene or the DDT series was identified and quantitated, was a 3-point minimum calibration established?

Yes	No	N/A		
[X]	___	___	4.7	Was the proper analytical sequence followed for each 72 hour period of analyses (~~page PEST D-36 in 8/87 SOW).~~ SEQUENCE OK.

Action: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

Yes	No	N/A		
[X]	___	___	4.8	Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hour sequence) calibration factors?

Action: If no, flag all associated positive results "J." Use professional judgement to determine whether or not the flag non-detects.

5.0 <u>Blanks (Form IV)</u>
[p. 33-34 (F.G.'88)
CLP Form IV

Yes	No	N/A		
[X]	___	___	5.1	Is the Method Blank Summary (Form IV) present?

Yes	No	N/A		
[X]	___	___	5.2	Does the Method Blank Analysis(es) contain less than the Contract Required Quantitation Limits (CRQLs) of any pesticide/PCB or interfering peak?

Action: If a PEST/PCB is found in the blank but <u>not</u> found in the sample(s), no action is taken.

Any PEST/PCB detected in the sample and also detected in any associated blank must be qualified when the sample concentration is less than 5 times the blank concentration. Use form on next page.

Yes	No	N/A		
[X]	___	___	5.3	Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, medium water, low soil, medium soil), whichever is more frequent? Note: Also review project QAPP.

5.4 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.

Yes	No	N/A	
[X]	___	___	Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?

Action: Use professional judgement to determine the effect on the data.

6.0 **Surrogate Recovery (Form II)**
[p. 35 (F.G.'88]
CLP Forms II PEST-1, II PEST-2

6.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

Yes	No	N/A		
[X]	___	___	a.	Low Water
[ ]	___	X	b.	Low Soil
[ ]	___	X	c.	Med Soil

6.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

Yes	No	N/A		
[X]	___	___	a.	Low Water
[ ]	___	X	b.	Low Soil

PROJECT NO. C0912

BLANK ANALYSIS RESULTS

✓ Blank (FormIV)

___ Volatiles
___ Pesticides/PCB

___ Semivolatiles
✓ Other: BTEX

Analysis Date	Blank #	Compound	CRDL	Blank Concentrat'n	Action Level	Samples Affected	Q'fier
				OK			

Yes	No	N/A		
[ ]	___	X	c.	Med Soil

Action: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

Yes	No	N/A		
X	___	___	6.3	Were outliers marked correctly with an asterisk?

Action: Circle or highlight all outliers.

Yes	No	N/A		
X	[ ]	___	6.4	Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?

4-BROMOFLUOROBENZENE

Action: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J." If recovery is zero, flag positive results "J" and non-detects "R." If recovery for the blank is zero, flag non-detects for all associated samples "R." If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewer's professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

Sample #	Surrogate Recovery	QC Limits	Qualifiers
EQ-3A-5	37.2 %	60-120 %	J/UJ
EQ-3A-16	45.6 %	↓	↓
EQ-3A-42	54.3 %	↓	↓

Yes	No	N/A		
___	[X]	___	6.5	Are there any transcription/calculation errors between raw data and Form IIs.

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

7.0 **Matrix Spikes**
[p. 36 (F.G.'88)]
CLP Forms III PEST-1, III PEST-2

Yes	No	N/A		
[X]	___	___	7.1	Is the Matrix Spike Duplicate/Recovery Form (~~Form III~~) present?

7.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

Yes	No	N/A		
[X]	___	___	a.	Low Water (NO DUPES) OK
[ ]	___	X	b.	Low Soil
[ ]	___	X	c.	Med Soil

Action: If any matrix spike data are missing, take the action specified above

7.3 How many PEST/PCB spike recoveries are outside QA limits? List all recoveries outside of QC limits.

Water ( ) out of 12	Soils ( ) out of 12	Sample #	Compound	MS %Rec.	MSD %Rec.
		ALL	OK		

7.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside of QC limits. List all RPDs outside of QC limits.

Water (0) out of 6	Soils (0) out of 6	Sample #s	Compound	RPD
		OK		

Action: If MS and MSD both have less than 10% recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J." The above applies only to the sample used for the MS/MSD analysis. Use professional judgement in applying this criterion to other samples in the package.

8.0 **Field Duplicates**
[p. 36 (F.G.'88)]

Yes	No	N/A		
[X]	___	___	8.1	Were any ~~field~~ MS duplicates submitted for PEST/PCB analysis? RPDs < 4 %

Action: Compare the reported results for field duplicates and calculate the relative percent difference.

Action: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should confirmed by contacting the sampler.

9.0 **Pesticide/PCB Identification**
[pp. 37-38 (F.G.'88)]
CLP Forms I PEST, X-PEST

Yes	No	N/A		
[ ]	___	X	9.1	Is Form X complete for every sample in which a pesticide or PCB was detected?

Yes	No	N/A		
—	☐	☒	9.2	Are there any transcription/calculation errors between raw data and Form X.

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Yes	No	N/A		
☒	—	—	9.3	Are retention times of sample compounds within the calculated retention time windows for both quantitation and confirmation analyses?
Yes	No	N/A		Was GC/MS confirmation provided when required (when compound concentration is >10µg/ml in final extract)?
☐	—	☒		

Action: Reject ("R") all positive results (meeting quantitation column criteria, but missing confirmation by a second column or GC/MS (if appropriate). Also, reject ("R") all positive results not meeting retention time window criteria unless associated standard compounds are similarly biased (i.e, base on RRT to DBC).

Yes	No	N/A		
—	☒	—	9.4	Check chromatogram for false negatives, especially for the multiple peak components toxaphene and PCBs. Were there any false negatives?

9.5 GC/MS Confirmation, if required.

10.0 <u>Compound Quantitation and Reported Detection Limits</u>
[p. 38 (F.G.'88)]

Yes	No	N/A		
—	☒	—	10.1	Are there any transcription/calculation errors in Form I results? Check at least two positive values. Were any errors found?

Note: Simple peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgment to decide whether a much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an estimated quantity ("JN"). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has obscured the attempt

at an second column confirmation.

Yes	No	N/A		
☒	☐	___	10.2	Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

Action: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Action: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is that should not be used, including any in the summary package.

11.0 Chromatogram Quality

Yes	No	N/A		
☒	___	___	11.1	Were baselines stable?
___	☒	___	11.2	Were any electropositive displacement (negative peaks) or unusual peaks seen?
☒	___	___	11.3	Were early eluting peaks (for early eluting analytes) resolved to baseline?

Action: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

12.0 Contamination

Note: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

Yes	No	N/A		
___	[X]	___	12.1	Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

Yes	No	N/A		
___	[ ]	[X]	12.2	Do any field/rinse blanks have positive PEST/PCB results?

Action: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

Note: Only field/rinse blanks taken the same day as the samples are used to qualify data. Blanks may not be qualified because of contamination in another blank. Blanks may be qualified for surrogate, spectral, tuning or calibration QC problems.

Action: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc> CRQL but < 5 x blank	Sample conc < CRQL is < 5 x blank value	Sample conc > CRQL value & > 5 x blank value
Flag sample result with a "U"; cross out "B" flag	Reject sample result and report CRQL; Cross out "B" flag	No qualification is needed

Yes	No	N/A		
[ ]	[X]	___	12.3.	Are there field/rinse/equipment blanks associated with every sample?

Action: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank.
Exception: samples taken from a drinking water tap do not have associated field blanks.

PTI CAS

K916822

CLP DATA VALIDATION FORM Contract No: CO912

PART C: ~~PESTICIDE/PCB~~ ANALYSES SDG No: _____

BTEX

Reviewer: MDJ

Sr. Review: AB

Date: 4/8/92

1.0 Chain of Custody and Laboratory Narrative

Yes	No	N/A		
[X]	___	___	1.1	Are the Chain of Custody forms present for all samples?

Action: If no, contact lab for replacement of missing or illegible copies.

Yes	No	N/A		
___	[X]	___	1.2	Do the Chain of Custody or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

Action: Use professional judgement to evaluate the effect on the quality of the data.

Action: If any sample analyzed as a soil contains more than 50% water, all data should be flagged as estimated (J).

2.0 Holding Times
[p. 26 (F.G.'88)]
CLP Form I PEST

Yes	No	N/A		
___	[ ]	[X]	2.1	Have any PEST/PCB extraction holding times, determined from date of collection to date of extraction, been exceeded?

Waters = 7 days
Soils = 14 days

Yes	No	N/A		
___	[X]	___	2.2	Have any PEST/PCB analysis holding times, determined from date of extraction to date of analysis, been exceeded?

SUBSTITUTE "BTEX" FOR "PESTICIDE/PCB"

Sample #	Matrix	Date Sampled	Date Extracted	Date Analyzed	Qualifier
		ALL	OC		

Action: If 40 CFR 136 holding times are exceeded, flag all positive results as estimated (J) and sample quantitation limits as estimated (UJ) and document to the effect that holding times were exceeded.

1. If holding times are grossly exceeded, either on the first analysis or upon re-analysis, the reviewer must use professional judgment to determine the reliability of the data and the effect of additional storage on the sample results. The reviewer may determine non-detect data are unusable (R).

2. Due to the limited information concerning holding times for soil samples, it is left to the discretion of the data reviewer to apply water holding time criteria to soil samples.

3.0 **Pesticide/PCB Standards Summary**
[p. 27-29 (F.G.'88]
CLP Forms VIII PEST-1, VIII PEST-2, IX PEST

Yes	No	N/A		
[ ]	___	X	3.1	Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?

Action: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R".

Yes	No	N/A		
X	___	___	3.2	Is "Form IX" present and complete for each GC column and 72 hours sequence of analyses?

Action: If no, take action specified above.

Yes	No	N/A		
___	X	___	3.3	Are there any transcription/calculation errors between raw data and Form IX?

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Yes	No	N/A		
X	___	___	3.4	Do all standard retention times fall within the windows established for the first ~~IND A and IND B~~ STLX analyses?

Yes	No	N/A		
___	[ ]	X	3.5	Has the total breakdown on quantitation or confirmation column exceeded 20% for DDT?
Yes	No	N/A		- for Endrin?
___	[ ]	X		
Yes	No	N/A		- or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DDT and Endrin breakdown exceeded 20%?
___	[ ]	X		

Action:

a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last in control standard:
   1. Flag all positive DDT results "J."
   2. If DDT was not detected but DDD and/or DDE are positive, flag the DDT non-detect "R."
   3. Flag positive DDD and DDE results "JN."
   4. If DDT breakdown is >20% on confirmation column and DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether DDT should be reported on Form I (if reported, flag result "N").

b. If Endrin breakdown is >20% on quantitation column, beginning with the samples following the last in control standard:
   1. Flag all positive Endrin results "J."
   2. If Endrin was not detected, but Endrin Aldehyde and/or Endrin Ketone are positive, flag the Endrin non-detect "R."
   3. Flag Endrin Ketone positive results "JN."
   4. If Endrin breakdown is >20% on confirmation column and Endrin is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin should be reported on Form I (if reported, flag result "N").

c. If the combined breakdown is used and is >20% on quantitation column beginning with the last in control standard, take the actions specified a and b above. If the combined breakdown is >20% on confirmation column and Endrin or DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin or DDT should be reported on Form I (if reported flag result "N").

Yes	No	N/A		
[ ]	___	X	3.6	Is the % difference between the evaluation and each analysis (quantitation and confirmation) DBC retention time within QC limits (<1.5% for 0.53mm I.D. Mecabore columns and <0.3% for 0.25/0.32mm I.D. narrow bore columns).

Action: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgment to determine the reliability of the analysis and flag results "R," if appropriate.

4.0 **Calibration and GC Performance**
[p. 30-32 (F.G.'88)]
CLP Form VIII PEST-1

4.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) columns present:

Yes	No	N/A		
[ ]	X		a.	Evaluation Standard Mix A
[ ]	X		b.	Evaluation Standard Mix B
[ ]	X		c.	Evaluation Standard Mix C
[ ]		X	d.	Individual Standard Mix A
[ ]		X	e.	Individual Standard Mix B
[ ]		X	f.	Toxaphene
[ ]		X	g.	Aroclors 1016/1260
[ ]		X	h.	Aroclors 1221, 1232, 1242, 1248 and 1254

~~NO~~ INITIAL CURVE WITH AUTOTAKE PACKAGE OK

Action: If no, take action specified above.

Yes	No	N/A		
[X]			4.2	Is "Form VIII Pest-1" present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?

Action: If no, take action specified above.

Yes	No	N/A		
	[X]		4.3	Are there any transcription/calculation errors between raw data and Form VIII?

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

4.4 Check Calibration Factors and % RSD

Yes	No	N/A		
[ ]	___	X	4.5	Is the linearity check RSD of all four calibration factors < or = 10% for the quantitation column?

Action: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.

Yes	No	N/A		
[ ]	___	X	4.6	If toxaphene or the DDT series was identified and quantitated, was a 3-point minimum calibration established?

Yes	No	N/A		
[X]	___	___	4.7	Was the proper analytical sequence followed for each 72 hour period of analyses (~~page PEST D-36 in 8/87 SOW~~). SEQUENCE OK.

Action: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

Yes	No	N/A		
[X]	___	___	4.8	Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hour sequence) calibration factors?

Action: If no, flag all associated positive results "J." Use professional judgement to determine whether or not the flag non-detects.

5.0 <u>Blanks (Form IV)</u>
[p. 33-34 (F.G.'88)
CLP Form IV

Yes	No	N/A		
[X]	___	___	5.1	Is the Method Blank Summary (Form IV) present?

Yes	No	N/A		
[X]	___	___	5.2	Does the Method Blank Analysis(es) contain less than the Contract Required Quantitation Limits (CRQLs) of any pesticide/PCB or interfering peak?

Action: If a PEST/PCB is found in the blank but <u>not</u> found in the sample(s), no action is taken.

Any PEST/PCB detected in the sample and also detected in any associated blank must be qualified when the sample concentration is less than 5 times the blank concentration. Use form on next page.

Yes	No	N/A		
[X]	___	___	5.3	Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, medium water, low soil, medium soil), whichever is more frequent? Note: Also review project QAPP.

5.4 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.

Yes	No	N/A	
[X]	___	___	Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?

Action: Use professional judgement to determine the effect on the data.

6.0 <u>Surrogate Recovery (Form II)</u>
[p. 35 (F.G.'88]
CLP Forms II PEST-1, II PEST-2

6.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

Yes	No	N/A		
[ ]	___	[X]	a.	Low Water
[X]	___	___	b.	Low Soil
[ ]	___	[X]	c.	Med Soil

6.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

Yes	No	N/A		
[ ]	___	[X]	a.	Low Water
[X]	___	___	b.	Low Soil

PROJECT NO. C0912

BLANK ANALYSIS RESULTS

✓ Blank (FormIV)

___ Volatiles
___ Pesticides/PCB

___ Semivolatiles
✓ Other: BTX

Analysis Date	Blank #	Compound	CRDL	Blank Concentrat'n	Action Level	Samples Affected	Q'fier
				ALL	OK		

Yes	No	N/A		
[ ]	___	X	c.	Med Soil

Action: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

Yes	No	N/A		
X	___	___	6.3	Were outliers marked correctly with an asterisk?

Action: Circle or highlight all outliers.

Yes	No	N/A		
___	X	___	6.4	Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?

Action: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J." If recovery is zero, flag positive results "J" and non-detects "R." If recovery for the blank is zero, flag non-detects for all associated samples "R." If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewer's professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

Sample #	Surrogate Recovery	QC Limits	Qualifiers
	ALL	OK	

No N/A 6.5 Are there any transcription/calculation errors between raw data and Form IIs.

☒ ___

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

7.0 **Matrix Spikes**
[p. 36 (F.G.'88)]
CLP Forms III PEST-1, III PEST-2

No N/A 7.1 Is the Matrix Spike Duplicate/Recovery Form ~~(Form III)~~ present?

___ ___

7.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

No N/A a. Low Water

___ ☒

No N/A b. Low Soil

___ ___

No N/A c. Med Soil

___ ☒

Action: If any matrix spike data are missing, take the action specified above

7.3 How many PEST/PCB spike recoveries are outside QA limits? List all recoveries outside of QC limits.

~~Water~~ out of 12	Soils (2) out of 12	Sample #	Compound	MS %Rec.	MSD %Rec.	
	✓	SC2-9B	BENZENE	N/A	N/A	*
	✓	↓	↓			

* N/A – "DUE TO SAMPLE CARRYOVER"

~~CAN'T DUPLICATE TRANSCRIPTIONS. CALL LAB.~~
OK (RAW IN ANOTHER PACKAGE) MAB

at an second column confirmation.

Yes	No	N/A		
☒	☐	___	10.2	Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

Action: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Action: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is that should not be used, including any in the summary package.

11.0 Chromatogram Quality

Yes	No	N/A		
☒	___	___	11.1	Were baselines stable?
Yes	No	N/A	11.2	Were any electropositive displacement (negative peaks) or unusual peaks seen?
___	☒	___		
Yes	No	N/A	11.3	Were early eluting peaks (for early eluting analytes) resolved to baseline?
☒	___	___		

Action: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

12.0 Contamination

Note: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

Yes	No	N/A		
___	X	___	12.1	Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

Yes	No	N/A		
___	___	X	12.2	Do any field/rinse blanks have positive PEST/PCB results?

Action: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

Note: Only field/rinse blanks taken the same day as the samples are used to qualify data. Blanks may not be qualified because of contamination in another blank. Blanks may be qualified for surrogate, spectral, tuning or calibration QC problems.

Action: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc> CRQL but < 5 x blank	Sample conc < CRQL is < 5 x blank value	Sample conc > CRQL value & > 5 x blank value
Flag sample result with a "U"; cross out "B" flag	Reject sample result and report CRQL; Cross out "B" flag	No qualification is needed

Yes	No	N/A		
___	X	___	12.3.	Are there field/rinse/equipment blanks associated with every sample?

Action: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank.
Exception: samples taken from a drinking water tap do not have associated field blanks.

Action:

a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last in control standard:
   1. Flag all positive DDT results "J."
   2. If DDT was not detected but DDD and/or DDE are positive, flag the DDT non-detect "R."
   3. Flag positive DDD and DDE results "JN."
   4. If DDT breakdown is >20% on confirmation column and DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether DDT should be reported on Form I (if reported, flag result "N").

b. If Endrin breakdown is >20% on quantitation column, beginning with the samples following the last in control standard:
   1. Flag all positive Endrin results "J."
   2. If Endrin was not detected, but Endrin Aldehyde and/or Endrin Ketone are positive, flag the Endrin non-detect "R."
   3. Flag Endrin Ketone positive results "JN."
   4. If Endrin breakdown is >20% on confirmation column and Endrin is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin should be reported on Form I (if reported, flag result "N").

c. If the combined breakdown is used and is >20% on quantitation column beginning with the last in control standard, take the actions specified a and b above. If the combined breakdown is >20% on confirmation column and Endrin or DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin or DDT should be reported on Form I (if reported flag result "N").

No	N/A		
___	X	3.6	Is the % difference between the evaluation and each analysis (quantitation and confirmation) DBC retention time within QC limits (<1.5% for 0.53mm I.D. Mecabore columns and <0.3% for 0.25/).32mm I.D. narrow bore columns).

Action: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgment to determine the reliability of the analysis and flag results "R," if appropriate.

4.4 Check Calibration Factors and % RSD

Yes	No	N/A		
☐	___	☒	4.5	Is the linearity check RSD of all four calibration factors < or = 10% for the quantitation column?

Action: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.

Yes	No	N/A		
☐	___	☒	4.6	If toxaphene or the DDT series was identified and quantitated, was a 3-point minimum calibration established?
☒	___	___	4.7	Was the proper analytical sequence followed for each 72 hour period of analyses (~~page PEST D-36 in 8/87 SOW~~). SEQUENCE OK.

Action: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

Yes	No	N/A		
☒	___	___	4.8	Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hour sequence) calibration factors?

Action: If no, flag all associated positive results "J." Use professional judgement to determine whether or not the flag non-detects.

5.0 <u>Blanks (Form IV)</u>
[p. 33-34 (F.G.'88)
CLP Form IV

Yes	No	N/A		
☒	___	___	5.1	Is the Method Blank Summary (Form IV) present?
☒	___	___	5.2	Does the Method Blank Analysis(es) contain less than the Contract Required Quantitation Limits (CRQLs) of any pesticide/PCB or interfering peak?

Action: If a PEST/PCB is found in the blank but <u>not</u> found in the sample(s), no action is taken.

Any PEST/PCB detected in the sample and also detected in any associated blank must be qualified when the sample concentration is less than 5 times the blank concentration. Use form on next page.

Yes	No	N/A		
[X]	___	___	5.3	Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, medium water, low soil, medium soil), whichever is more frequent? Note: Also review project QAPP.

5.4 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.

Yes	No	N/A	
[X]	___	___	Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?

Action: Use professional judgement to determine the effect on the data.

6.0 **Surrogate Recovery (Form II)**
[p. 35 (F.G.'88]
CLP Forms II PEST-1, II PEST-2

6.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

Yes	No	N/A		
[ ]	___	[X]	a.	Low Water
[X]	___	___	b.	Low Soil
[ ]	___	[X]	c.	Med Soil

6.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

Yes	No	N/A		
[ ]	___	[X]	a.	Low Water
[X]	___	___	b.	Low Soil

PROJECT NO. C09R

BLANK ANALYSIS RESULTS

✓ Blank (FormIV)

___ Volatiles
___ Pesticides/PCB

___ Semivolatiles
✓ Other: BTEX

Analysis Date	Blank #	Compound	CRDL	Blank Concentrat'n	Action Level	Samples Affected	Q'fier
				ALL	OK		

No N/A c. Med Soil

X

Action: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

No N/A 6.3 Were outliers marked correctly with an asterisk?

Action: Circle or highlight all outliers.

No N/A 6.4 Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?

4-BROMOFLUOROBENZENE

X

Action: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J." If recovery is zero, flag positive results "J" and non-detects "R." If recovery for the blank is zero, flag non-detects for all associated samples "R." If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewer's professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

Sample #	Surrogate Recovery	QC Limits	Qualifiers
	ALL	OK	

at an second column confirmation.

Yes	No	N/A		
☒	☐	___	10.2	Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

Action: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Action: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is that should not be used, including any in the summary package.

11.0 Chromatogram Quality

Yes	No	N/A		
☒	___	___	11.1	Were baselines stable?
Yes	No	N/A	11.2	Were any electropositive displacement (negative peaks) or unusual peaks seen?
___	☒	___		
Yes	No	N/A	11.3	Were early eluting peaks (for early eluting analytes) resolved to baseline?
☒	___	___		

Action: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

12.0 Contamination

Note: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

Yes	No	N/A		
___	X	___	12.1	Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

Yes	No	N/A		
___	___	X	12.2	Do any field/rinse blanks have positive PEST/PCB results?

Action: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

Note: Only field/rinse blanks taken the same day as the samples are used to qualify data. Blanks may not be qualified because of contamination in another blank. Blanks may be qualified for surrogate, spectral, tuning or calibration QC problems.

Action: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc> CRQL but < 5 x blank	Sample conc < CRQL is < 5 x blank value	Sample conc > CRQL value & > 5 x blank value
Flag sample result with a "U"; cross out "B" flag	Reject sample result and report CRQL; Cross out "B" flag	No qualification is needed

Yes	No	N/A		
___	X	___	12.3.	Are there field/rinse/equipment blanks associated with every sample?

Action: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank.
Exception: samples taken from a drinking water tap do not have associated field blanks.

PTI

LAB

K916924

CLP DATA VALIDATION FORM

Contract No: CC912

PART C: ~~PESTICIDE/PCB~~ ANALYSES
BTEX

SDG No: _____

Reviewer: MDM

Sr. Review: AB

Date: 4/8/92

1.0 Chain of Custody and Laboratory Narrative

Yes	No	N/A		
☒			1.1	Are the Chain of Custody forms present for all samples?

Action: If no, contact lab for replacement of missing or illegible copies.

Yes	No	N/A		
	☒		1.2	Do the Chain of Custody or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

Action: Use professional judgement to evaluate the effect on the quality of the data.

Action: If any sample analyzed as a soil contains more than 50% water, all data should be flagged as estimated (J).

2.0 Holding Times

[p. 26 (F.G.'88)]
CLP Form I PEST

Yes	No	N/A		
		X	2.1	Have any PEST/PCB extraction holding times, determined from date of collection to date of extraction, been exceeded?

Waters = 7 days
Soils = 14 days

Yes	No	N/A		
~~BX~~			2.2	Have any PEST/PCB analysis holding times, determined from date of extraction to date of analysis, been exceeded?

SUBSTITUTE "BTEX" FOR "PESTICIDE/PCB"

Sample #	Matrix	Date Sampled	Date Extracted	Date Analyzed	Qualifier
OW-17	W	11/20/91		12/2/91	J(+)
OW-17b	W	11/20/91		12/2/91	J(+)

(5) DILUTION - CO ONLY

Action: If 40 CFR 136 holding times are exceeded, flag all positive results as estimated (J) and sample quantitation limits as estimated (UJ) and document to the effect that holding times were exceeded.

1. If holding times are grossly exceeded, either on the first analysis or upon re-analysis, the reviewer must use professional judgment to determine the reliability of the data and the effect of additional storage on the sample results. The reviewer may determine non-detect data are unusable (R).

2. Due to the limited information concerning holding times for soil samples, it is left to the discretion of the data reviewer to apply water holding time criteria to soil samples.

3.0 **Pesticide/PCB Standards Summary**
[p. 27-29 (F.G.'88]
CLP Forms VIII PEST-1, VIII PEST-2, IX PEST

Yes	No	N/A		
[ ]	___	X	3.1	Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?

Action: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R".

Yes	No	N/A		
X	___	___	3.2	Is Form IX present and complete for each GC column and 72 hours sequence of analyses?

Action: If no, take action specified above.

Yes	No	N/A		
___	X	___	3.3	Are there any transcription/calculation errors between raw data and Form IX?

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Yes	No	N/A		
X	___	___	3.4	Do all standard retention times fall within the windows established for the first IND A and IND B analyses?

Yes	No	N/A		
___	[ ]	X	3.5	Has the total breakdown on quantitation or confirmation column exceeded 20% for DDT?
___	[ ]	X		- for Endrin?
___	[ ]	X		- or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DDT and Endrin breakdown exceeded 20%?

Action:

a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last in control standard:
   1. Flag all positive DDT results "J."
   2. If DDT was not detected but DDD and/or DDE are positive, flag the DDT non-detect "R."
   3. Flag positive DDD and DDE results "JN."
   4. If DDT breakdown is >20% on confirmation column and DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether DDT should be reported on Form I (if reported, flag result "N").

b. If Endrin breakdown is >20% on quantitation column, beginning with the samples following the last in control standard:
   1. Flag all positive Endrin results "J."
   2. If Endrin was not detected, but Endrin Aldehyde and/or Endrin Ketone are positive, flag the Endrin non-detect "R."
   3. Flag Endrin Ketone positive results "JN."
   4. If Endrin breakdown is >20% on confirmation column and Endrin is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin should be reported on Form I (if reported, flag result "N").

c. If the combined breakdown is used and is >20% on quantitation column beginning with the last in control standard, take the actions specified a and b above. If the combined breakdown is >20% on confirmation column and Endrin or DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin or DDT should be reported on Form I (if reported flag result "N").

Yes	No	N/A		
[ ]	___	X	3.6	Is the % difference between the evaluation and each analysis (quantitation and confirmation) DBC retention time within QC limits (<1.5% for 0.53mm I.D. Mecabore columns and <0.3% for 0.25/0.32mm I.D. narrow bore columns).

Action: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgment to determine the reliability of the analysis and flag results "R," if appropriate.

4.0 **Calibration and GC Performance**
[p. 30-32 (F.G.'88)]
CLP Form VIII PEST-1

4.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) columns present:

Yes	No	N/A		
[ ]	X		a.	Evaluation Standard Mix A
[ ]	X		b.	Evaluation Standard Mix B
[ ]	X		c.	Evaluation Standard Mix C
[X]			d.	Individual Standard Mix ~~A~~ DTEX
[ ]		X	e.	Individual Standard Mix B
[ ]		X	f.	Toxaphene
[ ]		X	g.	Aroclors 1016/1260
[ ]		X	h.	Aroclors 1221, 1232, 1242, 1248 and 1254

~~NO CURVES~~ WITH ANOTHER PACKAGE. OK

Action: If no, take action specified above.

Yes	No	N/A		
[X]			4.2	Is "Form VIII Pest-1" present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?

Action: If no, take action specified above.

Yes	No	N/A		
	[X]		4.3	Are there any transcription/calculation errors between raw data and Form VIII?

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

4.4 Check Calibration Factors and % RSD

Yes	No	N/A		
[ ]	___	X	4.5	Is the linearity check RSD of all four calibration factors < or = 10% for the quantitation column?

Action: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.

Yes	No	N/A		
[ ]	___	X	4.6	If toxaphene or the DDT series was identified and quantitated, was a 3-point minimum calibration established?
[X]	___	___	4.7	Was the proper analytical sequence followed for each 72 hour period of analyses (~~page PEST D-36 in 8/87 SOW~~). SEQUENCE OK

Action: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

Yes	No	N/A		
[X]	___	___	4.8	Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hour sequence) calibration factors?

Action: If no, flag all associated positive results "J." Use professional judgement to determine whether or not the flag non-detects.

5.0 <u>Blanks (Form IV)</u>
[p. 33-34 (F.G.'88)
CLP Form IV

Yes	No	N/A		
[X]	___	___	5.1	Is the Method Blank Summary (Form IV) present?
[X]	___	___	5.2	Does the Method Blank Analysis(es) contain less than the Contract Required Quantitation Limits (CRQLs) of any pesticide/PCB or interfering peak?

Action: If a PEST/PCB is found in the blank but <u>not</u> found in the sample(s), no action is taken.

Any PEST/PCB detected in the sample and also detected in any associated blank must be qualified when the sample concentration is less than 5 times the blank concentration. Use form on next page.

Yes	No	N/A		
[X]	___	___	5.3	Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, medium water, low soil, medium soil), whichever is more frequent? **Note:** Also review project QAPP.

5.4 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.

Yes	No	N/A	
[X]	___	___	Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?

Action: Use professional judgement to determine the effect on the data.

6.0 **Surrogate Recovery (Form II)**
[p. 35 (F.G.'88]
CLP Forms II PEST-1, II PEST-2

6.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

Yes	No	N/A		
[X]	___	___	a.	Low Water
[X]	___	___	b.	Low Soil
[ ]	___	[X]	c.	Med Soil

6.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

Yes	No	N/A		
[X]	___	___	a.	Low Water
[X]	___	___	b.	Low Soil

PROJECT NO. C0917

BLANK ANALYSIS RESULTS

✓ Blank (FormIV)

___ Volatiles
___ Pesticides/PCB

___ Semivolatiles
✓ Other: BTEX

Analysis Date	Blank #	Compound	CRDL	Blank Concentrat'n	Action Level	Samples Affected	Q'fier
				ALL	OK		

Yes	No	N/A		
[ ]	___	X	c.	Med Soil

Action: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

Yes	No	N/A		
X	___	___	6.3	Were outliers marked correctly with an asterisk?

Action: Circle or highlight all outliers.

Yes	No	N/A		
X	[ ]	___	6.4	Was surrogate (~~DBC~~ 4-BROMOFLUOROBENZENE) recovery outside of the contract specification for any sample or blank?

Action: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J." If recovery is zero, flag positive results "J" and non-detects "R." If recovery for the blank is zero, flag non-detects for all associated samples "R." If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewer's professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

	Sample #	Surrogate Recovery	QC Limits	Qualifiers
SOIL	SC3-2	29.1%	50-130%	J/UJ
	SC3-4	29.5%		
	SC3-6	40.9%		
	SC3-6MS	38.3%		
	SC3-6MSD	37.2%		
WATER	MB1	91.0%	60-120%	

Yes	No	N/A		
___	X	___	6.5	Are there any transcription/calculation errors between raw data and Form IIs.

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

7.0 Matrix Spikes
[p. 36 (F.G.'88)]
CLP Forms III PEST-1, III PEST-2

Yes	No	N/A		
X	___	___	7.1	Is the Matrix Spike Duplicate/Recovery Form (Form III) present?

7.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

Yes	No	N/A		
X	___	___	a.	Low Water
X	___	___	b.	Low Soil
___	___	X	c.	Med Soil

Action: If any matrix spike data are missing, take the action specified above

7.3 How many PEST/PCB spike recoveries are outside QA limits? List all recoveries outside of QC limits.

Water (0) out of 12	Soils (3) out of 12	Sample #	Compound	MS %Rec.	MSD %Rec.
	✓	SC3-6	BENZENE	13.6	(OK)
	✓	↓	TOLUENE	30.6	(OK)
	✓	—	ETHYLBENZENE	32.1	(OK)

DUPE OK. LCS OK. HIGH WATER CONTENT IN SEDIMENT MS COULD BE A FACTOR.

7.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside of QC limits. List all RPDs outside of QC limits.

Water (0) out of 6	Soils (3) out of 6	Sample #s	Compound	RPD
	✓	SC3-6	BENZENE	126 %
	✓	↓	TOLUENE	84.4 %
	✓	↓	ETHYL BENZENE	81.2 %

Action: If MS and MSD both have less than 10% recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J." The above applies only to the sample used for the MS/MSD analysis. Use professional judgement in applying this criterion to other samples in the package.

8.0 **Field Duplicates**
[p. 36 (F.G.'88)]

Yes No N/A 8.1 Were any field duplicates submitted for PEST/PCB analysis?

[ ] [X] ___ (LAB DUPES O/C)

Action: Compare the reported results for field duplicates and calculate the relative percent difference.

Action: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should confirmed by contacting the sampler.

9.0 **Pesticide/PCB Identification**
[pp. 37-38 (F.G.'88)]
CLP Forms I PEST, X-PEST

Yes No N/A 9.1 Is Form X complete for every sample in which a pesticide or PCB was detected?

[ ] ___ [X]

Yes	No	N/A		
___	☐	X	9.2	Are there any transcription/calculation errors between raw data and Form X.

Action: If large errors exist, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Yes	No	N/A		
X	___	___	9.3	Are retention times of sample compounds within the calculated retention time windows for both quantitation and confirmation analyses?
Yes	No	N/A		Was GC/MS confirmation provided when required (when compound concentration is >10µg/ml in final extract)?
☐	___	X		

Action: Reject ("R") all positive results (meeting quantitation column criteria, but missing confirmation by a second column or GC/MS (if appropriate). Also, reject ("R") all positive results not meeting retention time window criteria unless associated standard compounds are similarly biased (i.e, base on RRT to DBC).

Yes	No	N/A		
___	X	___	9.4	Check chromatogram for false negatives, especially for the multiple peak components toxaphene and PCBs. Were there any false negatives?

9.5 GC/MS Confirmation, if required.

10.0 <u>Compound Quantitation and Reported Detection Limits</u>
[p. 38 (F.G.'88)]

Yes	No	N/A		
___	X	___	10.1	Are there any transcription/calculation errors in Form I results? Check at least two positive values. Were any errors found?

Note: Simple peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgment to decide whether a much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an estimated quantity ("JN"). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has obscured the attempt

at an second column confirmation.

Yes	No	N/A		
☒	☒	___	10.2	Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

Action: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors under "Conclusions."

Action: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is that should not be used, including any in the summary package.

11.0 Chromatogram Quality

Yes	No	N/A		
☒	___	___	11.1	Were baselines stable?
Yes	No	N/A	11.2	Were any electropositive displacement (negative peaks) or unusual peaks seen?
___	☒	___		
Yes	No	N/A	11.3	Were early eluting peaks (for early eluting analytes) resolved to baseline?
☒	___	___		

Action: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

12.0 Contamination

Note: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

Yes	No	N/A		
___	[X]	___	12.1	Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

Yes	No	N/A		
___	[ ]	X	12.2	Do any field/rinse blanks have positive PEST/PCB results?

Action: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

Note: Only field/rinse blanks taken the same day as the samples are used to qualify data. Blanks may not be qualified because of contamination in another blank. Blanks may be qualified for surrogate, spectral, tuning or calibration QC problems.

Action: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc> CRQL but < 5 x blank	Sample conc < CRQL is < 5 x blank value	Sample conc > CRQL value & > 5 x blank value
Flag sample result with a "U"; cross out "B" flag	Reject sample result and report CRQL; Cross out "B" flag	No qualification is needed

Yes	No	N/A		
[ ]	X	___	12.3.	Are there field/rinse/equipment blanks associated with every sample?

Action: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank.
Exception: samples taken from a drinking water tap do not have associated field blanks.

EcoChem, Inc.

CALCULATION SHEET

911 Western Avenue
Seattle, Washington 9810
(206) 233-9332

Date: 4/8/92	Calculation: % D - DUPES	Contract No: C0912	Reviewer: [illegible]

	OW-17	OW-17b	% D
BENZENE	5,700	6,900	19.0%
TOLUENE	7	7	Ø
ETHYLBENZENE	17	17	Ø
TOTAL XYLENES	118	117	1%

APPENDIX D4

Hall's Brook Holding Area Calculations

Hall's Brook Holding Area Calcluations

Equilibrator Station	Date/time Installed	Date Recovered	Elapsed Time (days)	Cross Sect. Area (sqr.M)	Volume Recov. (mL)	Flow rate (L/sqr. M/day)
SM-1	11/19/92 9:03	11/22/92 10:25	3.056944444	0.26	1,605	2.2416234
SM-2	11/19/92 15:00	11/22/92 10:20	2.805555556	0.26	NOT REC.	
SM-3	11/19/92 15:15	11/22/92 10:15	2.791666667	0.26	157	0.213505508
SM-4	11/17/92 18:30	11/22/92 10:00	4.729166667	0.26	1,215	0.975359345

CALCULATION OF THE HALLS BROOK HOLDING AREA VOLUME OF WATER

CONTOUR VALUE	KNOWN AREA (SQR. METERS)	PLANIMETER VALUE	CALCULATED AREA		ASSUMPTIONS
STANDARD	8361	657	-		MAP OF HBHA IS ACCURATE
0	-	1364	17358	4,383	Avg. depth of interval = 2.5 feet
5	-	912	11606	12,844	Avg. depth of interval = 7.5 feet
10	-	470.5	5988	21,626	Avg. depth of interval = (10+13.8)/2 feet

TOTAL WATER VOLUME IN HBHA (CU. METERS)=	38,854
TOTAL WATER VOLUME IN HBHA (CU. Ft.)=	1,371,950
TOTAL WATER VOLUME IN HBHA (gallons)=	10,265,155

CALCULATION OF THE HALLS BROOK HOLDING AREA VOLUME OF SEDIMENT

CONTOUR VALUE	KNOWN AREA (SQR. METERS)	PLANIMETER VALUE	CALCULATED AREA	SEDIMENT VOL (CU. METERS)	INTERVAL MIDPOINT
STANDARD	8361	657	-		
0	-	1364	17358	884	Avg. thickness of interval = 1 foot
2	-	1136	14457	4,061	Avg. thickness of interval = 3 feet
4	-	787	10015	11,191	Avg. thickness of interval = 5 feet
6	-	210	2672	5,268	Avg. thickness of interval = 7 feet
8	-	16	204	528	Avg. thickness of interval = 8.5 feet

TOTAL SEDIMENT VOLUME IN HBHA (CU. METERS)=	21,931
TOTAL SEDIMENT VOLUME IN HBHA (CU. YARDS)=	28,682

ALTERNATE SEDIMENT THICKNESS...

ASSUMING THAT THE BLACK OOZE LAYER IS THE ONLY LAYER TO BE CONSIDERED...
AND IS 1.4 FEET THICK (AVERAGE OF 3 CORE LOCATIONS)....

VOLUME =17358 SQR. METERS x 0.43 METERS = 7407 CUBIC METERS
9,687 CUBIC YARDS

CALCULATION OF GROUNDWATER DISCHARGE VOLUME

ASSUMPTIONS: because we were unable to recover a sample from SM2, the area that would have been characterized by this data was divided in half and characterized instead by the adjacent seepage meter.

ID	KNOWN AREA (SQR. METERS)	PLANIMETER VALUE	CALCULATED AREA (sqr. meters)	Q from above (L/sqr.meter/day)	volume entering pond (L/day)
STANDARD	8361	657	-		
SOUTH (SM-1)	-	580	7381	2.24	16546
NORTH (SM-3)	-	660	8399	0.21	1793
SM-4	-	168	2138	0.96	2065

total gw discharge = 20424.1996

CALCULATION OF LOADING RATE OF TARGET METALS TO HBHA FROM GW DISCHARGE.

	UPPER MOST EQ SAMPLE		SEEPAGE METER SAMPLE
SAMPLE LOCAL.	As(mg/L)	Cr(mg/L)	Benzene(mg/Kg)
SOUTH (SM-1)	16.2	0.106	0.153
NORTH (SM-3)	0.199	0.0759	0.122
SM-4	0.0828	0.0219	0.001

CALCULATED LOADS BASED ON ABOVE CONCENTRATIONS...

	As (mg/day)	Cr (mg/day)	Benzene (mg/day)
SM-1	268039.3237	1786.928825	2531.482502
SM-3	356.8608854	136.1092523	218.779
SM-4	172.662141	45.66788513	2.919
TOTAL	268568.8487	1968.705962	2753.181

CALCULATION OF THE THEORETICAL CONCENTRATION OF THE HBHA DISCHARGE ASSUMING GW DISCHARGE IS ONLY SOURCE OF LOADING AND USING LOAD TABLE ABOVE...

LOWEST MEASURED DISCHARGE OF HALLS BROOK (Roux, 1991) (CFS)= 1.10

LOWEST MEASURED DISCHARGE OF HALLS BROOK (L/day)= 2,691,533

Assuming perfect mixing and no other sources of As, Cr, and Benzene, The theoretical concentrations in HBHA effluent

	THEORET. DISCHARGE CONC.
Arsenic	0.100 mg/L
Chromium	0.001 mg/L
Benzene	0.001 mg/L

	OBSERVED CONCENTRATIONS (SW-13,Roux, 1991):
Arsenic	0.008 mg/L
Chromium	0.005 mg/L
Benzene	nd

CALCULATION OF THE THEORETICAL CONCENTRATION OF THE HBHA DISCHARGE INCLUDING LOADING FROM HALLS BROOK (DATA MEASURED AT SW-10)...

TARGET CONCENTRATIONS IN HALLS BROOK...

	CONC. MEASURE BY ROUX (SW-10,Roux, 1991):	
Arsenic	0.004	mg/L
Chromium	0.021	mg/L
Benzene	nd	

These numbers SM-1 may not be indicative of the area which it has been used to characterize, or that Arsenic is being attenuated somewhere.

Calculation of the residence time of the groundwaters in the upper 1.4 feet (43cm)

assumptions: The average water content is 90% by weight and therefore by volume (measured density of solid fraction = 1.1g/cm3)
the volume of water in the upper 43 cm = cross sectional area x 43 cm x 0.9
Based on field measurements (Roux, 1991)

volume of water in upper 43 cm =	0.102	cubic meters
=	101.9	Liters
=	3.60	cubic feet

based on the highest and lowest discharge rates calculated from the seepage meter data, the retention time range is...

retention time = (volume of water in upper 43cm w/in the seepage meter) / [(discharge rate of the seepage meter) x (cross sect. area of SM)]

FROM ABOVE...

	Q (L/m2/day)	area =	0.263	m2
HIGH	2.24			
LOW	0.21			

retention time = 172.6 days to...
1812.6 days

Hall's Brook Holding Area - Calculation of Sediment Density

BULK DENSITY MEASURED

SAMPLE ID	MASS OF 5mL of sample	% H_2O (wt/wt)	g of slurry
SC-1-2	5.589	89%	1.118 g/mL
SC-1-3	5.413	89%	1.083 g/mL

if both sample are 89% water by wt and assuming dens. of H_2O = 1 g/mL (SC-1-2 (0.89 g H_2O/g slurry)(1.118 g slurry/mL slurry)
(SC-1-3 (0.89 g H_2O/g slurry)(1.083 g slurry/mL slurry)

= g water/mL slurry so for SC-1-2, ..

(.995 g H_2O/mL slurry)

(.964 g H_2O/mL slurry) for SC-1-3.

$m_{sed\ in\ slurry} = m_{SLURRY} - m_{H_2O}$ for SC-1-2 ...

(1.118 g − .995 g) = 0.123 g

for SC-1-3 ...

(1.083 g − 0.964 g) = 0.119 g

Volume of soil in slurry = volume of slurry − volume of water (for both...)

Volume of soil = 1 mL − 0.89 mL = 0.11 mL 1 cm^3 = 1 mL

ρ of soil = ~~Volume of soil~~ $\frac{\text{mass soil}}{\text{Volume of soil}}$

~~for~~ for SC-1-2

$$\frac{0.123\,g}{0.11\,cm^3} = 1.12\,g/cm^3$$

for SC-1-3

$$\frac{0.119\,g}{0.11\,cm^3} = 1.08\,g/cm^3$$

APPENDIX D5

Fish Tissue: Summary of Analytical Results and
Laboratory Analytical Results

APPENDIX D5

Fish Tissue: Laboratory Analytical Results

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
MEMORANDUM
ST. LOUIS, MO - CHEMISTRY LABORATORY

TO: Steve Clough, Amherst

FROM: John Gemoules FWH for
DATE: December 24, 1991
SUBJECT: Report of Analytical Chemistry Results, Industri - Plex

Enclosed is the complete report of results for forty four (44) fish tissue samples received in the ESE St. Louis Laboratory on October 24 and November 5, 1991. The samples were prepared in accordance with the approved EPA methods 600/8-80-038 and 600/4-79-0200. The samples were analyzed in accordance with the EPA method indicated in the report.

The QC results are composed of the following summaries: Method Blank for method background evaluation, Replicates to measure percision, Surrogates for extraction efficiency and Standard Matrix Spike and Sample Matrix Spike Recoveries for method performance evaluation.

The QC results have been reviewed by the analysts and the Laboratory Manager. Explanations for QC results that did not fall within the QC criteria are provided in the summary.

JFG/pl/REPORT/IP-O.RP1

Enclosures

Environmental Science & Engineering, Inc.
A CBI/CORP Company
St. Louis Chemistry Laboratory
11665 Lilburn Park Road
St. Louis, Missouri 63146-3535
Phone (314) 567-4600
Fax (314) 567-5030

Analytical Chemistry Results

STATUS: FINAL PAGE# 1

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100 REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/001	PP/BF/002	PP/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*1	IP-F*2	IP-F*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
LIPIDS, %	EPA ITM	%	2.9	2.2	3.7	12-04-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

Environmental Science & Engineering, Inc.
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Phone (314) 567-4600
Fax (314) 567-5030

Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/001	PP/BF/002	PP/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*1	IP-F*2	IP-F*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	10-30-91	12-03-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	10-30-91	12-03-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
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SAMPLE I.D.			PP/BF/001	PP/BF/002	PP/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*1	IP-F*2	IP-F*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	10-30-91	12-03-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	10-30-91	12-03-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

Environmental Science & Engineering, Inc.
A CBECOR Company
St. Louis Chemistry Laboratory
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Phone (314) 567-4600
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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/001	PP/BF/002	PP/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*1	IP-F*2	IP-F*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	1.84	5.04	2.13	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	0.61	<0.61	<0.64	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	<0.93	<0.94	1.18	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	0.63	0.53	0.45	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.09	<0.09	<0.10	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	4170	7290	3670	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.14	<0.15	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.14	<0.14	<0.15	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	0.21	0.33	0.96	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	6.16	11.3	10.00	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	<0.60	<0.61	<0.64	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	313	403	359	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	1.64	2.73	1.93	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	<0.0690	<0.0714	0.122	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.32	<0.33	<0.34	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	3510	3900	3560	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.22	<2.26	<2.35	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.09	<0.09	<0.10	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	624	597	597	11-07-91	11-20-91	JWC

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/001	PP/BF/002	PP/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*1	IP-F*2	IP-F*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
THALLIUM	CLP/6010	MG/KG	<1.67	<1.70	<1.76	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	<0.09	0.13	0.12	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	10.7	15.0	14.0	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH FILET **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/001	HB/BF/001	PP/P/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*4	IP-F*5	IP-F*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	2.3	6.4	3.6	12-04-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/001	HB/BF/001	PP/P/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*4	IP-F*5	IP-F*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	10-30-91	12-03-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	10-30-91	12-03-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S-CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/001	HB/BF/001	PP/P/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*4	IP-F*5	IP-F*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	10-30-91	12-03-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	10-30-91	12-03-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/001	HB/BF/001	PP/P/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*4	IP-F*5	IP-F*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	3.56	3.83	3.31	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	<0.60	<0.62	<0.63	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	<0.93	1.19	<0.97	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	1.42	0.61	1.11	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.09	<0.10	<0.10	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	3610	5220	4860	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.14	<0.15	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.14	<0.14	<0.15	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	0.35	0.42	0.22	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	4.25	11.0	8.20	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	<0.60	<0.62	<0.63	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	354	350	351	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	1.04	3.58	1.10	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	0.0925	0.189	0.117	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.32	<0.33	<0.34	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	3820	4060	3170	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.22	<2.29	<2.33	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.09	<0.10	<0.10	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	470	676	467	11-07-91	11-20-91	JWC

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/001	HB/BF/001	PP/P/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*4	IP-F*5	IP-F*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
THALLIUM	CLP/6010	MG/KG	<1.67	<1.71	<1.75	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	<0.09	<0.10	0.15	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	10.1	11.9	14.8	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH FILET **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/003	PP/P/004	HB/BF/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*7	IP-F*8	IP-F*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	2.1	5.1	1.2	12-04-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

Environmental Science & Engineering, Inc.
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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/003	PP/P/004	HB/BF/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*7	IP-F*8	IP-F*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	10-30-91	12-03-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	10-30-91	12-03-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH FILET **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/003	PP/P/004	HB/BF/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*7	IP-F*8	IP-F*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	10-30-91	12-03-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	10-30-91	12-03-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

Environmental Science & Engineering, Inc.
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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/003	PP/P/004	HB/BF/002	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-F*7	IP-F*8	IP-F*9			
COLLECTION DATE			10/22/91	10/22/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	6.10	2.53	1.40	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	0.69	0.70	<0.63	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	<0.92	<0.94	<0.96	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	4.27	3.39	0.19	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.09	<0.09	<0.10	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	11000	10100	5650	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.14	<0.14	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.14	<0.14	<0.14	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	0.57	0.23	3.67	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	9.46	7.22	6.84	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	<0.60	<0.61	<0.63	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	445	462	321	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	2.29	2.38	3.26	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	<0.0741	<0.0769	0.137	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.32	<0.33	1.26	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	2860	3150	3590	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.20	<2.26	<2.31	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.09	<0.09	<0.10	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	631	569	603	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/003	PP/P/004	HB/BF/002	DATE	DATE	ANALYST
LAB I.D.			IP-F*7	IP-F*8	IP-F*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
THALLIUM	CLP/6010	MG/KG	<1.65	<1.70	<1.73	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	0.20	0.14	0.12	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	47.5	21.6	22.8	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH FILET **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/004	PP/BF/005	PP/BF/006	DATE	DATE	ANALYST
LAB I.D.			IP-F*10	IP-F*11	IP-F*12	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	1.5	1.3	2.0	12-04-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/004	PP/BF/005	PP/BF/006	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-F*10	IP-F*11	IP-F*12			
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	10-30-91	12-03-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	10-30-91	12-03-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/004	PP/BF/005	PP/BF/006	DATE	DATE	ANALYST
LAB I.D.			IP-F*10	IP-F*11	IP-F*12	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	10-30-91	12-03-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	10-30-91	12-03-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	10-30-91	12-03-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	10-30-91	12-03-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/004	PP/BF/005	PP/BF/006	DATE	DATE	ANALYST
LAB I.D.			IP-F*10	IP-F*11	IP-F*12	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	10-30-91	12-03-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	1.81	3.37	1.71	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	<0.64	0.62	<0.61	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	<0.98	<0.93	<0.94	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	0.51	0.91	0.18	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.10	<0.09	<0.09	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	5640	6520	2870	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.15	<0.14	<0.14	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.15	<0.14	<0.14	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	0.26	0.52	0.85	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	4.43	7.58	6.84	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	<0.64	<0.61	<0.61	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	383	397	307	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	1.73	2.65	1.97	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	<0.0769	<0.0714	0.309	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.34	<0.33	<0.33	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	3570	3580	3850	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.35	<2.24	<2.26	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.10	<0.09	<0.09	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	604	430	462	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/004	PP/BF/005	PP/BF/006	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-F*10	IP-F*11	IP-F*12			
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
THALLIUM	CLP/6010	MG/KG	<1.76	<1.68	<1.70	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	0.17	0.21	<0.09	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	13.8	15.2	15.9	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/005	PP/P/006	HB/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*13	IP-F*14	IP-F*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	11/01/91			
RECEIVED DATE			10/24/91	10/24/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	2.4	3.5	4.9	12-23-91	12-23-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH FILET **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/005	PP/P/006	HB/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*13	IP-F*14	IP-F*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	11/01/91			
RECEIVED DATE			10/24/91	10/24/91	11/05/91			
PARAMETER	METHOD	UNITS						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-21-91	12-17-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-21-91	12-17-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/005	PP/P/006	HB/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*13	IP-F*14	IP-F*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	11/01/91			
RECEIVED DATE			10/24/91	10/24/91	11/05/91			
PARAMETER	METHOD	UNITS						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-21-91	12-17-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-21-91	12-17-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/005	PP/P/006	HB/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*13	IP-F*14	IP-F*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	11/01/91			
RECEIVED DATE			10/24/91	10/24/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	2.44	2.40	3.00	12-17-91	12-18-91	CAG
ANTIMONY	CLP/7041	MG/KG	<0.60	<0.61	0.66	12-17-91	12-18-91	CAG
ARSENIC	CLP/6010	MG/KG	<0.92	<0.94	<0.98	12-17-91	12-18-91	CAG
BARIUM	CLP/6010	MG/KG	1.22	2.63	0.22	12-17-91	12-18-91	CAG
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	12-17-91	12-18-91	CAG
CADMIUM	CLP/6010	MG/KG	<0.09	<0.09	<0.10	12-17-91	12-18-91	CAG
CALCIUM	CLP/6010	MG/KG	6830	9980	3150	12-17-91	12-18-91	CAG
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.14	<0.15	12-17-91	12-18-91	CAG
COBALT	CLP/6010	MG/KG	<0.14	<0.14	<0.15	12-17-91	12-18-91	CAG
COPPER	CLP/6010	MG/KG	0.59	0.34	0.27	12-17-91	12-18-91	CAG
IRON	CLP/6010	MG/KG	6.28	5.27	15.5	12-17-91	12-18-91	CAG
LEAD	CLP/6010	MG/KG	<0.60	<0.61	<0.64	12-17-91	12-18-91	CAG
MAGNESIUM	CLP/6010	MG/KG	365	423	273	12-17-91	12-18-91	CAG
MANGANESE	CLP/6010	MG/KG	1.57	3.14	1.54	12-17-91	12-18-91	CAG
MERCURY	CLP/7471	MG/KG	<0.0690	<0.0667	<0.100	12-04-91	12-05-91	CAG
NICKEL	CLP/6010	MG/KG	<0.32	<0.33	<0.34	12-17-91	12-18-91	CAG
POTASSIUM	CLP/6010	MG/KG	3040	3190	3660	12-17-91	12-18-91	CAG
SELENIUM	CLP/6010	MG/KG	<2.20	<2.26	<2.35	12-17-91	12-18-91	CAG
SILVER	CLP/6010	MG/KG	<0.09	<0.09	<0.10	12-17-91	12-18-91	CAG
SODIUM	CLP/6010	MG/KG	607	643	613	12-17-91	12-18-91	CAG

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/005	PP/P/006	HB/BF/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*13	IP-F*14	IP-F*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	11/01/91			
RECEIVED DATE			10/24/91	10/24/91	11/05/91			
PARAMETER	METHOD	UNITS						
THALLIUM	CLP/6010	MG/KG	<1.65	<1.70	<1.76	12-17-91	12-18-91	CAG
VANADIUM	CLP/6010	MG/KG	<0.09	<0.09	0.15	12-17-91	12-18-91	CAG
ZINC	CLP/6010	MG/KG	15.4	21.6	16.2	12-17-91	12-18-91	CAG

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/004	HB/BF/005	HB/P/001	DATE	DATE	ANALYST
LAB I.D.			IP-F*16	IP-F*17	IP-F*18	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	2.7	2.8	4.3	12-23-91	12-23-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH FILET **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/004	HB/BF/005	HB/P/001	DATE	DATE	ANALYST
LAB I.D.			IP-F*16	IP-F*17	IP-F*18	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-21-91	12-17-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-21-91	12-17-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/004	HB/BF/005	HB/P/001	DATE	DATE	ANALYST
LAB I.D.			IP-F*16	IP-F*17	IP-F*18	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	METHOD	UNITS						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-21-91	12-17-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-21-91	12-17-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/004	HB/BF/005	HB/P/001	DATE	DATE	ANALYST
LAB I.D.			IP-F*16	IP-F*17	IP-F*18	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	METHOD	UNITS						
THALLIUM	CLP/6010	MG/KG	<1.76	<1.73	<1.78	12-17-91	12-18-91	CAG
VANADIUM	CLP/6010	MG/KG	0.10	0.13	0.18	12-17-91	12-18-91	CAG
ZINC	CLP/6010	MG/KG	16.4	20.1	12.9	12-17-91	12-18-91	CAG

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/004	HB/BF/005	HB/P/001	DATE	DATE	ANALYST
LAB I.D.			IP-F*16	IP-F*17	IP-F*18	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	METHOD	UNITS						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	7.54	2.65	1.47	12-17-91	12-18-91	CAG
ANTIMONY	CLP/7041	MG/KG	<0.64	<0.63	<0.64	12-17-91	12-18-91	CAG
ARSENIC	CLP/6010	MG/KG	<0.98	<0.96	<0.99	12-17-91	12-18-91	CAG
BARIUM	CLP/6010	MG/KG	0.15	0.32	0.98	12-17-91	12-18-91	CAG
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	12-17-91	12-18-91	CAG
CADMIUM	CLP/6010	MG/KG	<0.10	<0.10	<0.10	12-17-91	12-18-91	CAG
CALCIUM	CLP/6010	MG/KG	4330	5540	3540	12-17-91	12-18-91	CAG
CHROMIUM	CLP/6010	MG/KG	<0.15	<0.14	<0.15	12-17-91	12-18-91	CAG
COBALT	CLP/6010	MG/KG	<0.15	<0.14	<0.15	12-17-91	12-18-91	CAG
COPPER	CLP/6010	MG/KG	0.31	0.50	<0.10	12-17-91	12-18-91	CAG
IRON	CLP/6010	MG/KG	7.36	10.3	5.71	12-17-91	12-18-91	CAG
LEAD	CLP/6010	MG/KG	<0.64	<0.63	<0.64	12-17-91	12-18-91	CAG
MAGNESIUM	CLP/6010	MG/KG	323	310	297	12-17-91	12-18-91	CAG
MANGANESE	CLP/6010	MG/KG	2.43	3.18	1.08	12-17-91	12-18-91	CAG
MERCURY	CLP/7471	MG/KG	<0.0870	<0.0769	<0.0741	12-04-91	12-05-91	CAG
NICKEL	CLP/6010	MG/KG	<0.34	<0.34	<0.35	12-17-91	12-18-91	CAG
POTASSIUM	CLP/6010	MG/KG	3850	3320	3380	12-17-91	12-18-91	CAG
SELENIUM	CLP/6010	MG/KG	<2.35	<2.31	<2.38	12-17-91	12-18-91	CAG
SILVER	CLP/6010	MG/KG	<0.10	<0.10	<0.10	12-17-91	12-18-91	CAG
SODIUM	CLP/6010	MG/KG	640	2320	513	12-17-91	12-18-91	CAG

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/002	HB/P/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*19	IP-F*20	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**					
LIPIDS, %	EPA ITM	%	2.8	9.8	12-23-91	12-23-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS							
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	11-21-91	12-17-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/002	HB/P/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*19	IP-F*20	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**					
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	11-21-91	12-17-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	11-21-91	12-17-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

Environmental Science & Engineering, Inc.
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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/002	HB/P/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*19	IP-F*20	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**					
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	11-21-91	12-17-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	11-21-91	12-17-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	11-21-91	12-17-91	MAT

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/002	HB/P/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*19	IP-F*20	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**					
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CLP METALS							
ALUMINUM	CLP/6010	MG/KG	3.30	11.6	12-17-91	12-18-91	CAG
ANTIMONY	CLP/7041	MG/KG	<0.64	<0.65	12-17-91	12-18-91	CAG
ARSENIC	CLP/6010	MG/KG	<0.98	<1.00	12-17-91	12-18-91	CAG
BARIUM	CLP/6010	MG/KG	0.89	2.49	12-17-91	12-18-91	CAG
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	12-17-91	12-18-91	CAG
CADMIUM	CLP/6010	MG/KG	<0.10	<0.10	12-17-91	12-18-91	CAG
CALCIUM	CLP/6010	MG/KG	3780	6870	12-17-91	12-18-91	CAG
CHROMIUM	CLP/6010	MG/KG	<0.15	<0.15	12-17-91	12-18-91	CAG
COBALT	CLP/6010	MG/KG	<0.15	0.20	12-17-91	12-18-91	CAG
COPPER	CLP/6010	MG/KG	<0.10	0.22	12-17-91	12-18-91	CAG
IRON	CLP/6010	MG/KG	5.21	12.3	12-17-91	12-18-91	CAG
LEAD	CLP/6010	MG/KG	<0.64	0.73	12-17-91	12-18-91	CAG
MAGNESIUM	CLP/6010	MG/KG	362	382	12-17-91	12-18-91	CAG
MANGANESE	CLP/6010	MG/KG	1.62	2.17	12-17-91	12-18-91	CAG
MERCURY	CLP/7471	MG/KG	<0.0870	<0.0833	12-04-91	12-05-91	CAG
NICKEL	CLP/6010	MG/KG	<0.34	0.48	12-17-91	12-18-91	CAG
POTASSIUM	CLP/6010	MG/KG	3730	3280	12-17-91	12-18-91	CAG
SELENIUM	CLP/6010	MG/KG	<2.35	<2.40	12-17-91	12-18-91	CAG
SILVER	CLP/6010	MG/KG	<0.10	<0.10	12-17-91	12-18-91	CAG
SODIUM	CLP/6010	MG/KG	461	710	12-17-91	12-18-91	CAG

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (FILET)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH FILET
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/002	HB/P/003	DATE	DATE	ANALYST
LAB I.D.			IP-F*19	IP-F*20	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91			
PARAMETER	METHOD	UNITS					
THALLIUM	CLP/6010	MG/KG	<1.76	<1.80	12-17-91	12-18-91	CAG
VANADIUM	CLP/6010	MG/KG	<0.10	0.36	12-17-91	12-18-91	CAG
ZINC	CLP/6010	MG/KG	14.6	23.2	12-17-91	12-18-91	CAG

Environmental Science & Engineering, Inc.

St. Louis Chemistry Laboratory

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)

PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91

SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA

PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/001	PP/F/002	PP/BF/001	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-O*1	IP-O*2	IP-O*3			
COLLECTION DATE			10/17/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	3.9	21	5.2	12-03-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/001	PP/F/002	PP/BF/001	DATE	DATE	ANALYST
LAB I.D.			IP-O*1	IP-O*2	IP-O*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/17/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-06-91	12-13-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/001	PP/F/002	PP/BF/001	DATE	DATE	ANALYST
LAB I.D.			IP-O*1	IP-O*2	IP-O*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/17/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-06-91	12-13-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/001	PP/F/002	PP/BF/001	DATE	DATE	ANALYST
LAB I.D.			IP-O*1	IP-O*2	IP-O*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/17/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	26.7	12.6	323	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	<0.65	0.75	0.74	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	1.15	<0.97	<0.95	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	1.52	1.24	8.10	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.10	<0.10	0.19	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	15900	16300	16100	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.15	<0.15	8.87	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.15	<0.15	0.48	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	0.60	0.44	5.33	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	42.6	32.5	630	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	<0.65	<0.63	4.76	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	546	526	539	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	5.45	5.39	60.1	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	<0.0741	<0.100	<0.0667	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.35	<0.34	0.66	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	3160	2840	2290	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.40	<2.33	<2.29	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.10	<0.10	<0.10	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	1370	1330	1880	11-07-91	11-20-91	JWC

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/001	PP/F/002	PP/BF/001	DATE	DATE	ANALYST
LAB I.D.			IP-O*1	IP-O*2	IP-O*3	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/17/91	10/18/91	10/18/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
THALLIUM	CLP/6010	MG/KG	<1.80	<1.75	<1.71	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	0.33	0.25	1.33	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	60.4	48.9	54.6	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/002	PP/BF/003	PP/F/003	DATE	DATE	ANALYST
LAB I.D.			IP-O*4	IP-O*5	IP-O*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/21/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	3.3	8.6	6.0	12-03-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/002	PP/BF/003	PP/F/003	DATE	DATE	ANALYST
LAB I.D.			IP-O*4	IP-O*5	IP-O*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/21/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-06-91	12-13-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/002	PP/BF/003	PP/F/003	DATE	DATE	ANALYST
LAB I.D.			IP-O*4	IP-O*5	IP-O*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/21/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-06-91	12-13-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/002	PP/BF/003	PP/F/003	DATE	DATE	ANALYST
LAB I.D.			IP-O*4	IP-O*5	IP-O*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/21/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	74.4	57.3	4.00	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	0.92	0.79	1.11	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	<0.97	<0.94	1.11	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	3.12	4.99	1.13	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.10	<0.09	<0.09	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	29200	24000	16500	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.15	0.16	<0.14	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.15	<0.14	<0.14	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	1.88	1.76	0.49	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	218	110	18.4	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	1.29	1.45	0.67	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	659	600	557	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	12.5	16.3	6.33	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	<0.100	<0.0769	<0.0833	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.34	<0.33	<0.32	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	2120	2130	3110	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.33	<2.26	<2.18	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.10	<0.09	<0.09	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	1920	1900	1230	11-07-91	11-20-91	JWC

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/002	PP/BF/003	PP/F/003	DATE	DATE	ANALYST
LAB I.D.			IP-O*4	IP-O*5	IP-O*6	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/18/91	10/18/91	10/21/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
THALLIUM	CLP/6010	MG/KG	<1.75	<1.70	<1.64	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	0.73	0.60	0.56	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	38.6	37.9	43.6	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/004	HB/BF/001	PP/F/005	DATE	DATE	ANALYST
LAB I.D.			IP-Q*7	IP-Q*8	IP-Q*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/21/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	22	7.0	5.0	12-03-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/004	HB/BF/001	PP/F/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*7	IP-O*8	IP-O*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/21/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-06-91	12-13-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/004	HB/BF/001	PP/F/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*7	IP-O*8	IP-O*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/21/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-06-91	12-13-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/004	HB/BF/001	PP/F/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*7	IP-O*8	IP-O*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/21/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	8.01	6.95	4.30	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	0.74	<0.64	<0.62	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	1.04	1.48	<0.95	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	1.36	1.91	2.05	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.04	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.09	<0.10	<0.10	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	16500	20300	14500	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.13	<0.15	<0.14	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.13	<0.15	<0.14	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	0.55	1.35	0.57	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	21.7	281	20.6	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	0.58	<0.64	<0.62	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	537	458	457	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	4.21	11.2	3.97	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	<0.0800	<0.0714	<0.0800	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.31	<0.34	<0.33	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	3010	1900	2550	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.12	<2.35	<2.29	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.09	<0.10	<0.10	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	1320	1550	1200	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/F/004	HB/BF/001	PP/F/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*7	IP-O*8	IP-O*9	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/21/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
THALLIUM	CLP/6010	MG/KG	<1.59	<1.76	<1.71	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	0.33	0.33	0.25	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	55.6	32.9	49.2	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/002	PP/P/003	PP/P/004	DATE	DATE	ANALYST
LAB I.D.			IP-O*10	IP-O*11	IP-O*12	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	6.6	10.0	7.6	12-03-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/002	PP/P/003	PP/P/004	DATE	DATE	ANALYST
LAB I.D.			IP-O*10	IP-O*11	IP-O*12	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-06-91	12-13-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/002	PP/P/003	PP/P/004	DATE	DATE	ANALYST
LAB I.D.			IP-O*10	IP-O*11	IP-O*12	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-06-91	12-13-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/002	PP/P/003	PP/P/004	DATE	DATE	ANALYST
LAB I.D.			IP-O*10	IP-O*11	IP-O*12	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	5.75	156	61.9	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	<0.60	0.72	<0.57	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	<0.92	0.96	<0.88	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	5.79	8.81	26.1	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.04	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.09	<0.09	<0.09	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	23700	19200	7460	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.14	<0.13	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.14	0.16	0.13	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	1.36	4.06	1.66	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	38.4	217	110	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	<0.60	1.56	0.75	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	692	602	356	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	7.57	8.02	12.4	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	0.107	<0.0769	<0.0800	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.32	<0.32	<0.31	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	2510	1990	1920	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.20	<2.18	<2.11	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.09	<0.09	<0.09	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	1580	1560	1180	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)

PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91

SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA

PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			PP/P/002	PP/P/003	PP/P/004	DATE	DATE	ANALYST
LAB I.D.			IP-O*10	IP-O*11	IP-O*12	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/22/91	10/22/91	10/22/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
THALLIUM	CLP/6010	MG/KG	<1.65	<1.64	<1.58	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	0.47	0.84	0.30	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	42.2	49.8	53.8	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/002	PP/BF/004	PP/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*13	IP-O*14	IP-O*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	1.8	28	3.6	12-03-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/002	PP/BF/004	PP/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*13	IP-O*14	IP-O*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-06-91	12-13-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/002	PP/BF/004	PP/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*13	IP-O*14	IP-O*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-06-91	12-13-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/002	PP/BF/004	PP/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*13	IP-O*14	IP-O*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	10.8	17.3	167	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	<0.60	<0.59	<0.59	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	1.30	<0.91	0.94	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	0.57	2.01	4.24	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.09	<0.09	<0.09	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	6480	28100	24100	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.14	<0.14	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.14	<0.14	0.16	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	1.98	2.87	3.41	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	91.0	36.6	199	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	<0.60	0.87	1.74	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	288	643	635	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	5.03	8.79	13.7	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	<0.0870	<0.0588	<0.0909	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.32	0.53	<0.32	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	2760	1910	1880	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.20	<2.18	<2.18	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.09	<0.09	<0.09	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	1300	1710	1350	11-07-91	11-20-91	JWC

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/002	PP/BF/004	PP/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*13	IP-O*14	IP-O*15	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
THALLIUM	CLP/6010	MG/KG	<1.65	<1.64	<1.64	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	0.11	0.34	0.81	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	34.4	44.6	41.1	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/006	PP/P/005	PP/P/006	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-O*16	IP-O*17	IP-O*18			
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
LIPIDS, %	EPA ITM	%	5.5	9.7	15	12-03-91	12-10-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/006	PP/P/005	PP/P/006	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-O*16	IP-O*17	IP-O*18			
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-06-91	12-13-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/006	PP/P/005	PP/P/006	DATE	DATE	ANALYST
LAB I.D.			IP-O*16	IP-O*17	IP-O*18	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-06-91	12-13-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-06-91	12-13-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-06-91	12-13-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-06-91	12-13-91	MAT

D - Sample was diluted for this parameter

Environmental Science & Engineering, Inc.
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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/006	PP/P/005	PP/P/006	DATE	DATE	ANALYST
LAB I.D.			IP-O*16	IP-O*17	IP-O*18	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-06-91	12-13-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	44.5	132	5.20	11-07-91	11-20-91	JWC
ANTIMONY	CLP/7041	MG/KG	<0.63	<0.59	0.71	11-07-91	11-20-91	JWC
ARSENIC	CLP/6010	MG/KG	<0.96	<0.90	<0.93	11-07-91	11-20-91	JWC
BARIUM	CLP/6010	MG/KG	1.21	7.50	6.86	11-07-91	11-20-91	JWC
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	11-07-91	11-20-91	JWC
CADMIUM	CLP/6010	MG/KG	<0.10	<0.09	<0.09	11-07-91	11-20-91	JWC
CALCIUM	CLP/6010	MG/KG	18300	20300	27000	11-07-91	11-20-91	JWC
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.14	<0.14	11-07-91	11-20-91	JWC
COBALT	CLP/6010	MG/KG	<0.14	0.43	<0.14	11-07-91	11-20-91	JWC
COPPER	CLP/6010	MG/KG	2.43	1.54	0.91	11-07-91	11-20-91	JWC
IRON	CLP/6010	MG/KG	62.5	346	35.0	11-07-91	11-20-91	JWC
LEAD	CLP/6010	MG/KG	<0.63	1.44	0.73	11-07-91	11-20-91	JWC
MAGNESIUM	CLP/6010	MG/KG	482	581	672	11-07-91	11-20-91	JWC
MANGANESE	CLP/6010	MG/KG	11.8	57.2	10.00	11-07-91	11-20-91	JWC
MERCURY	CLP/7471	MG/KG	<0.0800	<0.0714	<0.0769	11-01-91	11-07-91	CAG
NICKEL	CLP/6010	MG/KG	<0.34	<0.32	<0.33	11-07-91	11-20-91	JWC
POTASSIUM	CLP/6010	MG/KG	2250	2120	1840	11-07-91	11-20-91	JWC
SELENIUM	CLP/6010	MG/KG	<2.31	<2.16	<2.24	11-07-91	11-20-91	JWC
SILVER	CLP/6010	MG/KG	<0.10	<0.09	<0.09	11-07-91	11-20-91	JWC
SODIUM	CLP/6010	MG/KG	1320	1710	1540	11-07-91	11-20-91	JWC

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			PP/BF/006	PP/P/005	PP/P/006	DATE	DATE	ANALYST
LAB I.D.			IP-O*16	IP-O*17	IP-O*18	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			10/23/91	10/23/91	10/23/91			
RECEIVED DATE			10/24/91	10/24/91	10/24/91			
PARAMETER	METHOD	UNITS						
THALLIUM	CLP/6010	MG/KG	<1.73	<1.62	<1.68	11-07-91	11-20-91	JWC
VANADIUM	CLP/6010	MG/KG	0.25	0.89	0.41	11-07-91	11-20-91	JWC
ZINC	CLP/6010	MG/KG	31.7	53.4	51.7	11-07-91	11-20-91	JWC

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/003	HB/BF/004	HB/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*19	IP-O*20	IP-O*21	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	METHOD	UNITS						
LIPIDS, %	EPA ITM	%	5.2	2.8	10.0	12-23-91	12-23-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91
SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/003	HB/BF/004	HB/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*19	IP-O*20	IP-O*21	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-21-91	12-17-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-21-91	12-17-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

Environmental Science & Engineering, Inc.
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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/003	HB/BF/004	HB/BF/005	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-O*19	IP-O*20	IP-O*21			
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-21-91	12-17-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-21-91	12-17-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/003	HB/BF/004	HB/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-O*19	IP-O*20	IP-O*21	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	6.30	10.2	67.7	12-17-91	12-18-91	CAG
ANTIMONY	CLP/7041	MG/KG	0.71	<0.64	<0.62	12-17-91	12-18-91	CAG
ARSENIC	CLP/6010	MG/KG	<0.92	<0.98	3.80	12-17-91	12-18-91	CAG
BARIUM	CLP/6010	MG/KG	1.16	0.78	1.29	12-17-91	12-18-91	CAG
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	12-17-91	12-18-91	CAG
CADMIUM	CLP/6010	MG/KG	<0.09	<0.10	0.11	12-17-91	12-18-91	CAG
CALCIUM	CLP/6010	MG/KG	29200	28700	16500	12-17-91	12-18-91	CAG
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.15	2.85	12-17-91	12-18-91	CAG
COBALT	CLP/6010	MG/KG	<0.14	<0.15	0.49	12-17-91	12-18-91	CAG
COPPER	CLP/6010	MG/KG	3.42	4.38	12.2	12-17-91	12-18-91	CAG
IRON	CLP/6010	MG/KG	77.2	71.0	461	12-17-91	12-18-91	CAG
LEAD	CLP/6010	MG/KG	0.71	0.95	3.86	12-17-91	12-18-91	CAG
MAGNESIUM	CLP/6010	MG/KG	586	581	476	12-17-91	12-18-91	CAG
MANGANESE	CLP/6010	MG/KG	11.7	14.1	11.3	12-17-91	12-18-91	CAG
MERCURY	CLP/7471	MG/KG	<0.0800	<0.0800	<0.0741	12-04-91	12-05-91	CAG
NICKEL	CLP/6010	MG/KG	0.52	<0.34	3.59	12-17-91	12-18-91	CAG
POTASSIUM	CLP/6010	MG/KG	2120	2260	2210	12-17-91	12-18-91	CAG
SELENIUM	CLP/6010	MG/KG	<2.20	<2.35	<2.29	12-17-91	12-18-91	CAG
SILVER	CLP/6010	MG/KG	<0.09	<0.10	<0.10	12-17-91	12-18-91	CAG
SODIUM	CLP/6010	MG/KG	1650	1690	1470	12-17-91	12-18-91	CAG

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)

PROJECT NUMBER: 5912030 0100 **REPORT DATE:** 12-24-91

SAMPLE MATRIX: FISH OFFAL **LAB MANAGER/QC REVIEW:** JEFFERY W. SIRIA

PROJECT MANAGER: JOHN F. GEMOULES **REPORT APPROVED BY:** FRANCIS Y. HUANG

SAMPLE I.D.			HB/BF/003	HB/BF/004	HB/BF/005	DATE	DATE	ANALYST
LAB I.D.			IP-Q*19	IP-Q*20	IP-Q*21	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
THALLIUM	CLP/6010	MG/KG	<1.65	<1.76	<1.71	12-17-91	12-18-91	CAG
VANADIUM	CLP/6010	MG/KG	0.48	0.36	0.54	12-17-91	12-18-91	CAG
ZINC	CLP/6010	MG/KG	53.2	60.8	67.7	12-17-91	12-18-91	CAG

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/001	HB/P/002	HB/P/003	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-O*22	IP-O*23	IP-O*24			
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	METHOD	UNITS						
LIPIDS, %	EPA ITM	%	14	8.7	3.2	12-23-91	12-23-91	JLR
BASE-NEUTRAL/ACID EXTRACTABLE COMPOUNDS								
ACENAPHTHENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
ACENAPHTHYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(A)PYRENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BENZO(B)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(GHI)PERYLENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZO(K)FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BENZOIC ACID	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
BENZYL ALCOHOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHOXY) METHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROETHYL) ETHER	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
BIS(2-CHLOROISOPROPYL) ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BIS(2-ETHYLHEXYL) PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-BROMOPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
BUTYL BENZYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLORO-3-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-CHLOROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2-CHLORONAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-CHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/001	HB/P/002	HB/P/003	DATE	DATE	ANALYST
LAB I.D.			IP-O*22	IP-O*23	IP-O*24	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	METHOD	UNITS						
4-CHLOROPHENYLPHENYL ETHER	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CHRYSENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-BUTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DI-N-OCTYL PHTHALATE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZO(A,H)ANTHRACENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIBENZOFURAN	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,3,DICHLOROBENZENE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
1,4-DICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3,3'-DICHLOROBENZIDINE	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2,4-DICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
DIETHYL PHTHALATE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-21-91	12-17-91	MAT
DIMETHYL PHTHALATE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
2,4-DIMETHYLPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4-DINITROPHENOL	8270	UG/KG	<70000 D	<70000 D	<70000 D	11-21-91	12-17-91	MAT
2,4-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,6-DINITROTOLUENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORANTHENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
FLUORENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROBUTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
HEXACHLOROCYCLOPENTADIENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/001	HB/P/002	HB/P/003	DATE	DATE	ANALYST
LAB I.D.			IP-O*22	IP-O*23	IP-O*24	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	METHOD	UNITS						
HEXACHLOROETHANE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
INDENO(1,2,3-CD)PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
ISOPHORONE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-METHYL PHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-METHYL-4,6-DINITROPHENOL	8270	UG/KG	<40000 D	<40000 D	<40000 D	11-21-91	12-17-91	MAT
2-METHYLNAPHTHALENE	8270	UG/KG	<30000 D	<30000 D	<30000 D	11-21-91	12-17-91	MAT
N-NITROSODI-N-PROPYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
N-NITROSODIPHENYLAMINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
NAPHTHALENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROANILINE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
3-NITROANILINE	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
4-NITROANILINE	8270	UG/KG	<100000 D	<100000 D	<100000 D	11-21-91	12-17-91	MAT
NITROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2-NITROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
4-NITROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PENTACHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENANTHRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
PHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT
PYRENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
1,2,4-TRICHLOROBENZENE	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
2,4,5-TRICHLOROPHENOL	8270	UG/KG	<10000 D	<10000 D	<10000 D	11-21-91	12-17-91	MAT

D - Sample was diluted for this parameter

Environmental Science & Engineering, Inc.
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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/001	HB/P/002	HB/P/003	DATE EXTRACTED	DATE ANALYZED	ANALYST INITIALS
LAB I.D.			IP-O*22	IP-O*23	IP-O*24			
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
2,4,6-TRICHLOROPHENOL	8270	UG/KG	<20000 D	<20000 D	<20000 D	11-21-91	12-17-91	MAT
CLP METALS								
ALUMINUM	CLP/6010	MG/KG	6.72	9.31	8.57	12-17-91	12-18-91	CAG
ANTIMONY	CLP/7041	MG/KG	0.74	0.94	<0.64	12-17-91	12-18-91	CAG
ARSENIC	CLP/6010	MG/KG	<0.93	<0.98	1.59	12-17-91	12-18-91	CAG
BARIUM	CLP/6010	MG/KG	5.78	4.47	1.72	12-17-91	12-18-91	CAG
BERYLLIUM	CLP/6010	MG/KG	<0.05	<0.05	<0.05	12-17-91	12-18-91	CAG
CADMIUM	CLP/6010	MG/KG	<0.09	<0.10	<0.10	12-17-91	12-18-91	CAG
CALCIUM	CLP/6010	MG/KG	18300	20600	4060	12-17-91	12-18-91	CAG
CHROMIUM	CLP/6010	MG/KG	<0.14	<0.15	<0.15	12-17-91	12-18-91	CAG
COBALT	CLP/6010	MG/KG	<0.14	<0.15	<0.15	12-17-91	12-18-91	CAG
COPPER	CLP/6010	MG/KG	1.72	2.40	1.58	12-17-91	12-18-91	CAG
IRON	CLP/6010	MG/KG	43.0	28.7	122	12-17-91	12-18-91	CAG
LEAD	CLP/6010	MG/KG	<0.60	<0.64	<0.64	12-17-91	12-18-91	CAG
MAGNESIUM	CLP/6010	MG/KG	475	596	304	12-17-91	12-18-91	CAG
MANGANESE	CLP/6010	MG/KG	6.95	9.60	6.26	12-17-91	12-18-91	CAG
MERCURY	CLP/7471	MG/KG	<0.0741	<0.100	<0.0952	12-04-91	12-05-91	CAG
NICKEL	CLP/6010	MG/KG	<0.32	1.03	<0.34	12-17-91	12-18-91	CAG
POTASSIUM	CLP/6010	MG/KG	1790	2520	2630	12-17-91	12-18-91	CAG
SELENIUM	CLP/6010	MG/KG	<2.22	<2.35	<2.35	12-17-91	12-18-91	CAG
SILVER	CLP/6010	MG/KG	<0.09	<0.10	<0.10	12-17-91	12-18-91	CAG
SODIUM	CLP/6010	MG/KG	1460	1170	1410	12-17-91	12-18-91	CAG

D - Sample was diluted for this parameter

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Analytical Chemistry Results

STATUS: FINAL

PROJECT NAME: INDUSTRI-PLEX/S.CLOUGH/AMHERST ESE/FISH (OFFAL)
PROJECT NUMBER: 5912030 0100
REPORT DATE: 12-24-91
SAMPLE MATRIX: FISH OFFAL
LAB MANAGER/QC REVIEW: JEFFERY W. SIRIA
PROJECT MANAGER: JOHN F. GEMOULES
REPORT APPROVED BY: FRANCIS Y. HUANG

SAMPLE I.D.			HB/P/001	HB/P/002	HB/P/003	DATE	DATE	ANALYST
LAB I.D.			IP-O*22	IP-O*23	IP-O*24	EXTRACTED	ANALYZED	INITIALS
COLLECTION DATE			11/01/91	11/01/91	11/01/91			
RECEIVED DATE			11/05/91	11/05/91	11/05/91			
PARAMETER	**METHOD**	**UNITS**						
THALLIUM	CLP/6010	MG/KG	<1.67	<1.76	<1.76	12-17-91	12-18-91	CAG
VANADIUM	CLP/6010	MG/KG	0.40	0.19	0.25	12-17-91	12-18-91	CAG
ZINC	CLP/6010	MG/KG	68.0	51.6	62.4	12-17-91	12-18-91	CAG

QC SUMMARY

N

Method Blank Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND
CALCIUM	MG/KG	916*SCLPX	S6653	MB*NONE*4	11/20/91	0.06
CALCIUM	MG/KG			MB*NONE*5		1.29
CALCIUM	MG/KG		S6668	MB*NONE*1	12/18/91	4.74
MAGNESIUM	MG/KG	927*SCLPX	S6653	MB*NONE*4	11/20/91	0.02
MAGNESIUM	MG/KG			MB*NONE*5		0.06
MAGNESIUM	MG/KG		S6668	MB*NONE*1	12/18/91	4.56
SODIUM	MG/KG	929*SCLPX	S6653	MB*NONE*4	11/20/91	0.0
SODIUM	MG/KG			MB*NONE*5		0.13
SODIUM	MG/KG		S6668	MB*NONE*1	12/18/91	0.005
POTASSIUM	MG/KG	937*SCLPX	S6653	MB*NONE*4	11/20/91	0.0
POTASSIUM	MG/KG			MB*NONE*5		0.0
POTASSIUM	MG/KG		S6668	MB*NONE*1	12/18/91	1.81
ARSENIC	MG/KG	1002*SCLPX	S6653	MB*NONE*4	11/20/91	0.002
ARSENIC	MG/KG			MB*NONE*5		0.0
ARSENIC	MG/KG		S6668	MB*NONE*1	12/18/91	0.007
BARIUM	MG/KG	1007*SCLPX	S6653	MB*NONE*4	11/20/91	0.0002
BARIUM	MG/KG			MB*NONE*5		0.0004
BARIUM	MG/KG		S6668	MB*NONE*1	12/18/91	0.005
BERYLLIUM	MG/KG	1012*SCLPX	S6653	MB*NONE*4	11/20/91	0.0004
BERYLLIUM	MG/KG			MB*NONE*5		0.0004
BERYLLIUM	MG/KG		S6668	MB*NONE*1	12/18/91	0.004
IRON	MG/KG	1018*SCLPX	S6653	MB*NONE*4	11/20/91	0.10
IRON	MG/KG			MB*NONE*5		0.06
IRON	MG/KG		S6668	MB*NONE*1	12/18/91	1.87
CADMIUM	MG/KG	1027*SCLPX	S6653	MB*NONE*4	11/20/91	0.0002
CADMIUM	MG/KG			MB*NONE*5		0.0
CADMIUM	MG/KG		S6668	MB*NONE*1	12/18/91	0.007
CHROMIUM	MG/KG	1034*SCLPX	S6653	MB*NONE*4	11/20/91	0.0006
CHROMIUM	MG/KG			MB*NONE*5		0.0008
CHROMIUM	MG/KG		S6668	MB*NONE*1	12/18/91	0.003
COBALT	MG/KG	1037*SCLPX	S6653	MB*NONE*4	11/20/91	0.0
COBALT	MG/KG			MB*NONE*5		0.0003
COBALT	MG/KG		S6668	MB*NONE*1	12/18/91	0.003
COPPER	MG/KG	1042*SCLPX	S6653	MB*NONE*4	11/20/91	0.0
COPPER	MG/KG			MB*NONE*5		0.0
COPPER	MG/KG		S6668	MB*NONE*1	12/18/91	0.0
LEAD	MG/KG	1051*SCLPX	S6653	MB*NONE*4	11/20/91	0.0
LEAD	MG/KG			MB*NONE*5		0.006
LEAD	MG/KG		S6668	MB*NONE*1	12/18/91	0.008
MANGANESE	MG/KG	1055*SCLPX	S6653	MB*NONE*4	11/20/91	0.0009
MANGANESE	MG/KG			MB*NONE*5		0.01
MANGANESE	MG/KG		S6668	MB*NONE*1	12/18/91	0.005
THALLIUM	MG/KG	1059*SCLPX	S6653	MB*NONE*4	11/20/91	0.0
THALLIUM	MG/KG			MB*NONE*5		0.0
THALLIUM	MG/KG		S6668	MB*NONE*1	12/18/91	0.0
NICKEL	MG/KG	1067*SCLPX	S6653	MB*NONE*4	11/20/91	0.001
NICKEL	MG/KG			MB*NONE*5		0.0
NICKEL	MG/KG		S6668	MB*NONE*1	12/18/91	0.01
SILVER	MG/KG	1077*SCLPX	S6653	MB*NONE*4	11/20/91	0.0003
SILVER	MG/KG			MB*NONE*5		0.001
SILVER	MG/KG		S6668	MB*NONE*1	12/18/91	0.009
VANADIUM	MG/KG	1087*SCLPX	S6653	MB*NONE*4	11/20/91	0.002
VANADIUM	MG/KG			MB*NONE*5		0.0008
VANADIUM	MG/KG		S6668	MB*NONE*1	12/18/91	0.006
ZINC	MG/KG	1092*SCLPX	S6653	MB*NONE*4	11/20/91	0.002
ZINC	MG/KG			MB*NONE*5		0.008

N

Method Blank Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND
ZINC	MG/KG	1092*SCLPX	S6668	MB*NONE*1	12/18/91	0.02
ANTIMONY	MG/KG	1097*SCLPX	S6653	MB*NONE*4	11/20/91	0.007
ANTIMONY	MG/KG			MB*NONE*5		0.01
ANTIMONY	MG/KG		S6668	MB*NONE*1	12/18/91	0.01
ALUMINUM	MG/KG	1105*SCLPX	S6653	MB*NONE*4	11/20/91	0.07
ALUMINUM	MG/KG			MB*NONE*5		0.05
ALUMINUM	MG/KG		S6668	MB*NONE*1	12/18/91	4.63
SELENIUM	MG/KG	1147*SCLPX	S6653	MB*NONE*4	11/20/91	0.0
SELENIUM	MG/KG			MB*NONE*5		0.0
SELENIUM	MG/KG		S6668	MB*NONE*1	12/18/91	0.0
LIPIDS, %	%	97174*SLPS	S6575	MB*NONE*1	12/10/91	0.04
LIPIDS, %	%		S6577	MB*NONE*1		0.02
LIPIDS, %	%		S6694	MB*NONE*1	12/23/91	0.02
ACENAPHTHYLENE	UG/KG	34200*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
ACENAPHTHYLENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
ACENAPHTHYLENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
ACENAPHTHENE	UG/KG	34205*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
ACENAPHTHENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
ACENAPHTHENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
ANTHRACENE	UG/KG	34220*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
ANTHRACENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
ANTHRACENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BENZO(B)FLUORANTHENE	UG/KG	34230*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BENZO(B)FLUORANTHENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BENZO(B)FLUORANTHENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BENZO(K)FLUORANTHENE	UG/KG	34242*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BENZO(K)FLUORANTHENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BENZO(K)FLUORANTHENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BENZO(A)PYRENE	UG/KG	34247*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BENZO(A)PYRENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BENZO(A)PYRENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BIS(2-CHLOROETHYL) ETHER	UG/KG	34273*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BIS(2-CHLOROETHYL) ETHER	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BIS(2-CHLOROETHYL) ETHER	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BIS(2-CHLOROETHOXY) METHANE	UG/KG	34278*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BIS(2-CHLOROETHOXY) METHANE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BIS(2-CHLOROETHOXY) METHANE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG	34283*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BIS(2-CHLOROISOPROPYL) ETHER	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BUTYL BENZYL PHTHALATE	UG/KG	34292*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BUTYL BENZYL PHTHALATE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BUTYL BENZYL PHTHALATE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
CHRYSENE	UG/KG	34320*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
CHRYSENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
CHRYSENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
DIETHYL PHTHALATE	UG/KG	34336*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
DIETHYL PHTHALATE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
DIETHYL PHTHALATE	UG/KG		S6679	MB*NONE*1	12/17/91	8440
DIMETHYL PHTHALATE	UG/KG	34341*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
DIMETHYL PHTHALATE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
DIMETHYL PHTHALATE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
FLUORANTHENE	UG/KG	34376*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
FLUORANTHENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
FLUORANTHENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
FLUORENE	UG/KG	34381*SCLPX	S6538	MB*NONE*1	12/03/91	0.0

N

Method Blank Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND
FLUORENE	UG/KG	34381*SCLPX	S6659	MB*NONE*1	12/13/91	0.0
FLUORENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
HEXACHLOROCYCLOPENTADIENE	UG/KG	34386*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
HEXACHLOROCYCLOPENTADIENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
HEXACHLOROCYCLOPENTADIENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
HEXACHLOROBUTADIENE	UG/KG	34391*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
HEXACHLOROBUTADIENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
HEXACHLOROBUTADIENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
HEXACHLOROETHANE	UG/KG	34396*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
HEXACHLOROETHANE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
HEXACHLOROETHANE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
INDENO(1,2,3-CD)PYRENE	UG/KG	34403*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
INDENO(1,2,3-CD)PYRENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
INDENO(1,2,3-CD)PYRENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
ISOPHORONE	UG/KG	34408*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
ISOPHORONE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
ISOPHORONE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
N-NITROSODI-N-PROPYLAMINE	UG/KG	34428*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
N-NITROSODI-N-PROPYLAMINE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
N-NITROSODI-N-PROPYLAMINE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
N-NITROSODIPHENYLAMINE	UG/KG	34433*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
N-NITROSODIPHENYLAMINE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
N-NITROSODIPHENYLAMINE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
NITROBENZENE	UG/KG	34447*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
NITROBENZENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
NITROBENZENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
4-CHLORO-3-METHYL PHENOL	UG/KG	34452*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
4-CHLORO-3-METHYL PHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
4-CHLORO-3-METHYL PHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
PHENANTHRENE	UG/KG	34461*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
PHENANTHRENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
PHENANTHRENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
PYRENE	UG/KG	34469*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
PYRENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
PYRENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BENZO(GHI)PERYLENE	UG/KG	34521*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BENZO(GHI)PERYLENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BENZO(GHI)PERYLENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BENZO(A)ANTHRACENE	UG/KG	34526*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BENZO(A)ANTHRACENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BENZO(A)ANTHRACENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
1,2-DICHLOROBENZENE	UG/KG	34536*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
1,2-DICHLOROBENZENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
1,2-DICHLOROBENZENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
1,2,4-TRICHLOROBENZENE	UG/KG	34551*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
1,2,4-TRICHLOROBENZENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
1,2,4-TRICHLOROBENZENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
DIBENZO(A,H)ANTHRACENE	UG/KG	34556*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
DIBENZO(A,H)ANTHRACENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
DIBENZO(A,H)ANTHRACENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
1,3,DICHLOROBENZENE	UG/KG	34566*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
1,3,DICHLOROBENZENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
1,3,DICHLOROBENZENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
1,4-DICHLOROBENZENE	UG/KG	34571*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
1,4-DICHLOROBENZENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
1,4-DICHLOROBENZENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0

N

Method Blank Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND
2-CHLORONAPHTHALENE	UG/KG	34581*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2-CHLORONAPHTHALENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2-CHLORONAPHTHALENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2-CHLOROPHENOL	UG/KG	34586*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2-CHLOROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2-CHLOROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2-NITROPHENOL	UG/KG	34591*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2-NITROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2-NITROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
DI-N-OCTYL PHTHALATE	UG/KG	34596*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
DI-N-OCTYL PHTHALATE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
DI-N-OCTYL PHTHALATE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2,4-DICHLOROPHENOL	UG/KG	34601*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2,4-DICHLOROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2,4-DICHLOROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2,4-DIMETHYLPHENOL	UG/KG	34606*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2,4-DIMETHYLPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2,4-DIMETHYLPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2,4-DINITROTOLUENE	UG/KG	34611*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2,4-DINITROTOLUENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2,4-DINITROTOLUENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2,4-DINITROPHENOL	UG/KG	34616*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2,4-DINITROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2,4-DINITROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2,4,6-TRICHLOROPHENOL	UG/KG	34621*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2,4,6-TRICHLOROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2,4,6-TRICHLOROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2,6-DINITROTOLUENE	UG/KG	34626*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2,6-DINITROTOLUENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2,6-DINITROTOLUENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
3,3'-DICHLOROBENZIDINE	UG/KG	34631*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
3,3'-DICHLOROBENZIDINE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
3,3'-DICHLOROBENZIDINE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
4-BROMOPHENYLPHENYL ETHER	UG/KG	34636*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
4-BROMOPHENYLPHENYL ETHER	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
4-BROMOPHENYLPHENYL ETHER	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
4-CHLOROPHENYLPHENYL ETHER	UG/KG	34641*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
4-CHLOROPHENYLPHENYL ETHER	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
4-CHLOROPHENYLPHENYL ETHER	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
4-NITROPHENOL	UG/KG	34646*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
4-NITROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
4-NITROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2-METHYL-4,6-DINITROPHENOL	UG/KG	34657*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2-METHYL-4,6-DINITROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2-METHYL-4,6-DINITROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
PHENOL	UG/KG	34694*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
PHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
PHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
NAPHTHALENE	UG/KG	34696*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
NAPHTHALENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
NAPHTHALENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
PENTACHLOROPHENOL	UG/KG	39032*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
PENTACHLOROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
PENTACHLOROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	39100*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0

N

Method Blank Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND
BIS(2-ETHYLHEXYL) PHTHALATE	UG/KG	39100*SCLPX	S6679	MB*NONE*1	12/17/91	0.0
DI-N-BUTYL PHTHALATE	UG/KG	39110*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
DI-N-BUTYL PHTHALATE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
DI-N-BUTYL PHTHALATE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
HEXACHLOROBENZENE	UG/KG	39700*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
HEXACHLOROBENZENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
HEXACHLOROBENZENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
MERCURY	MG/KG	71900*SCLPX	S6335	MB*NONE*1	11/07/91	0.00004
MERCURY	MG/KG			MB*NONE*2		0.0
MERCURY	MG/KG		S6547	MB*NONE*1	12/05/91	0.000006
BENZYL ALCOHOL	UG/KG	77147*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BENZYL ALCOHOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BENZYL ALCOHOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
BENZOIC ACID	UG/KG	77247*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
BENZOIC ACID	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
BENZOIC ACID	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2-METHYLNAPHTHALENE	UG/KG	77416*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2-METHYLNAPHTHALENE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2-METHYLNAPHTHALENE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2,4,5-TRICHLOROPHENOL	UG/KG	77687*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2,4,5-TRICHLOROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2,4,5-TRICHLOROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
DIBENZOFURAN	UG/KG	81302*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
DIBENZOFURAN	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
DIBENZOFURAN	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2-METHYL PHENOL	UG/KG	99073*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2-METHYL PHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2-METHYL PHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
4-METHYL PHENOL	UG/KG	99074*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
4-METHYL PHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
4-METHYL PHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
4-CHLOROANILINE	UG/KG	99075*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
4-CHLOROANILINE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
4-CHLOROANILINE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
2-NITROANILINE	UG/KG	99077*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
2-NITROANILINE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
2-NITROANILINE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
3-NITROANILINE	UG/KG	99078*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
3-NITROANILINE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
3-NITROANILINE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0
4-NITROANILINE	UG/KG	99079*SCLPX	S6538	MB*NONE*1	12/03/91	0.0
4-NITROANILINE	UG/KG		S6659	MB*NONE*1	12/13/91	0.0
4-NITROANILINE	UG/KG		S6679	MB*NONE*1	12/17/91	0.0

N

Replicate Analysis Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND #1	FOUND #2	R.P.D.	MAX % REPL DIFF	
CALCIUM	MG/KG	916*SCLPX	S6653	RP*IP-F*14	11/20/91	9980	11300	12.4	20	
CALCIUM	MG/KG			RP*IP-O*18		27000	32000	16.9	20	
CALCIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	6870	14700	72.6	20	(1)
MAGNESIUM	MG/KG	927*SCLPX	S6653	RP*IP-F*14	11/20/91	423	467	9.89	20	
MAGNESIUM	MG/KG			RP*IP-O*18		672	694	3.22	20	
MAGNESIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	382	531	32.6	20	
SODIUM	MG/KG	929*SCLPX	S6653	RP*IP-F*14	11/20/91	643	674	4.71	20	
SODIUM	MG/KG			RP*IP-O*18		1540	1360	12.4	20	
SODIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	710	768	7.85	20	
POTASSIUM	MG/KG	937*SCLPX	S6653	RP*IP-F*14	11/20/91	3190	3340	4.59	20	
POTASSIUM	MG/KG			RP*IP-O*18		1840	2160	16.0	20	
POTASSIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	3280	3140	4.36	20	
ARSENIC	MG/KG	1002*SCLPX	S6653	RP*IP-F*14	11/20/91	0.09	0.43	131	20	(1)
ARSENIC	MG/KG			RP*IP-O*18		0.0	0.66	200	20	(1)
ARSENIC	MG/KG		S6668	RP*IP-F*20	12/18/91	0.84	1.38	48.6	20	(1)
BARIUM	MG/KG	1007*SCLPX	S6653	RP*IP-F*14	11/20/91	2.63	2.96	11.8	20	
BARIUM	MG/KG			RP*IP-O*18		6.86	7.05	2.73	20	
BARIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	2.49	4.15	50.0	20	(1)
BERYLLIUM	MG/KG	1012*SCLPX	S6653	RP*IP-F*14	11/20/91	0.008	0.008	0.0	20	
BERYLLIUM	MG/KG			RP*IP-O*18		0.03	0.02	40.0	20	(1)
BERYLLIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	0.007	0.007	0.0	20	
IRON	MG/KG	1018*SCLPX	S6653	RP*IP-F*14	11/20/91	5.27	6.77	24.9	20	(1)
IRON	MG/KG			RP*IP-O*18		35.0	38.5	9.52	20	
IRON	MG/KG		S6668	RP*IP-F*20	12/18/91	12.3	10.3	17.7	20	
CADMIUM	MG/KG	1027*SCLPX	S6653	RP*IP-F*14	11/20/91	0.02	0.0	200	20	(1)
CADMIUM	MG/KG			RP*IP-O*18		0.007	0.02	96.3	20	
CADMIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	0.02	0.0	200	20	(1)
CHROMIUM	MG/KG	1034*SCLPX	S6653	RP*IP-F*14	11/20/91	0.0	0.0	0.0	20	
CHROMIUM	MG/KG			RP*IP-O*18		0.0	0.0	0.0	20	
CHROMIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	0.0	0.0	0.0	20	
COBALT	MG/KG	1037*SCLPX	S6653	RP*IP-F*14	11/20/91	0.05	0.09	57.1	20	(1)
COBALT	MG/KG			RP*IP-O*18		0.06	0.06	0.0	20	
COBALT	MG/KG		S6668	RP*IP-F*20	12/18/91	0.20	0.17	16.2	20	
COPPER	MG/KG	1042*SCLPX	S6653	RP*IP-F*14	11/20/91	0.34	0.39	13.7	20	
COPPER	MG/KG			RP*IP-O*18		0.91	0.91	0.0	20	
COPPER	MG/KG		S6668	RP*IP-F*20	12/18/91	0.22	0.34	42.9	20	(1)
LEAD	MG/KG	1051*SCLPX	S6653	RP*IP-F*14	11/20/91	0.44	0.15	98.3	20	(1)
LEAD	MG/KG			RP*IP-O*18		0.73	0.62	16.3	20	
LEAD	MG/KG		S6668	RP*IP-F*20	12/18/91	0.73	0.30	83.5	20	(1)
MANGANESE	MG/KG	1055*SCLPX	S6653	RP*IP-F*14	11/20/91	3.14	3.75	17.7	20	
MANGANESE	MG/KG			RP*IP-O*18		10.0	9.85	1.51	20	
MANGANESE	MG/KG		S6668	RP*IP-F*20	12/18/91	2.17	2.94	30.1	20	(1)
THALLIUM	MG/KG	1059*SCLPX	S6653	RP*IP-F*14	11/20/91	0.0	0.0	0.0	20	
THALLIUM	MG/KG			RP*IP-O*18		0.20	0.79	119	20	(1)
THALLIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	0.03	0.21	150	20	(1)
NICKEL	MG/KG	1067*SCLPX	S6653	RP*IP-F*14	11/20/91	0.0	0.03	200	20	(1)
NICKEL	MG/KG			RP*IP-O*18		0.0	0.09	200	20	(1)
NICKEL	MG/KG		S6668	RP*IP-F*20	12/18/91	0.48	0.40	18.2	20	
SILVER	MG/KG	1077*SCLPX	S6653	RP*IP-F*14	11/20/91	0.0	0.0	0.0	20	
SILVER	MG/KG			RP*IP-O*18		0.0	0.0	0.0	20	
SILVER	MG/KG		S6668	RP*IP-F*20	12/18/91	0.02	0.0	200	20	(1)
VANADIUM	MG/KG	1087*SCLPX	S6653	RP*IP-F*14	11/20/91	0.09	0.27	100.0	20	(1)
VANADIUM	MG/KG			RP*IP-O*18		0.41	0.52	23.7	20	(1)
VANADIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	0.36	0.57	45.2	20	(1)
ZINC	MG/KG	1092*SCLPX	S6653	RP*IP-F*14	11/20/91	21.6	22.4	3.64	20	
ZINC	MG/KG			RP*IP-O*18		51.7	64.8	22.5	20	(2)

N

Replicate Analysis Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND #1	FOUND #2	R.P.D.	MAX % REPL	DIFF
ZINC	MG/KG	1092*SCLPX	S6668	RP*IP-F*20	12/18/91	23.2	32.3	32.8	20	(2)
ANTIMONY	MG/KG	1097*SCLPX	S6653	RP*IP-F*14	11/20/91	0.28	0.06	129	20	(1)
ANTIMONY	MG/KG			RP*IP-D*18		0.71	0.87	20.3	20	
ANTIMONY	MG/KG		S6668	RP*IP-F*20	12/18/91	0.32	0.88	93.3	20	(1)
ALUMINUM	MG/KG	1105*SCLPX	S6653	RP*IP-F*14	11/20/91	2.40	3.39	34.2	20	(1)
ALUMINUM	MG/KG			RP*IP-D*18		5.20	7.50	36.2	20	(1)
ALUMINUM	MG/KG		S6668	RP*IP-F*20	12/18/91	11.6	7.50	42.9	20	(1)
SELENIUM	MG/KG	1147*SCLPX	S6653	RP*IP-F*14	11/20/91	0.20	0.14	35.3	20	(1)
SELENIUM	MG/KG			RP*IP-D*18		1.08	0.77	33.5	20	(1)
SELENIUM	MG/KG		S6668	RP*IP-F*20	12/18/91	1.73	1.80	3.97	20	
LIPIDS, %	%	97174*SLPS	S6575	RP*IP-D*16	12/10/91	5.5	3.9	34	50	
LIPIDS, %	%		S6577	RP*IP-F*13		2.4	0.6	120	50	(1)
LIPIDS, %	%		S6694	RP*IP-F*20	12/23/91	9.8	8.0	20	50	

Standard Matrix Spike Recovery and Replicate Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	R.P.D.	R.P.D. CRIT.	
ARSENIC	MG/KG	1002*SCLPX	S6653	SP*NONE*4	11/20/91	2.00	2.31	115	75-125		20	
ARSENIC	MG/KG		S6668	SP*NONE*1	12/18/91	2.00	2.17	109	75-125		20	
BARIUM	MG/KG	1007*SCLPX	S6653	SP*NONE*4	11/20/91	2.00	2.19	109	75-125		20	
BARIUM	MG/KG			SP*NONE*5		2.00	2.11	105	75-125	RPD*1	20	
BARIUM	MG/KG		S6668	SP*NONE*1	12/18/91	2.00	2.13	106	75-125		20	
BERYLLIUM	MG/KG	1012*SCLPX	S6653	SP*NONE*4	11/20/91	0.05	0.05	99.3	75-125		20	
BERYLLIUM	MG/KG			SP*NONE*5		0.05	0.05	99.3	75-125	RPD*1	20	
BERYLLIUM	MG/KG		S6668	SP*NONE*1	12/18/91	0.05	0.05	91.6	75-125		20	
IRON	MG/KG	1018*SCLPX	S6653	SP*NONE*4	11/20/91	1.00	1.25	125	75-125		20	
IRON	MG/KG			SP*NONE*5		1.00	1.15	115	75-125	RPD*1	20	
CADMIUM	MG/KG	1027*SCLPX	S6653	SP*NONE*4	11/20/91	0.05	0.05	99.7	75-125		20	
CADMIUM	MG/KG			SP*NONE*5		0.05	0.05	100.0	75-125	RPD*1	20	
CADMIUM	MG/KG		S6668	SP*NONE*1	12/18/91	0.05	0.05	105	75-125		20	
CHROMIUM	MG/KG	1034*SCLPX	S6653	SP*NONE*4	11/20/91	0.20	0.22	110	75-125		20	
CHROMIUM	MG/KG			SP*NONE*5		0.20	0.21	105	75-125	RPD*1	20	
CHROMIUM	MG/KG		S6668	SP*NONE*1	12/18/91	0.20	0.22	109	75-125		20	
COBALT	MG/KG	1037*SCLPX	S6653	SP*NONE*4	11/20/91	0.50	0.55	110	75-125		20	
COBALT	MG/KG			SP*NONE*5		0.50	0.53	106	75-125	RPD*1	20	
COBALT	MG/KG		S6668	SP*NONE*1	12/18/91	0.50	0.54	107	75-125		20	
COPPER	MG/KG	1042*SCLPX	S6653	SP*NONE*4	11/20/91	0.25	0.28	112	75-125		20	
COPPER	MG/KG			SP*NONE*5		0.25	0.26	104	75-125	RPD*1	20	
COPPER	MG/KG		S6668	SP*NONE*1	12/18/91	0.25	0.26	104	75-125		20	
LEAD	MG/KG	1051*SCLPX	S6653	SP*NONE*4	11/20/91	0.50	0.54	108	75-125		20	
LEAD	MG/KG		S6668	SP*NONE*1	12/18/91	0.50	0.51	102	75-125		20	
MANGANESE	MG/KG	1055*SCLPX	S6653	SP*NONE*4	11/20/91	0.50	0.54	108	75-125		20	
MANGANESE	MG/KG			SP*NONE*5		0.50	0.51	102	75-125	RPD*1	20	
MANGANESE	MG/KG		S6668	SP*NONE*1	12/18/91	0.50	0.53	105	75-125		20	
THALLIUM	MG/KG	1059*SCLPX	S6653	SP*NONE*4	11/20/91	2.00	2.21	111	75-125		20	
THALLIUM	MG/KG		S6668	SP*NONE*1	12/18/91	2.00	2.08	104	75-125		20	
NICKEL	MG/KG	1067*SCLPX	S6653	SP*NONE*4	11/20/91	0.50	0.55	110	75-125		20	
NICKEL	MG/KG			SP*NONE*5		0.50	0.53	106	75-125	RPD*1	20	
NICKEL	MG/KG		S6668	SP*NONE*1	12/18/91	0.50	0.53	106	75-125		20	
SILVER	MG/KG	1077*SCLPX	S6653	SP*NONE*4	11/20/91	0.05	0.05	99.5	75-125		20	
SILVER	MG/KG			SP*NONE*5		0.05	0.05	98.1	75-125	RPD*1	20	
SILVER	MG/KG		S6668	SP*NONE*1	12/18/91	0.05	0.04	82.2	75-125		20	
VANADIUM	MG/KG	1087*SCLPX	S6653	SP*NONE*4	11/20/91	0.50	0.54	108	75-125		20	
VANADIUM	MG/KG			SP*NONE*5		0.50	0.52	104	75-125	RPD*1	20	
VANADIUM	MG/KG		S6668	SP*NONE*1	12/18/91	0.50	0.52	105	75-125		20	
ZINC	MG/KG	1092*SCLPX	S6653	SP*NONE*4	11/20/91	0.50	0.54	108	75-125		20	
ZINC	MG/KG			SP*NONE*5		0.50	0.52	104	75-125	RPD*1	20	
ZINC	MG/KG		S6668	SP*NONE*1	12/18/91	0.50	0.52	105	75-125		20	
ANTIMONY	MG/KG	1097*SCLPX	S6653	SP*NONE*4	11/20/91	0.50	0.54	109	75-125		20	
ANTIMONY	MG/KG			SP*NONE*5		0.50	0.52	104	75-125	RPD*1	20	
ANTIMONY	MG/KG		S6668	SP*NONE*1	12/18/91	0.50	0.52	103	75-125		20	
ALUMINUM	MG/KG	1105*SCLPX	S6653	SP*NONE*4	11/20/91	2.00	2.23	112	75-125		20	
ALUMINUM	MG/KG			SP*NONE*5		2.00	2.12	106	75-125	RPD*1	20	
SELENIUM	MG/KG	1147*SCLPX	S6653	SP*NONE*4	11/20/91	2.00	2.26	113	75-125		20	
ACENAPHTHENE	UG/KG	34205*SCLPX	S6538	SPI*NONE*1	12/03/91	200000	84700	42.4	31-137		19	(3)
ACENAPHTHENE	UG/KG		S6659	SPI*NONE*1	12/13/91	200000	55200	27.6	31-137		19	

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Standard Matrix Spike Recovery and Replicate Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	R.P.D.	R.P.D. CRIT.	
ACENAPHTHENE	UG/KG	34205*SCLPX	S6679	SP1*NONE*1	12/17/91	200000	87300	43.7	31-137		19	
N-NITROSODI-N-PROPYLAMINE	UG/KG	34428*SCLPX	S6538	SP1*NONE*1	12/03/91	200000	82000	41.0	41-126		38	
N-NITROSODI-N-PROPYLAMINE	UG/KG		S6659	SP1*NONE*1	12/13/91	200000	34900	17.5	41-126		38	(3)
N-NITROSODI-N-PROPYLAMINE	UG/KG		S6679	SP1*NONE*1	12/17/91	200000	62300	31.2	41-126		38	(3)
4-CHLORO-3-METHYL PHENOL	UG/KG	34452*SCLPX	S6538	SP1*NONE*1	12/03/91	200000	203000	102	26-103		33	
4-CHLORO-3-METHYL PHENOL	UG/KG		S6659	SP1*NONE*1	12/13/91	400000	51000	12.8	26-103		33	(3)
4-CHLORO-3-METHYL PHENOL	UG/KG		S6679	SP1*NONE*1	12/17/91	400000	116000	29.0	26-103		33	
PYRENE	UG/KG	34469*SCLPX	S6538	SP1*NONE*1	12/03/91	200000	273000	137	35-142		36	
PYRENE	UG/KG		S6659	SP1*NONE*1	12/13/91	200000	111000	55.5	35-142		36	
PYRENE	UG/KG		S6679	SP1*NONE*1	12/17/91	200000	227000	114	35-142		36	
1,2,4-TRICHLOROBENZENE	UG/KG	34551*SCLPX	S6538	SP1*NONE*1	12/03/91	200000	51900	26.0	38-107		23	(3)
1,2,4-TRICHLOROBENZENE	UG/KG		S6659	SP1*NONE*1	12/13/91	200000	73600	36.8	38-107		23	(3)
1,2,4-TRICHLOROBENZENE	UG/KG		S6679	SP1*NONE*1	12/17/91	200000	85100	42.6	38-107		23	
1,4-DICHLOROBENZENE	UG/KG	34571*SCLPX	S6538	SP1*NONE*1	12/03/91	200000	26500	13.3	28-104		27	(3)
1,4-DICHLOROBENZENE	UG/KG		S6659	SP1*NONE*1	12/13/91	200000	41200	20.6	28-104		27	(3)
1,4-DICHLOROBENZENE	UG/KG		S6679	SP1*NONE*1	12/17/91	200000	63400	31.7	28-104		27	
2-CHLOROPHENOL	UG/KG		S6659	SP1*NONE*1	12/13/91	400000	36100	9.0	25-102		50	(3)
2-CHLOROPHENOL	UG/KG		S6679	SP1*NONE*1	12/17/91	400000	77600	19.4	25-102		50	(3)
2,4-DINITROTOLUENE	UG/KG	34611*SCLPX	S6538	SP1*NONE*1	12/03/91	200000	73000	36.5	28-89		47	
2,4-DINITROTOLUENE	UG/KG		S6659	SP1*NONE*1	12/13/91	200000	31200	15.6	28-89		47	(3)
2,4-DINITROTOLUENE	UG/KG		S6679	SP1*NONE*1	12/17/91	200000	46000	23.0	28-89		47	(3)
4-NITROPHENOL	UG/KG	34646*SCLPX	S6538	SP1*NONE*1	12/03/91	400000	203000	50.8	11-114		50	
4-NITROPHENOL	UG/KG		S6659	SP1*NONE*1	12/13/91	400000	107000	26.8	11-114		50	
4-NITROPHENOL	UG/KG		S6679	SP1*NONE*1	12/17/91	400000	1840	0.5	11-114		50	(3)
PHENOL	UG/KG		S6659	SP1*NONE*1	12/13/91	400000	10000	2.5	26-90		35	(3)
PHENOL	UG/KG		S6679	SP1*NONE*1	12/17/91	400000	25400	6.4	26-90		35	(3)
PENTACHLOROPHENOL	UG/KG	39032*SCLPX	S6538	SP1*NONE*1	12/03/91	400000	175000	43.8	17-109		47	
PENTACHLOROPHENOL	UG/KG		S6659	SP1*NONE*1	12/13/91	400000	43500	10.9	17-109		47	(3)
PENTACHLOROPHENOL	UG/KG		S6679	SP1*NONE*1	12/17/91	400000	264000	66.0	17-109		47	
DI-N-BUTYL PHTHALATE	UG/KG	39110*SCLPX	S6538	SP1*NONE*1	12/03/91	200000	189000	94.5	29-135		47	
DI-N-BUTYL PHTHALATE	UG/KG		S6659	SP1*NONE*1	12/13/91	200000	104000	52.0	29-135		47	
DI-N-BUTYL PHTHALATE	UG/KG		S6679	SP1*NONE*1	12/17/91	200000	215000	108	29-135		47	
MERCURY	MG/KG	71900*SCLPX	S6335	SP*NONE*1	11/07/91	0.0010	0.0010	96.4	75-125		20	
MERCURY	MG/KG			SP*NONE*2		0.0010	0.0019	190	75-125	RPD*1	20	(2)
MERCURY	MG/KG		S6547	SP*NONE*1	12/05/91	0.0010	0.0008	79.4	75-125		20	

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Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	
ARSENIC	MG/KG	1002*SCLPX	S6653	SPM*IP-F*14	11/20/91	96.2	105	109	75-125	0.09		20	
ARSENIC	MG/KG			SPM*IP-O*18		98.0	110	112	75-125	0.0		20	
ARSENIC	MG/KG		S6668	SPM*IP-F*20	12/18/91	92.6	100.0	108	75-125	0.84		20	
BARIUM	MG/KG	1007*SCLPX	S6653	SPM*IP-F*14	11/20/91	96.2	98.4	102	75-125	2.63		20	
BARIUM	MG/KG			SPM*IP-O*18		98.0	103	105	75-125	6.86		20	
BARIUM	MG/KG		S6668	SPM*IP-F*20	12/18/91	92.6	99.5	107	75-125	2.49		20	
BERYLLIUM	MG/KG	1012*SCLPX	S6653	SPM*IP-F*14	11/20/91	2.40	2.36	98.3	75-125	0.008		20	
BERYLLIUM	MG/KG			SPM*IP-O*18		2.45	2.49	102	75-125	0.03		20	
BERYLLIUM	MG/KG		S6668	SPM*IP-F*20	12/18/91	2.31	2.35	102	75-125	0.007		20	
IRON	MG/KG	1018*SCLPX	S6653	SPM*IP-F*14	11/20/91	48.1	59.9	125	75-125	5.27		20	
IRON	MG/KG			SPM*IP-O*18		49.0	71.0	145	75-125	35.0		20	(2)
IRON	MG/KG		S6668	SPM*IP-F*20	12/18/91	46.3	45.2	97.6	75-125	12.3		20	
CADMIUM	MG/KG	1027*SCLPX	S6653	SPM*IP-F*14	11/20/91	2.40	2.09	86.9	75-125	0.02		20	
CADMIUM	MG/KG			SPM*IP-O*18		2.45	2.29	93.6	75-125	0.007		20	
CADMIUM	MG/KG		S6668	SPM*IP-F*20	12/18/91	2.31	2.51	108	75-125	0.02		20	
CHROMIUM	MG/KG	1034*SCLPX	S6653	SPM*IP-F*14	11/20/91	9.62	9.63	100	75-125	0.0		20	
CHROMIUM	MG/KG			SPM*IP-O*18		9.80	10.3	105	75-125	0.0		20	
CHROMIUM	MG/KG		S6668	SPM*IP-F*20	12/18/91	9.26	9.66	104	75-125	0.0		20	
COBALT	MG/KG	1037*SCLPX	S6653	SPM*IP-F*14	11/20/91	24.0	24.2	100	75-125	0.05		20	
COBALT	MG/KG			SPM*IP-O*18		24.5	25.2	103	75-125	0.06		20	
COBALT	MG/KG		S6668	SPM*IP-F*20	12/18/91	23.1	24.3	105	75-125	0.20		20	
COPPER	MG/KG	1042*SCLPX	S6653	SPM*IP-F*14	11/20/91	12.0	12.7	105	75-125	0.34		20	
COPPER	MG/KG			SPM*IP-O*18		12.3	13.4	109	75-125	0.91		20	
COPPER	MG/KG		S6668	SPM*IP-F*20	12/18/91	11.6	13.0	112	75-125	0.22		20	
LEAD	MG/KG	1051*SCLPX	S6653	SPM*IP-F*14	11/20/91	24.0	23.2	96.3	75-125	0.44		20	
LEAD	MG/KG			SPM*IP-O*18		24.5	24.9	101	75-125	0.73		20	
LEAD	MG/KG		S6668	SPM*IP-F*20	12/18/91	23.1	23.2	100	75-125	0.73		20	
MANGANESE	MG/KG	1055*SCLPX	S6653	SPM*IP-F*14	11/20/91	24.0	22.9	95.1	75-125	3.14		20	
MANGANESE	MG/KG			SPM*IP-O*18		24.5	20.9	85.3	75-125	10.00		20	
MANGANESE	MG/KG		S6668	SPM*IP-F*20	12/18/91	23.1	23.7	103	75-125	2.17		20	
THALLIUM	MG/KG	1059*SCLPX	S6653	SPM*IP-F*14	11/20/91	96.2	98.5	102	75-125	0.0		20	
THALLIUM	MG/KG			SPM*IP-O*18		98.0	102	104	75-125	0.20		20	
THALLIUM	MG/KG		S6668	SPM*IP-F*20	12/18/91	92.6	93.2	101	75-125	0.03		20	
NICKEL	MG/KG	1067*SCLPX	S6653	SPM*IP-F*14	11/20/91	24.0	24.8	103	75-125	0.0		20	
NICKEL	MG/KG			SPM*IP-O*18		24.5	26.1	106	75-125	0.0		20	
NICKEL	MG/KG		S6668	SPM*IP-F*20	12/18/91	23.1	24.2	105	75-125	0.48		20	
SILVER	MG/KG	1077*SCLPX	S6653	SPM*IP-F*14	11/20/91	2.40	2.46	102	75-125	0.0		20	
SILVER	MG/KG			SPM*IP-O*18		2.45	2.42	98.7	75-125	0.0		20	
SILVER	MG/KG		S6668	SPM*IP-F*20	12/18/91	2.31	2.24	96.8	75-125	0.02		20	
VANADIUM	MG/KG	1087*SCLPX	S6653	SPM*IP-F*14	11/20/91	24.0	24.3	101	75-125	0.09		20	
VANADIUM	MG/KG			SPM*IP-O*18		24.5	25.6	104	75-125	0.41		20	
VANADIUM	MG/KG		S6668	SPM*IP-F*20	12/18/91	23.1	24.2	105	75-125	0.36		20	
ZINC	MG/KG	1092*SCLPX	S6653	SPM*IP-F*14	11/20/91	24.0	18.3	76.1	75-125	21.6		20	
ZINC	MG/KG			SPM*IP-O*18		24.5	31.3	128	75-125	51.7		20	(2)
ZINC	MG/KG		S6668	SPM*IP-F*20	12/18/91	23.1	32.3	140	75-125	23.2		20	(2)
ANTIMONY	MG/KG	1097*SCLPX	S6653	SPM*IP-F*14	11/20/91	24.0	25.3	105	75-125	0.28		20	
ANTIMONY	MG/KG			SPM*IP-O*18		24.5	25.4	104	75-125	0.71		20	
ANTIMONY	MG/KG		S6668	SPM*IP-F*20	12/18/91	23.1	24.6	106	75-125	0.32		20	
ALUMINUM	MG/KG	1105*SCLPX	S6653	SPM*IP-F*14	11/20/91	96.2	105	109	75-125	2.40		20	
ALUMINUM	MG/KG			SPM*IP-O*18		98.0	112	114	75-125	5.20		20	
ALUMINUM	MG/KG		S6668	SPM*IP-F*20	12/18/91	92.6	96.4	104	75-125	11.6		20	
SELENIUM	MG/KG	1147*SCLPX	S6653	SPM*IP-F*14	11/20/91	96.2	105	109	75-125	0.20		20	
SELENIUM	MG/KG			SPM*IP-O*18		98.0	114	116	75-125	1.08		20	
SELENIUM	MG/KG		S6668	SPM*IP-F*20	12/18/91	92.6	102	110	75-125	1.73		20	
ACENAPHTHENE	UG/KG	34205*SCLPX	S6538	SPM1*IP-F*13	12/03/91	200000	102000	51.0	31-137	0.0		19	
ACENAPHTHENE	UG/KG			SPM2*IP-F*13		200000	112000	56.0	31-137	0.0	9.3	19	

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Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	
ACENAPHTHENE	UG/KG	34205*SCLPX	S6659	SPM1*IP-O*7	12/13/91	200000	180000	90.0	31-137	0.0		19	
ACENAPHTHENE	UG/KG			SPM2*IP-O*7		200000	200000	100.0	31-137	0.0	10.5	19	
ACENAPHTHENE	UG/KG		S6679	SPM1*IP-F*20	12/17/91	200000	49800	24.9	31-137	0.0		19	(2)
ACENAPHTHENE	UG/KG			SPM2*IP-F*20		200000	135000	67.5	31-137	0.0	92.2	19	
N-NITROSODI-N-PROPYLAMINE	UG/KG	34428*SCLPX	S6538	SPM1*IP-F*13	12/03/91	200000	57500	28.8	41-126	0.0		38	(2)
N-NITROSODI-N-PROPYLAMINE	UG/KG			SPM2*IP-F*13		200000	65100	32.6	41-126	0.0	12.4	38	(2)
N-NITROSODI-N-PROPYLAMINE	UG/KG		S6659	SPM1*IP-O*7	12/13/91	200000	104000	52.0	41-126	0.0		38	
N-NITROSODI-N-PROPYLAMINE	UG/KG			SPM2*IP-O*7		200000	101000	50.5	41-126	0.0	2.9	38	
N-NITROSODI-N-PROPYLAMINE	UG/KG		S6679	SPM1*IP-F*20	12/17/91	200000	44500	22.3	41-126	0.0		38	(2)
N-NITROSODI-N-PROPYLAMINE	UG/KG			SPM2*IP-F*20		200000	79300	39.7	41-126	0.0	56.1	38	(2)
4-CHLORO-3-METHYL PHENOL	UG/KG	34452*SCLPX	S6538	SPM1*IP-F*13	12/03/91	200000	152000	76.0	26-103	0.0		33	
4-CHLORO-3-METHYL PHENOL	UG/KG			SPM2*IP-F*13		200000	130000	65.0	26-103	0.0	15.6	33	
4-CHLORO-3-METHYL PHENOL	UG/KG		S6659	SPM1*IP-O*7	12/13/91	400000	152000	38.0	26-103	0.0		33	
4-CHLORO-3-METHYL PHENOL	UG/KG			SPM2*IP-O*7		400000	171000	42.8	26-103	0.0	11.9	33	
4-CHLORO-3-METHYL PHENOL	UG/KG		S6679	SPM1*IP-F*20	12/17/91	400000	65500	16.4	26-103	0.0		33	(2)
4-CHLORO-3-METHYL PHENOL	UG/KG			SPM2*IP-F*20		400000	187000	46.8	26-103	0.0	96.2	33	
PYRENE	UG/KG	34469*SCLPX	S6538	SPM1*IP-F*13	12/03/91	200000	158000	79.0	35-142	0.0		36	
PYRENE	UG/KG			SPM2*IP-F*13		200000	134000	67.0	35-142	0.0	16.4	36	
PYRENE	UG/KG		S6659	SPM1*IP-O*7	12/13/91	200000	234000	117	35-142	0.0		36	
PYRENE	UG/KG			SPM2*IP-O*7		200000	220000	110	35-142	0.0	6.2	36	
PYRENE	UG/KG		S6679	SPM1*IP-F*20	12/17/91	200000	59200	29.6	35-142	0.0		36	(2)
PYRENE	UG/KG			SPM2*IP-F*20		200000	442000	221	35-142	0.0	153	36	(2)
1,2,4-TRICHLOROBENZENE	UG/KG	34551*SCLPX	S6538	SPM1*IP-F*13	12/03/91	200000	126000	63.0	38-107	0.0		23	
1,2,4-TRICHLOROBENZENE	UG/KG			SPM2*IP-F*13		200000	122000	61.0	38-107	0.0	3.2	23	
1,2,4-TRICHLOROBENZENE	UG/KG		S6659	SPM1*IP-O*7	12/13/91	200000	162000	81.0	38-107	0.0		23	
1,2,4-TRICHLOROBENZENE	UG/KG			SPM2*IP-O*7		200000	170000	85.0	38-107	0.0	4.8	23	
1,2,4-TRICHLOROBENZENE	UG/KG		S6679	SPM1*IP-F*20	12/17/91	200000	39700	19.9	38-107	0.0		23	(2)
1,2,4-TRICHLOROBENZENE	UG/KG			SPM2*IP-F*20		200000	107000	53.5	38-107	0.0	91.6	23	
1,4-DICHLOROBENZENE	UG/KG	34571*SCLPX	S6538	SPM1*IP-F*13	12/03/91	200000	74700	37.4	28-104	0.0		27	
1,4-DICHLOROBENZENE	UG/KG			SPM2*IP-F*13		200000	87100	43.6	28-104	0.0	15.3	27	
1,4-DICHLOROBENZENE	UG/KG		S6659	SPM1*IP-O*7	12/13/91	200000	143000	71.5	28-104	0.0		27	
1,4-DICHLOROBENZENE	UG/KG			SPM2*IP-O*7		200000	144000	72.0	28-104	0.0	0.7	27	
1,4-DICHLOROBENZENE	UG/KG		S6679	SPM1*IP-F*20	12/17/91	200000	44000	22.0	28-104	0.0		27	(2)
1,4-DICHLOROBENZENE	UG/KG			SPM2*IP-F*20		200000	58000	29.0	28-104	0.0	27.5	27	
2-CHLOROPHENOL	UG/KG	34586*SCLPX	S6538	SPM1*IP-F*13	12/03/91	400000	107000	26.8	25-102	0.0		50	
2-CHLOROPHENOL	UG/KG			SPM2*IP-F*13		400000	109000	27.3	25-102	0.0	1.8	50	
2-CHLOROPHENOL	UG/KG		S6659	SPM1*IP-O*7	12/13/91	400000	190000	47.5	25-102	0.0		50	
2-CHLOROPHENOL	UG/KG			SPM2*IP-O*7		400000	194000	48.5	25-102	0.0	2.1	50	
2-CHLOROPHENOL	UG/KG		S6679	SPM1*IP-F*20	12/17/91	400000	72900	18.2	25-102	0.0		50	(2)
2-CHLOROPHENOL	UG/KG			SPM2*IP-F*20		400000	77100	19.3	25-102	0.0	5.9	50	(2)
2,4-DINITROTOLUENE	UG/KG	34611*SCLPX	S6538	SPM1*IP-F*13	12/03/91	200000	73200	36.6	28-89	0.0		47	
2,4-DINITROTOLUENE	UG/KG			SPM2*IP-F*13		200000	73100	36.6	28-89	0.0	0.0	47	
2,4-DINITROTOLUENE	UG/KG		S6659	SPM1*IP-O*7	12/13/91	200000	104000	52.0	28-89	0.0		47	
2,4-DINITROTOLUENE	UG/KG			SPM2*IP-O*7		200000	117000	58.5	28-89	0.0	11.8	47	
2,4-DINITROTOLUENE	UG/KG		S6679	SPM1*IP-F*20	12/17/91	200000	19000	9.5	28-89	0.0		47	(2)
2,4-DINITROTOLUENE	UG/KG			SPM2*IP-F*20		200000	64500	32.3	28-89	0.0	109	47	
4-NITROPHENOL	UG/KG	34646*SCLPX	S6538	SPM1*IP-F*13	12/03/91	400000	150000	37.5	11-114	0.0		50	
4-NITROPHENOL	UG/KG			SPM2*IP-F*13		400000	128000	32.0	11-114	0.0	15.8	50	
4-NITROPHENOL	UG/KG		S6659	SPM1*IP-O*7	12/13/91	400000	77100	19.3	11-114	0.0		50	
4-NITROPHENOL	UG/KG			SPM2*IP-O*7		400000	111000	27.8	11-114	0.0	36.1	50	
4-NITROPHENOL	UG/KG		S6679	SPM1*IP-F*20	12/17/91	400000	2540	0.6	11-114	0.0		50	(2)
4-NITROPHENOL	UG/KG			SPM2*IP-F*20		400000	0.0	0.0	11-114	0.0	200	50	(2)
PHENOL	UG/KG	34694*SCLPX	S6538	SPM1*IP-F*13	12/03/91	400000	49000	12.3	26-90	0.0		35	(2)
PHENOL	UG/KG			SPM2*IP-F*13		400000	56900	14.2	26-90	0.0	14.3	35	(2)
PHENOL	UG/KG		S6659	SPM1*IP-O*7	12/13/91	400000	71200	17.8	26-90	0.0		35	(2)
PHENOL	UG/KG			SPM2*IP-O*7		400000	72800	18.2	26-90	0.0	2.2	35	(2)

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Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	
PHENOL	UG/KG	34694*SCLPX	S6679	SPM1*IP-F*20	12/17/91	400000	29100	7.3	26-90	0.0		35	(2)
PHENOL	UG/KG			SPM2*IP-F*20		400000	20000	5.0	26-90	0.0	37.4	35	(2)
PENTACHLOROPHENOL	UG/KG	39032*SCLPX	S6538	SPM1*IP-F*13	12/03/91	400000	208000	52.0	17-109	0.0		47	
PENTACHLOROPHENOL	UG/KG			SPM2*IP-F*13		400000	142000	35.5	17-109	0.0	37.7	47	
PENTACHLOROPHENOL	UG/KG		S6659	SPM1*IP-O*7	12/13/91	400000	364000	91.0	17-109	0.0		47	
PENTACHLOROPHENOL	UG/KG			SPM2*IP-O*7		400000	287000	71.8	17-109	0.0	23.6	47	
PENTACHLOROPHENOL	UG/KG		S6679	SPM1*IP-F*20	12/17/91	400000	59900	15.0	17-109	0.0		47	(2)
PENTACHLOROPHENOL	UG/KG			SPM2*IP-F*20		400000	187000	46.8	17-109	0.0	103	47	
DI-N-BUTYL PHTHALATE	UG/KG	39110*SCLPX	S6538	SPM1*IP-F*13	12/03/91	200000	176000	88.0	29-135	0.0		47	
DI-N-BUTYL PHTHALATE	UG/KG			SPM2*IP-F*13		200000	145000	72.5	29-135	0.0	19.3	47	
DI-N-BUTYL PHTHALATE	UG/KG		S6659	SPM1*IP-O*7	12/13/91	200000	203000	101	29-135	4340		47	
DI-N-BUTYL PHTHALATE	UG/KG			SPM2*IP-O*7		200000	175000	87.3	29-135	4340	14.6	47	
DI-N-BUTYL PHTHALATE	UG/KG		S6679	SPM1*IP-F*20	12/17/91	200000	49800	24.9	29-135	6090		47	(2)
DI-N-BUTYL PHTHALATE	UG/KG			SPM2*IP-F*20		200000	263000	131	29-135	6090	136	47	
MERCURY	MG/KG	71900*SCLPX	S6335	SPM2*IP-O*1	11/07/91	0.357	0.294	82.3	75-125	0.0522	17.6	20	
MERCURY	MG/KG			SPM1*IP-F*1		0.345	0.324	94.0	75-125	0.0667		20	
MERCURY	MG/KG			SPM2*IP-F*1		0.345	0.324	94.0	75-125	0.0667	0.0	20	
MERCURY	MG/KG			SPM1*IP-O*1		0.345	0.339	98.3	75-125	0.0522		20	
MERCURY	MG/KG		S6547	SPM1*IP-F*15	12/05/91	0.500	0.476	95.2	75-125	0.0269		20	
MERCURY	MG/KG			SPM2*IP-F*15		0.500	0.476	95.2	75-125	0.0269	0.0	20	

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Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	
TERPHENYL-(D14)	UG/KG	90135*SUR	S6538	MB*NONE*1	12/03/91	200000	259000	130	18-137	
TERPHENYL-(D14)	UG/KG			SP1*NONE*1		200000	289000	145	18-137	(2)
TERPHENYL-(D14)	UG/KG			DA*IP-F*1		200000	217000	109	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*2		200000	238000	119	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*3		200000	197000	98.5	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*4		200000	211000	106	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*5		200000	206000	103	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*6		200000	22900	11.5	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*7		200000	228000	114	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*8		200000	174000	87.0	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*9		200000	200000	100.0	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*10		200000	206000	103	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*11		200000	206000	103	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*12		200000	219000	110	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*13		200000	0.0	0.0	18-137	(2)
TERPHENYL-(D14)	UG/KG			SPM1*IP-F*13		200000	191000	95.5	18-137	
TERPHENYL-(D14)	UG/KG			SPM2*IP-F*13		200000	165000	82.5	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*14		200000	212000	106	18-137	
TERPHENYL-(D14)	UG/KG		S6659	MB*NONE*1	12/13/91	200000	231000	116	18-137	
TERPHENYL-(D14)	UG/KG			SP1*NONE*1		200000	76300	38.2	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*1		200000	235000	118	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*2		200000	104000	52.0	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*3		200000	261000	131	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*4		200000	208000	104	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*5		200000	256000	128	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*6		200000	79900	40.0	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*7		200000	256000	128	18-137	
TERPHENYL-(D14)	UG/KG			SPM1*IP-O*7		200000	260000	130	18-137	
TERPHENYL-(D14)	UG/KG			SPM2*IP-O*7		200000	243000	122	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*8		200000	230000	115	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*9		200000	244000	122	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*10		200000	263000	132	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*11		200000	172000	86.0	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*12		200000	5480	2.74	18-137	(2)
TERPHENYL-(D14)	UG/KG			DA*IP-O*13		200000	239000	120	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*14		200000	248000	124	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*15		200000	249000	125	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*16		200000	264000	132	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*17		200000	256000	128	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*18		200000	412000	206	18-137	(2)
TERPHENYL-(D14)	UG/KG		S6679	MB*NONE*1	12/17/91	200000	177000	88.5	18-137	
TERPHENYL-(D14)	UG/KG			SP1*NONE*1		200000	266000	133	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*19		200000	194000	97.0	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*20		200000	296000	148	18-137	(2)
TERPHENYL-(D14)	UG/KG			DA*IP-O*21		200000	266000	133	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*22		200000	216000	108	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*23		200000	261000	131	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-O*24		200000	445000	223	18-137	(2)
TERPHENYL-(D14)	UG/KG			DA*IP-F*15		200000	549000	275	18-137	(2)
TERPHENYL-(D14)	UG/KG			DA*IP-F*16		200000	49200	24.6	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*17		200000	185000	92.5	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*18		200000	168000	84.0	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*19		200000	248000	124	18-137	
TERPHENYL-(D14)	UG/KG			DA*IP-F*20		200000	259000	130	18-137	
TERPHENYL-(D14)	UG/KG			SPM1*IP-F*20		200000	61500	30.8	18-137	
TERPHENYL-(D14)	UG/KG			SPM2*IP-F*20		200000	366000	183	18-137	(2)

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Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	
PHENOL-D(5)	UG/KG	90158*SUR	S6538	MB*NONE*1	12/03/91	400000	49700	12.4	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*1		400000	96400	24.1	24-113	
PHENOL-D(5)	UG/KG			DA*IP-F*2		400000	60600	15.2	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*3		400000	76300	19.1	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*4		400000	67600	16.9	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*5		400000	78200	19.6	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*6		400000	0.0	0.0	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*7		400000	45400	11.4	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*8		400000	74600	18.7	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*9		400000	70300	17.6	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*10		400000	61800	15.5	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*11		400000	81400	20.4	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*12		400000	102000	25.5	24-113	
PHENOL-D(5)	UG/KG			DA*IP-F*13		400000	2230	0.558	24-113	(2)
PHENOL-D(5)	UG/KG			SPM1*IP-F*13		400000	59800	15.0	24-113	(2)
PHENOL-D(5)	UG/KG			SPM2*IP-F*13		400000	72000	18.0	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*14		400000	80000	20.0	24-113	(2)
PHENOL-D(5)	UG/KG		S6659	MB*NONE*1	12/13/91	400000	22300	5.58	24-113	(2)
PHENOL-D(5)	UG/KG			SP1*NONE*1		400000	12700	3.18	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*1		400000	38700	9.68	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*2		400000	17700	4.43	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*3		400000	32300	8.08	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*4		400000	39400	9.85	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*5		400000	37900	9.48	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*6		400000	14000	3.50	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*7		400000	50000	12.5	24-113	(2)
PHENOL-D(5)	UG/KG			SPM1*IP-O*7		400000	73900	18.5	24-113	(2)
PHENOL-D(5)	UG/KG			SPM2*IP-O*7		400000	87500	21.9	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*8		400000	38800	9.70	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*9		400000	76400	19.1	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*10		400000	83500	20.9	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*11		400000	47600	11.9	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*12		400000	996	0.249	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*13		400000	44100	11.0	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*14		400000	36800	9.20	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*15		400000	34500	8.63	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*16		400000	47100	11.8	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*17		400000	24800	6.20	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*18		400000	43300	10.8	24-113	(2)
PHENOL-D(5)	UG/KG		S6679	MB*NONE*1	12/17/91	400000	21100	5.28	24-113	(2)
PHENOL-D(5)	UG/KG			SP1*NONE*1		400000	27900	6.98	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*19		400000	0.0	0.0	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*20		400000	36300	9.08	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*21		400000	30000	7.50	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*22		400000	59200	14.8	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*23		400000	51200	12.8	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-O*24		400000	57400	14.4	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*15		400000	46500	11.6	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*16		400000	23100	5.78	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*17		400000	34600	8.65	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*18		400000	59300	14.8	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*19		400000	43100	10.8	24-113	(2)
PHENOL-D(5)	UG/KG			DA*IP-F*20		400000	0.0	0.0	24-113	(2)
PHENOL-D(5)	UG/KG			SPM1*IP-F*20		400000	33400	8.35	24-113	(2)
PHENOL-D(5)	UG/KG			SPM2*IP-F*20		400000	22900	5.73	24-113	(2)
2-FLUORBIPHENYL	UG/KG	90175*SUR	S6538	MB*NONE*1	12/03/91	200000	105000	52.5	30-115	

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Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	
2-FLUORBIPHENYL	UG/KG	90175*SUR	S6538	SP1*NONE*1	12/03/91	200000	65100	32.6	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*1		200000	133000	66.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*2		200000	127000	63.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*3		200000	134000	67.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*4		200000	142000	71.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*5		200000	69200	34.6	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*6		200000	0.0	0.0	30-115	(2)
2-FLUORBIPHENYL	UG/KG			DA*IP-F*7		200000	71000	35.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*8		200000	129000	64.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*9		200000	127000	63.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*10		200000	123000	61.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*11		200000	120000	60.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*12		200000	122000	61.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*13		200000	0.0	0.0	30-115	(2)
2-FLUORBIPHENYL	UG/KG			SPM1*IP-F*13		200000	96800	48.4	30-115	
2-FLUORBIPHENYL	UG/KG			SPM2*IP-F*13		200000	109000	54.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*14		200000	125000	62.5	30-115	
2-FLUORBIPHENYL	UG/KG		S6659	MB*NONE*1	12/13/91	200000	104000	52.0	30-115	
2-FLUORBIPHENYL	UG/KG			SP1*NONE*1		200000	57300	28.7	30-115	(2)
2-FLUORBIPHENYL	UG/KG			DA*IP-O*1		200000	126000	63.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*2		200000	55700	27.9	30-115	(2)
2-FLUORBIPHENYL	UG/KG			DA*IP-O*3		200000	134000	67.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*4		200000	126000	63.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*5		200000	148000	74.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*6		200000	44600	22.3	30-115	(2)
2-FLUORBIPHENYL	UG/KG			DA*IP-O*7		200000	142000	71.0	30-115	
2-FLUORBIPHENYL	UG/KG			SPM1*IP-O*7		200000	192000	96.0	30-115	
2-FLUORBIPHENYL	UG/KG			SPM2*IP-O*7		200000	175000	87.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*8		200000	116000	58.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*9		200000	148000	74.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*10		200000	137000	68.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*11		200000	128000	64.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*12		200000	3220	1.61	30-115	(2)
2-FLUORBIPHENYL	UG/KG			DA*IP-O*13		200000	138000	69.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*14		200000	151000	75.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*15		200000	120000	60.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*16		200000	154000	77.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*17		200000	62400	31.2	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*18		200000	132000	66.0	30-115	
2-FLUORBIPHENYL	UG/KG		S6679	MB*NONE*1	12/17/91	200000	39100	19.6	30-115	(2)
2-FLUORBIPHENYL	UG/KG			SP1*NONE*1		200000	84300	42.2	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*19		200000	28600	14.3	30-115	(2)
2-FLUORBIPHENYL	UG/KG			DA*IP-O*20		200000	93500	46.8	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*21		200000	53100	26.6	30-115	(2)
2-FLUORBIPHENYL	UG/KG			DA*IP-O*22		200000	113000	56.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*23		200000	79900	40.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-O*24		200000	126000	63.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*15		200000	95500	47.8	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*16		200000	47200	23.6	30-115	(2)
2-FLUORBIPHENYL	UG/KG			DA*IP-F*17		200000	70000	35.0	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*18		200000	119000	59.5	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*19		200000	79300	39.7	30-115	
2-FLUORBIPHENYL	UG/KG			DA*IP-F*20		200000	59500	29.8	30-115	(2)
2-FLUORBIPHENYL	UG/KG			SPM1*IP-F*20		200000	46100	23.1	30-115	(2)
2-FLUORBIPHENYL	UG/KG			SPM2*IP-F*20		200000	99800	49.9	30-115	
NITROBENZENE-D(5)	UG/KG	91011*SUR	S6538	MB*NONE*1	12/03/91	200000	62600	31.3	23-120	

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Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	
NITROBENZENE-D(5)	UG/KG	91011*SUR	S6538	SP1*NONE*1	12/03/91	200000	24600	12.3	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-F*1		200000	61400	30.7	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*2		200000	73700	36.9	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*3		200000	77400	38.7	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*4		200000	69100	34.6	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*5		200000	72300	36.2	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*6		200000	0.0	0.0	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-F*7		200000	49800	24.9	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*8		200000	75600	37.8	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*9		200000	73600	36.8	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*10		200000	66300	33.2	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*11		200000	55300	27.7	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*12		200000	50800	25.4	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*13		200000	7030	3.52	23-120	(2)
NITROBENZENE-D(5)	UG/KG			SPM1*IP-F*13		200000	78000	39.0	23-120	
NITROBENZENE-D(5)	UG/KG			SPM2*IP-F*13		200000	60700	30.4	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*14		200000	89200	44.6	23-120	
NITROBENZENE-D(5)	UG/KG		S6659	MB*NONE*1	12/13/91	200000	82200	41.1	23-120	
NITROBENZENE-D(5)	UG/KG			SP1*NONE*1		200000	24700	12.4	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-O*1		200000	72900	36.5	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*2		200000	24100	12.1	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-O*3		200000	56300	28.2	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*4		200000	46600	23.3	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*5		200000	51100	25.6	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*6		200000	20500	10.3	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-O*7		200000	70700	35.4	23-120	
NITROBENZENE-D(5)	UG/KG			SPM1*IP-O*7		200000	75500	37.8	23-120	
NITROBENZENE-D(5)	UG/KG			SPM2*IP-O*7		200000	75400	37.7	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*8		200000	54200	27.1	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*9		200000	75500	37.8	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*10		200000	65400	32.7	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*11		200000	60100	30.1	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*12		200000	0.0	0.0	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-O*13		200000	58200	29.1	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*14		200000	53800	26.9	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*15		200000	58500	29.3	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*16		200000	78100	39.1	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*17		200000	25100	12.6	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-O*18		200000	54100	27.1	23-120	
NITROBENZENE-D(5)	UG/KG		S6679	MB*NONE*1	12/17/91	200000	37700	18.9	23-120	(2)
NITROBENZENE-D(5)	UG/KG			SP1*NONE*1		200000	65700	32.9	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*19		200000	0.0	0.0	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-O*20		200000	72800	36.4	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*21		200000	32400	16.2	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-O*22		200000	67500	33.8	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*23		200000	73700	36.9	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-O*24		200000	60200	30.1	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*15		200000	41900	21.0	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*16		200000	34800	17.4	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-F*17		200000	40600	20.3	23-120	(2)
NITROBENZENE-D(5)	UG/KG			DA*IP-F*18		200000	69300	34.7	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*19		200000	60000	30.0	23-120	
NITROBENZENE-D(5)	UG/KG			DA*IP-F*20		200000	0.0	0.0	23-120	(2)
NITROBENZENE-D(5)	UG/KG			SPM1*IP-F*20		200000	35500	17.8	23-120	(2)
NITROBENZENE-D(5)	UG/KG			SPM2*IP-F*20		200000	40200	20.1	23-120	(2)
2,4,6-TRIBROMOPHENOL	UG/KG	91020*SUR	S6538	MB*NONE*1	12/03/91	400000	153000	38.3	19-122	

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Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	
2,4,6-TRIBROMOPHENOL	UG/KG	91020*SUR	S6538	SP1*NONE*1	12/03/91	400000	285000	71.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*1		400000	286000	71.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*2		400000	339000	84.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*3		400000	309000	77.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*4		400000	344000	86.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*5		400000	278000	69.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*6		400000	14400	3.60	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*7		400000	315000	78.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*8		400000	307000	76.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*9		400000	293000	73.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*10		400000	307000	76.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*11		400000	321000	80.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*12		400000	316000	79.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*13		400000	0.0	0.0	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			SPM1*IP-F*13		400000	294000	73.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			SPM2*IP-F*13		400000	270000	67.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*14		400000	331000	82.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	400000	65800	16.5	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			SP1*NONE*1		400000	66000	16.5	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*1		400000	136000	34.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*2		400000	70200	17.6	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*3		400000	218000	54.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*4		400000	178000	44.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*5		400000	220000	55.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*6		400000	47900	12.0	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*7		400000	202000	50.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			SPM1*IP-O*7		400000	363000	90.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			SPM2*IP-O*7		400000	348000	87.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*8		400000	189000	47.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*9		400000	148000	37.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*10		400000	173000	43.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*11		400000	203000	50.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*12		400000	0.0	0.0	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*13		400000	228000	57.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*14		400000	258000	64.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*15		400000	219000	54.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*16		400000	269000	67.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*17		400000	102000	25.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*18		400000	313000	78.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	400000	156000	39.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			SP1*NONE*1		400000	222000	55.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*19		400000	150000	37.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*20		400000	201000	50.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*21		400000	283000	70.8	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*22		400000	185000	46.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*23		400000	214000	53.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-O*24		400000	230000	57.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*15		400000	273000	68.3	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*16		400000	48500	12.1	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*17		400000	220000	55.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*18		400000	150000	37.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*19		400000	142000	35.5	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			DA*IP-F*20		400000	176000	44.0	19-122	
2,4,6-TRIBROMOPHENOL	UG/KG			SPM1*IP-F*20		400000	51600	12.9	19-122	(2)
2,4,6-TRIBROMOPHENOL	UG/KG			SPM2*IP-F*20		400000	226000	56.5	19-122	
2-FLUOROPHENOL	UG/KG	97024*SUR	S6538	MB*NONE*1	12/03/91	400000	36000	9.0	25-121	(2)

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Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	
2-FLUOROPHENOL	UG/KG			DA*IP-F*1		400000	56000	14	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*2		400000	30000	7.5	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*3		400000	50000	13	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*4		400000	39000	9.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*5		400000	41000	10	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*6		400000	0.0	0.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*7		400000	0.0	0.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*8		400000	49000	12	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*9		400000	49000	12	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*10		400000	46000	12	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*11		400000	46000	12	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*12		400000	46000	12	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*13		400000	0.0	0.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			SPM1*IP-F*13		400000	27000	6.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			SPM2*IP-F*13		400000	36000	9.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*14		400000	43000	11	25-121	(2)
2-FLUOROPHENOL	UG/KG		S6659	MB*NONE*1	12/13/91	400000	31000	7.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			SP1*NONE*1		400000	8100	2.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*1		400000	29000	7.3	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*2		400000	14000	3.5	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*3		400000	17000	4.3	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*4		400000	28000	7.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*5		400000	24000	6.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*6		400000	8100	2.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*7		400000	31000	7.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			SPM1*IP-O*7		400000	34000	8.5	25-121	(2)
2-FLUOROPHENOL	UG/KG			SPM2*IP-O*7		400000	31000	7.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*8		400000	18000	4.5	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*9		400000	31000	7.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*10		400000	33000	8.3	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*11		400000	21000	5.3	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*12		400000	0.0	0.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*13		400000	26000	6.5	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*14		400000	16000	4.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*15		400000	18000	4.5	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*16		400000	25000	6.3	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*17		400000	8800	2.2	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*18		400000	21000	5.3	25-121	(2)
2-FLUOROPHENOL	UG/KG		S6679	MB*NONE*1	12/17/91	400000	16000	4.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			SP1*NONE*1		400000	12000	3.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*19		400000	0.0	0.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*20		400000	15000	3.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*21		400000	21000	5.3	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*22		400000	39000	9.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*23		400000	28000	7.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-O*24		400000	31000	7.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*15		400000	19000	4.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*16		400000	13000	3.3	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*17		400000	23000	5.8	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*18		400000	40000	10.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*19		400000	26000	6.5	25-121	(2)
2-FLUOROPHENOL	UG/KG			DA*IP-F*20		400000	0.0	0.0	25-121	(2)
2-FLUOROPHENOL	UG/KG			SPM1*IP-F*20		400000	14000	3.5	25-121	(2)
2-FLUOROPHENOL	UG/KG			SPM2*IP-F*20		400000	420	0.11	25-121	(2)

(1) - Not applicable, the concentration of the analyte in the sample and the replicate was found to be less than five times the required detection limit
(2) [illegible] sample [illegible] interference.

APPENDIX D5

Fish Tissue: Summary of Analytical Results

APPENDIX D5.

Detection Limits (ppb) for Semivolatile Constituents
in Fish Tissue (Fillet)

Industri-Plex Superfund Remedial Trust
Woburn, MA

ANALYTE	DETECTION LIMIT
1,2,4-TRICHLOROBENZENE	< 20,000
1,2-DICHLOROBENZENE	< 20,000
1,3,DICHLOROBENZENE	< 10,000
1,4-DICHLOROBENZENE	< 20,000
2,4,5-TRICHLOROPHENOL	< 10,000
2,4,6-TRICHLOROPHENOL	< 20,000
2,4-DICHLOROPHENOL	< 20,000
2,4-DIMETHYLPHENOL	< 20,000
2,4-DINITROPHENOL	< 70,000
2,4-DINITROTOLUENE	< 20,000
2,6-DINITROTOLUENE	< 20,000
2-CHLORONAPHTHALENE	< 20,000
2-CHLOROPHENOL	< 20,000
2-METHYL PHENOL	< 20,000
2-METHYL-4,6-DINITROPHENOL	< 40,000
2-METHYLNAPHTHALENE	< 30,000
2-NITROANILINE	< 20,000
2-NITROPHENOL	< 20,000
3,3'-DICHLOROBENZIDINE	< 40,000
3-NITROANILINE	< 10,000
4-BROMOPHENYLPHENYL ETHER	< 20,000
4-CHLORO-3-METHYL PHENOL	< 20,000
4-CHLOROANILINE	< 10,000
4-CHLOROPHENYLPHENYL ETHER	< 20,000
4-METHYL PHENOL	< 20,000
4-NITROANILINE	< 100,000
4-NITROPHENOL	< 10,000
ACENAPHTHENE	< 10,000
ACENAPHTHYLENE	< 20,000
ANTHRACENE	< 20,000
BENZO(A)ANTHRACENE	< 20,000
BENZO(A)PYRENE	< 10,000

1

No semivolatile organic compounds were observed above the detection limit in any sample.

APPENDIX D5.

Detection Limits (ppb) for Semivolatile Constituents
in Fish Tissue (Fillet)

Industri-Plex Superfund Remedial Trust
Woburn, MA

ANALYTE	DETECTION LIMIT
BENZO(B)FLUORANTHENE	< 20,000
BENZO(GHI)PERYLENE	< 20,000
BENZO(K)FLUORANTHENE	< 20,000
BENZOIC ACID	< 40,000
BENZYL ALCOHOL	< 20,000
BIS(2-CHLOROETHOXY) METHANE	< 20,000
BIS(2-CHLOROETHYL) ETHER	< 10,000
BIS(2-CHLOROISOPROPYL) ETHER	< 20,000
BIS(2-ETHYLHEXYL) PHTHALATE	< 20,000
BUTYL BENZYL PHTHALATE	< 20,000
CHRYSENE	< 20,000
DI-N-BUTYL PHTHALATE	< 20,000
DI-N-OCTYL PHTHALATE	< 20,000
DIBENZO(A,H)ANTHRACENE	< 20,000
DIBENZOFURAN	< 20,000
DIETHYL PHTHALATE	< 30,000
DIMETHYL PHTHALATE	< 10,000
FLUORANTHENE	< 20,000
FLUORENE	< 20,000
HEXACHLOROBENZENE	< 20,000
HEXACHLOROBUTADIENE	< 20,000
HEXACHLOROCYCLOPENTADIENE	< 20,000
HEXACHLOROETHANE	< 20,000
INDENO(1,2,3-CD)PYRENE	< 20,000
ISOPHORONE	< 20,000
N-NITROSODI-N-PROPYLAMINE	< 20,000
N-NITROSODIPHENYLAMINE	< 20,000
NAPHTHALENE	< 20,000
NITROBENZENE	< 20,000
PENTACHLOROPHENOL	< 20,000
PHENANTHRENE	< 20,000
PHENOL	< 10,000
PYRENE	< 20,000

1
No semivolatile organic compounds were observed above the detection limit in any sample.

APPENDIX D5.

1

Detection Limits for Semivolatile Constituents
in Fish Tissue (Offal)

Industri-Plex Superfund Remedial Trust
Woburn, MA

ANALYTE	DETECTION LIMIT
1,2,4-TRICHLOROBENZENE	< 20,000
1,2-DICHLOROBENZENE	< 20,000
1,3,DICHLOROBENZENE	< 10,000
1,4-DICHLOROBENZENE	< 20,000
2,4,5-TRICHLOROPHENOL	< 10,000
2,4,6-TRICHLOROPHENOL	< 20,000
2,4-DICHLOROPHENOL	< 20,000
2,4-DINITROPHENOL	< 70,000
2,4-DINITROTOLUENE	< 20,000
2,6-DINITROTOLUENE	< 20,000
2-CHLORONAPHTHALENE	< 20,000
2-CHLOROPHENOL	< 20,000
2-METHYL PHENOL	< 20,000
2-METHYL-4,6-DINITROPHENOL	< 40,000
2-METHYLNAPHTHALENE	< 30,000
2-NITROANILINE	< 20,000
2-NITROPHENOL	< 20,000
3,3'-DICHLOROBENZIDINE	< 40,000
3-NITROANILINE	< 10,000
4-BROMOPHENYLPHENYL ETHER	< 20,000
4-CHLORO-3-METHYL PHENOL	< 20,000
4-CHLOROANILINE	< 10,000
4-CHLOROPHENYLPHENYL ETHER	< 20,000
4-METHYL PHENOL	< 20,000
4-NITROANILINE	< 100,000
4-NITROPHENOL	< 10,000
ACENAPHTHENE	< 10,000
ACENAPHTHYLENE	< 20,000
ANTHRACENE	< 20,000
BENZO(A)ANTHRACENE	< 20,000
BENZO(A)PYRENE	< 10,000
BENZO(B)FLUORANTHENE	< 20,000
BENZO(GHI)PERYLENE	< 20,000
BENZO(K)FLUORANTHENE	< 20,000
BENZOIC ACID	< 40,000
BENZYL ALCOHOL	< 20,000
BIS(2-CHLOROETHOXY) METHANE	< 20,000
BIS(2-CHLOROETHYL) ETHER	< 10,000
BIS(2-CHLOROISOPROPYL) ETHER	< 20,000
BIS(2-ETHYLHEXYL) PHTHALATE	< 20,000

1

No semivolatile organic compounds were observed above the detection limit in any sample.

APPENDIX D5.

Detection Limits for Semivolatile Constituents
in Fish Tissue (Offal)

Industri-Plex Superfund Remedial Trust
Woburn, MA

ANALYTE	DETECTION LIMIT
BUTYL BENZYL PHTHALATE	< 20,000
CHRYSENE	< 20,000
DI-N-BUTYL PHTHALATE	< 20,000
DI-N-OCTYL PHTHALATE	< 20,000
DIBENZO(A,H)ANTHRACENE	< 20,000
DIBENZOFURAN	< 20,000
DIETHYL PHTHALATE	< 30,000
DIMETHYL PHTHALATE	< 10,000
FLUORANTHENE	< 20,000
FLUORENE	< 20,000
HEXACHLOROBENZENE	< 20,000
HEXACHLOROBUTADIENE	< 20,000
HEXACHLOROCYCLOPENTADIENE	< 20,000
HEXACHLOROETHANE	< 20,000
INDENO(1,2,3-CD)PYRENE	< 20,000
ISOPHORONE	< 20,000
N-NITROSODI-N-PROPYLAMINE	< 20,000
N-NITROSODIPHENYLAMINE	< 20,000
NAPHTHALENE	< 20,000
NITROBENZENE	< 20,000
PENTACHLOROPHENOL	< 20,000
PHENANTHRENE	< 20,000
PHENOL	< 10,000
PYRENE	< 20,000

No semivolatile organic compounds were observed above the detection limit in any sample.

Appendix D5.

Metal Concentrations Detected in Fish Tissue (Fillet)

Industri-Plex Superfund Remedial Trust
Woburn, MA

SAMPLE (1)	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe
HB/BF/001	3.83	< 0.62	1.19	0.61	< 0.05	< 0.10	5,220	< 0.14	< 0.14	0.42	11.00
HB/BF/002	1.40	< 0.63	< 0.96	0.19	< 0.05	< 0.10	5,650	< 0.14	< 0.14	3.67	6.84
HB/BF/003	3.00	0.66	< 0.98	0.22	< 0.05	< 0.10	3,150	< 0.15	< 0.15	0.27	15.50
HB/BF/004	7.54	< 0.64	< 0.98	0.15	< 0.05	< 0.10	4,330	< 0.15	< 0.15	0.31	7.36
HB/BF/005	2.65	< 0.63	< 0.96	0.32	< 0.05	< 0.10	5,540	< 0.14	< 0.14	0.50	10.30
HB/P/001	1.47	< 0.64	< 0.99	0.98	< 0.05	< 0.10	3,540	< 0.15	< 0.15	< 0.10	5.71
HB/P/002	3.30	< 0.64	< 0.98	0.89	< 0.05	< 0.10	3,780	< 0.15	< 0.15	< 0.10	5.21
HB/P/003	11.60	< 0.65	< 1.00	2.49	< 0.05	< 0.10	6,870	< 0.15	0.20	0.22	12.30
PP/BF/001	1.84	0.61	< 0.93	0.63	< 0.05	< 0.09	4,170	< 0.14	< 0.14	0.21	6.16
PP/BF/002	5.04	< 0.61	< 0.94	0.53	< 0.05	< 0.09	7,290	< 0.14	< 0.14	0.33	11.30
PP/BF/003	2.13	< 0.64	1.18	0.45	< 0.05	< 0.10	3,670	< 0.15	< 0.15	0.96	10.00
PP/BF/004	1.81	< 0.64	< 0.98	0.51	< 0.05	< 0.10	5,640	< 0.15	< 0.15	0.26	4.43
PP/BF/005	3.37	0.62	< 0.93	0.91	< 0.05	< 0.09	6,520	< 0.14	< 0.14	0.52	7.58
PP/BF/006	1.71	< 0.61	< 0.94	0.18	< 0.05	< 0.09	2,870	< 0.14	< 0.14	0.85	6.84
PP/P/001	3.56	< 0.60	< 0.93	1.42	< 0.05	< 0.09	3,610	< 0.14	< 0.14	0.35	4.25
PP/P/002	3.31	< 0.63	< 0.97	1.11	< 0.05	< 0.10	4,860	< 0.15	< 0.15	0.22	8.20
PP/P/003	6.10	0.69	< 0.92	4.27	< 0.05	< 0.09	11,000	< 0.14	< 0.14	0.57	9.46
PP/P/004	2.53	0.70	< 0.94	3.39	< 0.05	< 0.09	10,100	< 0.14	< 0.14	0.23	7.22
PP/P/005	2.44	< 0.60	< 0.92	1.22	< 0.05	< 0.09	6,830	< 0.14	< 0.14	0.59	6.28
PP/P/006	2.40	< 0.61	< 0.94	2.63	< 0.05	< 0.09	9,980	< 0.14	< 0.14	0.34	5.27

Abbreviations: HB = Hall's Brook Holding Area; PP = Phillip's Pond. BF = Bottom Feeder;
= Forager/Predator

Appendix D5.
(continued)
Metal Concentrations Detected in Fish Tissue (Fillet)

Industri-Plex Superfund Remedial Trust
Woburn, MA

SAMPLE (1)	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
HB/BF/001	< 0.62	350.0	3.58	0.189	< 0.33	4,060	< 2.29	< 0.10	676	< 1.71	< 0.10	11.90
HB/BF/002	< 0.63	321.0	3.26	0.137	1.26	3,590	< 2.31	< 0.10	603	< 1.73	0.12	22.80
HB/BF/003	< 0.64	273.0	1.54	< 0.100	< 0.34	3,660	< 2.35	< 0.10	613	< 1.76	0.15	16.20
HB/BF/004	< 0.64	323.0	2.43	< 0.087	< 0.34	3,850	< 2.35	< 0.10	640	< 1.76	0.10	16.40
HB/BF/005	< 0.63	310.0	3.18	< 0.077	< 0.34	3,320	< 2.31	< 0.10	2,320	< 1.73	0.13	20.10
HB/P/001	< 0.64	297.0	1.08	< 0.074	< 0.35	3,380	< 2.38	< 0.10	513	< 1.78	0.18	12.90
HB/P/002	< 0.64	362.0	1.62	< 0.087	< 0.34	3,730	< 2.35	< 0.10	461	< 1.76	< 0.10	14.60
HB/P/003	0.73	382.0	2.17	< 0.083	0.48	3,280	< 2.40	< 0.10	710	< 1.80	0.36	23.20
PP/BF/001	< 0.60	313.0	1.64	< 0.069	< 0.32	3,510	< 2.22	< 0.09	624	< 1.67	< 0.09	10.70
PP/BF/002	< 0.61	403.0	2.73	< 0.071	< 0.33	3,900	< 2.26	< 0.09	597	< 1.70	0.13	15.00
PP/BF/003	< 0.64	359.0	1.93	0.122	< 0.34	3,560	< 2.35	< 0.10	597	< 1.76	0.12	14.00
PP/BF/004	< 0.64	383.0	1.73	< 0.077	< 0.34	3,570	< 2.35	< 0.10	604	< 1.76	0.17	13.80
PP/BF/005	< 0.61	397.0	2.65	< 0.071	< 0.33	3,580	< 2.24	< 0.09	430	< 1.68	0.21	15.20
PP/BF/006	< 0.61	307.0	1.97	0.309	< 0.33	3,850	< 2.26	< 0.09	462	< 1.70	< 0.09	15.90
PP/P/001	< 0.60	354.0	1.04	0.092	< 0.32	3,820	< 2.22	< 0.09	470	< 1.67	< 0.09	10.10
PP/P/002	< 0.63	351.0	1.10	0.117	< 0.34	3,170	< 2.33	< 0.10	467	< 1.75	0.15	14.80
PP/P/003	< 0.60	445.0	2.29	< 0.074	< 0.32	2,860	< 2.20	< 0.09	631	< 1.65	0.20	47.50
PP/P/004	< 0.61	462.0	2.38	< 0.077	< 0.33	3,150	< 2.26	< 0.09	569	< 1.70	0.14	21.60
PP/P/005	< 0.60	365.0	1.57	< 0.069	< 0.32	3,040	< 2.20	< 0.09	607	< 1.65	< 0.09	15.40
PP/P/006	< 0.61	423.0	3.14	< 0.067	< 0.33	3,190	< 2.26	< 0.09	643	< 1.70	< 0.09	21.60

1

Abbreviations: HB = Hall's Brook Holding Area; PP = Phillip's Pond. BF = Bottom Feeder;
P = Forager/Predator

Appendix D5.

Metal Concentrations Detected in Fish Tissue (Offal)

Industri-Plex Superfund Remedial Trust
Woburn, MA

SAMPLE (1)	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe
HB/BF/001	6.95	< 0.64	1.48	1.91	< 0.05	< 0.10	20,300	< 0.15	< 0.15	1.35	281.0
HB/BF/002	10.80	< 0.60	1.30	0.57	< 0.05	< 0.09	6,480	< 0.14	< 0.14	1.98	91.0
HB/BF/003	6.30	0.71	< 0.92	1.16	< 0.05	< 0.09	29,200	< 0.14	< 0.14	3.42	77.2
HB/BF/004	10.20	< 0.64	< 0.98	0.78	< 0.05	< 0.10	28,700	< 0.15	< 0.15	4.38	71.0
HB/BF/005	67.70	< 0.62	3.80	1.29	< 0.05	0.11	16,500	2.85	0.49	12.20	461.0
HB/P/001	6.72	0.74	< 0.93	5.78	< 0.05	< 0.09	18,300	< 0.14	< 0.14	1.72	43.0
HB/P/002	9.31	0.94	< 0.98	4.47	< 0.05	< 0.10	20,600	< 0.15	< 0.15	2.40	28.7
HB/P/003	8.57	< 0.64	1.59	1.72	< 0.05	< 0.10	4,060	< 0.15	< 0.15	1.58	122.0
PP/BF/001	323.00	0.74	< 0.95	8.10	< 0.05	0.19	16,100	8.87	0.48	5.33	630.0
PP/BF/002	74.40	0.92	< 0.97	3.12	< 0.05	< 0.10	29,200	< 0.15	< 0.15	1.88	218.0
PP/BF/003	57.30	0.79	< 0.94	4.99	< 0.05	< 0.09	24,000	0.16	< 0.14	1.76	110.0
PP/BF/004	17.30	< 0.59	< 0.91	2.01	< 0.05	< 0.09	28,100	< 0.14	< 0.14	2.87	36.6
PP/BF/005	167.00	< 0.59	0.94	4.24	< 0.05	< 0.09	24,100	< 0.14	0.16	3.41	199.0
PP/BF/006	44.50	< 0.63	< 0.96	1.21	< 0.05	< 0.10	18,300	< 0.14	< 0.14	2.43	62.5
PP/F/001	26.70	< 0.65	1.15	1.52	< 0.05	< 0.10	15,900	< 0.15	< 0.15	0.60	42.6
PP/F/002	12.60	0.75	< 0.97	1.24	< 0.05	< 0.10	16,300	< 0.15	< 0.15	0.44	32.5
PP/F/003	4.00	1.11	1.11	1.13	< 0.05	< 0.09	16,500	< 0.14	< 0.14	0.49	18.4
PP/F/004	8.01	0.74	1.04	1.36	< 0.04	< 0.09	16,500	< 0.13	< 0.13	0.55	21.7
PP/F/005	4.30	< 0.62	< 0.95	2.05	< 0.05	< 0.10	14,500	< 0.14	< 0.14	0.57	20.6
PP/P/002	5.75	< 0.60	< 0.92	5.79	< 0.05	< 0.09	23,700	< 0.14	0.16	1.36	38.4
PP/P/003	156.00	0.72	0.96	8.81	< 0.05	< 0.09	19,200	< 0.14	0.13	4.06	217.0
PP/P/004	61.90	< 0.57	< 0.88	26.10	< 0.04	< 0.09	7,460	< 0.13	0.43	1.66	110.0
PP/P/005	132.00	< 0.59	< 0.90	7.50	< 0.05	< 0.09	20,300	< 0.14	< 0.14	1.54	346.0
PP/P/006	5.20	0.71	< 0.93	6.86	< 0.05	< 0.09	27,000	< 0.14	< 0.14	0.91	35.0

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Abbreviations: HB = Hall's Brook Holding Area; PP = Phillip's Pond. BF = Bottom Feeder;
F = Forager; P = Forager/Predator

Appendix D5.
(continued)
Metal Concentrations Detected in Fish Tissue (Offal)

Industri-Plex Superfund Remedial Trust
Woburn, MA

SAMPLE (1)	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn
HB/BF/001	< 0.64	458.00	11.20	< 0.071	< 0.34	1,900.00	< 2.35	< 0.10	1,550.00	< 1.76	0.33	32.90
HB/BF/002	< 0.60	288.00	5.03	< 0.087	< 0.32	2,760.00	< 2.20	< 0.09	1,300.00	< 1.65	0.11	34.40
HB/BF/003	0.71	586.00	11.70	< 0.080	0.52	2,120.00	< 2.20	< 0.09	1,650.00	< 1.65	0.48	53.20
HB/BF/004	0.95	581.00	14.10	< 0.080	< 0.34	2,260.00	< 2.35	< 0.10	1,690.00	< 1.76	0.36	60.80
HB/BF/005	3.86	476.00	11.30	< 0.074	3.59	2,210.00	< 2.29	< 0.10	1,470.00	< 1.71	0.54	67.70
HB/P/001	< 0.60	475.00	6.95	< 0.074	< 0.32	1,790.00	< 2.22	< 0.09	1,460.00	< 1.67	0.40	68.00
HB/P/002	< 0.64	596.00	9.60	< 0.100	1.03	2,520.00	< 2.35	< 0.10	1,170.00	< 1.76	0.19	51.60
HB/P/003	< 0.64	304.00	6.26	< 0.095	< 0.34	2,630.00	< 2.35	< 0.10	1,410.00	< 1.76	0.25	62.40
PP/BF/001	4.76	539.00	60.10	< 0.067	0.66	2,290.00	< 2.29	< 0.10	1,880.00	< 1.71	1.33	54.60
PP/BF/002	1.29	659.00	12.50	< 0.100	< 0.34	2,120.00	< 2.33	< 0.10	1,920.00	< 1.75	0.73	38.60
PP/BF/003	1.45	600.00	16.30	< 0.077	< 0.33	2,130.00	< 2.26	< 0.09	1,900.00	< 1.70	0.60	37.90
PP/BF/004	0.87	643.00	8.79	< 0.059	0.53	1,910.00	< 2.18	< 0.09	1,710.00	< 1.64	0.34	44.60
PP/BF/005	1.74	635.00	13.70	< 0.091	< 0.32	1,880.00	< 2.18	< 0.09	1,350.00	< 1.64	0.81	41.10
PP/BF/006	< 0.63	482.00	11.80	< 0.080	< 0.34	2,250.00	< 2.31	< 0.10	1,320.00	< 1.73	0.25	31.70
PP/F/001	< 0.65	546.00	5.45	< 0.074	< 0.35	3,160.00	< 2.40	< 0.10	1,370.00	< 1.80	0.33	60.40
PP/F/002	< 0.63	526.00	5.39	< 0.100	< 0.34	2,840.00	< 2.33	< 0.10	1,330.00	< 1.75	0.25	48.90
PP/F/003	0.67	557.00	6.33	< 0.083	< 0.32	3,110.00	< 2.18	< 0.09	1,230.00	< 1.64	0.56	43.60
PP/F/004	0.58	537.00	4.21	< 0.080	< 0.31	3,010.00	< 2.12	< 0.09	1,320.00	< 1.59	0.33	55.60
PP/F/005	< 0.62	457.00	3.97	< 0.080	< 0.33	2,550.00	< 2.29	< 0.10	1,200.00	< 1.71	0.25	49.20
PP/P/002	< 0.60	692.00	7.57	0.107	< 0.32	2,510.00	< 2.20	< 0.09	1,580.00	< 1.65	0.47	42.20
PP/P/003	1.56	602.00	8.02	< 0.077	< 0.32	1,990.00	< 2.18	< 0.09	1,560.00	< 1.64	0.84	49.80
PP/P/004	0.75	356.00	12.40	< 0.080	< 0.31	1,920.00	< 2.11	< 0.09	1,180.00	< 1.58	0.30	53.80
PP/P/005	1.44	581.00	57.20	< 0.071	< 0.32	2,120.00	< 2.16	< 0.09	1,710.00	< 1.62	0.89	53.40
PP/P/006	0.73	672.00	10.00	< 0.077	< 0.33	1,840.00	< 2.24	< 0.09	1,540.00	< 1.68	0.41	51.70

Abbreviations: HB = Hall's Brook Holding Area; PP = Phillip's Pond. BF = Bottom Feeder;
F = Forager; P = Forager/Predator

APPENDIX D6

Ecological Assessment:
Exposure Parameters and Example Calculation

APPENDIX D6

Ecological Assessment

Exposure Parameters

ARSENIC

Properties and Uses

Arsenic (As), in its rare elemental form (As^o), is a gray metal that is insoluble in water. Arsenic more commonly exists as a sulfide compound in sulfur-containing ores. Both the natural weathering of these ores and the smelting of them produce arsenic trioxide (As_2O_3), a white powdery substance, which is the principal starting material for most other arsenic compounds.

Agricultural applications, such as herbicides, insecticides, pesticides, and sheep dips, are among the major uses of arsenic. Arsenic is also used in desiccants, wood preservatives, glass manufacturing, and in medical and veterinary applications.

Presence in the Environment

Arsenic is found extensively in nature. Seawater and freshwater, soil, air, and living organisms all contain arsenic compounds. Arsenic is the 20th most abundant element in Earth's crust and the 12th most abundant element in the human body.

Worldwide, approximately 75,000 to 100,000 tons of arsenic are produced each year, most of it (97%) as As_2O_3. The United States contributes in the neighborhood of 21,000 tons to global production, all of which comes from a copper smelter in Tacoma, Washington. The U.S. consumes about 44,000 tons, much of it for agriculture purposes. Although arsenic is mobilized through the weathering of rocks and soil, human activities contribute about three times that amount. Arsenic is in a state of constant change in the environment. While anthropogenic sources sometimes create locally high concentrations of arsenic, these sources have not altered its overall biogeochemical cycle.

Ecological Toxicology

Arsenic enters the atmosphere primarily from three sources: industrial smelters, coal-fired power plants, and pesticides. Atmospheric deposition and surface runoff introduce arsenic into aquatic environments where may exists in both inorganic and organic forms. The pH,

oxygen content, organic composition, and other physical and chemical properties of the water body influence which arsenic compounds form, and this, in turn, determines the availability of arsenic to aquatic organisms.

Aquatic organisms accumulate arsenic from the surrounding water; however, arsenic does not increase in concentration with each new link of a food chain (a process called biomagnification). For example, in a freshwater foodchain that progressed from algae to daphnids, to fish, the concentration of arsenic steadily decreased from the first link in the chain, the algae, to the last link, the fish.

Water concentrations as low as 19 μg/l have been shown to have adverse effects on aquatic species. Among the most sensitive species tested were the developing embryos of the narrow-mouthed toad (*Gastrophryne carolenensis*) and the freshwater alga (*Scenedesmus obliquus*). In the case of *G. carolenensis*, a 7-day exposure of 40 μg As^{+3}/l resulted in 50% death or malformation of embryos. Growth of *S. obliquus* was inhibited 50% following 14 days in 48 μg As^{+5}/l.

Accidental arsenic poisoning of domestic animals is not uncommon, although arsenic poisoning of wildlife is rare[1]. Like aquatic organisms, terrestrial organisms may also obtain arsenic from the environment, but the arsenic is not biomagnified.

Toxic Effects

In general, inorganic compounds of arsenic are more toxic than the organic forms. Of the inorganic forms, the trivalent ($^{+}3$) species is more toxic the pentavalent ($^{+}5$) form. As^{+3} causes toxic effects through enzyme inhibition, which is generally a result of the interactions with the sulfhydryl groups (sulfur-containing amino acids) of proteins.

Arsenic absorbtion can occur by ingestion, inhalation, or through the skin or mucous membranes; however, most of the arsenic absorbed is excreted in the urine in less than a week.

[1]Eisler, Ronald. 1988. Arsenic Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Fish and Wildlife Service, Biological Report 85(1.12). 92 pp.

Arsenic metabolism differs considerably among species. Arsenic poisoning may affect respiratory, gastrointestinal, cardiovascular, or hematopoietic (blood-producing) systems. The route of exposure, dose, and form of arsenic influence the outcome of arsenic exposure. In some cases the effects are completely reversible following removal of arsenic. In more serious episodes, adverse health effects include fetal abnormalities, growth inhibition, cancer (in humans), and death.

In contrast to the toxic effects of arsenic, a dietary deficiency in rats, pigs, and goats was associated with metabolic disorders. Rats, for example, exhibited rough haircoat and fragile red blood cells, and pigs and goats suffered higher neonatal mortality and reduced reproductive capacity.

Regulatory Values

EPA has established the following ambient water quality criteria for arsenic: 4-day mean water concentration not to exceed 190 μg total recoverable inorganic As^{+3}/l more than once every 3 years[2].

[2]EPA. 1985. Ambient water quality criteria for arsenic - 1984. U.S. Environmental Protection Agency Rep. 440/5-84-033. 66 pp.

of vanadium and chromium for the growing

Regulatory Values

EXAMPLE CALCULATION

Ingestion of Arsenic in Sediment

$$\text{Chronic Daily Intake (mg/kg/day)} = \frac{(CS)\ (IR)\ (CF)\ (FI)\ (EF)\ (ED)\ (AF)}{(BW)\ (AT)}$$

where,

CS	=	Chemical Concentration in Soil (mg/kg)	= 1754.8 mg/kg
IR	=	Ingestion Rate (mg soil/day)	= 11.2×10^3 mg/day
CF	=	Conversion Factor (kg/mg)	= 10^{-6} kg/mg
FI	=	Fraction Ingested from Contaminated Source unitless)	= 0.5
EF	=	Exposure Frequency (days/years)	= 90 days/yr
ED	=	Exposure Duration (years)	= 3 years
AF	=	Availability Factor (unitless; fraction available for absorption from intestine)	= 0.11
BW	=	Body Weight (kg)	= 1.18 kg
AT	=	Averaging Time (period over which exposure is averaged -- days)	= 3 years X 365/yr

$$\frac{459.7\,mg/kg \times 11.2 \times 10^3 mg/d \times 10^{-6} kg/mg \times 0.5 \times 90 d/yr \times 3 yr \times 0.11}{1.18\,kg \times (3yr \times 365\,d/yr)} = 5.92E\text{-}02$$

Hazard Quotient for Arsenic

$$\frac{\textit{Chronic Daily Intake}}{\textit{Reference Dose}} \qquad \frac{5.92 \times 10^{-2} mg/kg\text{-}d}{1.27\,mg/kg\text{-}d} = 4.66E\text{-}02$$

the age of an organism. Physical factors, including water temperature, pH, salinity, alkalinity, and presence of other contaminants also affect chromium's toxicity, in some cases by an order of magnitude or more. Although aquatic organisms accumulate chromium from the surrounding water, chromium does not become more concentrated, or biomagnify, in successive links of the foodchain.

The most sensitive freshwater organisms tested, as measured by 96-hour 50% lethal concentration (LC-50) values, were crustaceans and rotifers. Molluscs and fish (including mud skipper, rainbow trout, salmon fingerlings, goldfish, bluegill, fathead minnow, and striped bass) were affected at higher concentrations[1]. The toxicity of Cr^{+6} was greater in water that were low in pH, total alkalinity, and total hardness. Soft water and low pH also increased the toxicity of Cr^{+3}.

In a study of male chickens fed up to 100 parts per million (ppm) Cr^{+6} in their diet, no adverse effects on survival or growth were observed after 32 days of exposure[2]. In general, Cr^{+3} compounds do not have toxic effects on birds and mammals. However, ducklings of the American black duck (*Anas rubripes*) showed reduced growth and survival after being fed diets that contained 10 to 50 ppm Cr^{+3}.

Although Cr^{+6} is more toxic to mammals than Cr^{+3}, water solubilized Cr^{+3} is causally associated with cancers and skin dermatitis in workers of the chromate industry, and is toxic to rabbits.

Toxic Effects

In general Cr^{+6} is more toxic to freshwater organisms, birds, and mammals than Cr^{+3}, and younger organisms are more susceptible than older organisms.

Cr^{+6} is associated with such adverse health effects as abnormal enzyme activity, altered blood chemistry, lowered resistance to infection, behavioral changes, and eating disorders. Chromium toxicity in general causes reduced growth, reproduction, and survival.

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[1]Eisler, Ronald. 1988. Chromium Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Fish and Wildlife Service, Biological Report 85(1.6) 60 pp, Table 4.

[2]Rosomer, G.L., W.A. Dudley, L.J. Machlin, and L. Loveless. 1961. *Toxicity of vanadium and chromium for the growing chick*. Polt. Sci. 40:1171-1173.

Regulatory Values

The United States Environmental Protection Agency has proposed a chromium criterion of

EXAMPLE CALCULATION

Ingestion of Arsenic in Sediment

$$\text{Chronic Daily Intake (mg/kg/day)} = \frac{(CS)\,(IR)\,(CF)\,(FI)\,(EF)\,(ED)\,(AF)}{(BW)\,(AT)}$$

where,

CS	=	Chemical Concentration in Soil (mg/kg)	= 1754.8 mg/kg
IR	=	Ingestion Rate (mg soil/day)	= 11.2×10^3 mg/day
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BW	=	Body Weight (kg)	= 1.18 kg
AT	=	Averaging Time (period over which exposure is averaged -- days)	= 3 years X 365/yr

$$\frac{459.7\,mg/kg \times 11.2 \times 10^3\,mg/d \times 10^{-6}\,kg/mg \times 0.5 \times 90\,d/yr \times 3\,yr \times 0.11}{1.18\,kg \times (3\,yr \times 365\,d/yr)} = 5.92E\text{-}02$$

Hazard Quotient for Arsenic

$$\frac{\textit{Chronic Daily Intake}}{\textit{Reference Dose}} \qquad \frac{5.92 \times 10^{-2}\,mg/kg\text{-}d}{1.27\,mg/kg\text{-}d} = 4.66E\text{-}02$$

LEAD

Properties and Uses

Lead is a soft metal with a low melting point. When cut, lead has a light gray color but tarnishes after exposure to air. Lead is slightly soluble in water that contains nitrates, ammonium salts, or carbon dioxide.

Inorganic and organic lead compounds have had many commercial and industrial uses. Some of the more common ones include storage batteries, piping, tank linings, pigments for paints and varnishes, additives to gasoline, components of hair dyes, coatings on dishes, and ammunition.

Presence in the Environment

Although the toxic nature of lead has been recognized for thousands of years, lead is still in widespread use. Over four million metric tons of lead are processed worldwide each year, with the United States leading in mining and refining. Environmental pollution from lead-containing products such as batteries, paint, and gasoline have raised the body burdens in the general human population.

Wild and domestic animals feeding near sources of lead, such as busy roads or lead smelters, or confined to pens painted with lead-based paint, often suffer from lead toxicity. The main threat to wildlife, however, comes from ingestion of lead shot. Two to three percent of all North American waterfowl (approximately two million ducks and geese) die each year from lead poisoning as a result of the ingestion of lead shot. The decline of the mottled duck (*Anas fulvigula*) population along the Gulf Coast[1] may be the result of lead shot ingestion. The U.S. Fish and Wildlife Service promoted laws aimed at reducing these losses by requiring hunters to use nontoxic steel shot instead of lead. The application of these laws began in 1978. By the mid 1980s compliance was estimated at over 50%.

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[1]Merchant, M.E., Shukla, S.S. and Akers, H.A. 1991. *Lead Concentrations in Wing Bones of the Mottled Duck*, Environ. Tox. and Chem., 10:1503-1507.

Ecological Toxicology

Elevated concentrations of lead occur in air, land, and water.

Lead enters the environment through sources such as vehicle and smelter emissions. In soils, lead tends to concentrate in surface layers. Soils near busy highways also accumulate significant amounts of lead.

Lead can enter aquatic environments from stormwater drainage, industrial and municipal discharges, weathering of naturally-occurring lead deposits, and atmospheric deposition. Much of the lead that enters a waterbody is bound to suspended sediment, which eventually ends up in the bottom sediments. Sediments represent the largest global depository of lead.

Ecosystems near lead sources, such as mines, smelters, storage battery recycling plants, or hunting areas, accumulate more lead than other areas. Lead will accumulate over time in organisms, the bony tissues of older organisms contain more lead than younger age groups. Certain groups of animals have been identified as having an increased risk for lead exposure. These include birds of prey that feed on animals wounded with lead shot and migratory waterfowl that spend time foraging in hunting areas. Wildlife near lead sources also have an increased risk.

Although lead accumulates in organisms over time, it does not biomagnify (an increase in the concentration of a toxic chemical in each new link of a food chain). In a freshwater food chain, for example, lead concentrations progressively decreased from algae, to a daphnid that grazed on the algae, to guppies that fed on the latter[2].

Lead is poorly translocated in plant tissue. Lead that is taken up through roots or by absorption through foliage will be more concentrated in the oldest parts of the plant. Lead appears to affect plant growth but does not adversely affect the portions of a plant where it accumulates.

In aquatic environments near lead sources, algae and benthic organisms (bottom dwellers) will accumulate more lead than other organisms, such as tadpoles and other amphibians. Among semi-aquatic organisms, waterfowl are more susceptible to high lead exposure,

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[2]Vighi, M. 1981. Lead uptake and release in an experimental trophic chain. Exotoxicol. Environ. Safety 5:177-193.

because these birds eat lead shot and hold it in their gizzard for grit. While in the gizzard, the shot dissolves, releasing soluble lead which is absorbed from the digestive tract. For some species of birds, ingestion of a single lead pellet can cause death[3].

Toxic Effects

Organolead compounds, such as those released in gasoline emissions, are more toxic than inorganic lead[4]. The adverse effects of lead include reduced survival, impaired growth, reproduction, and development, and metabolic dysfunction. Immature organisms are most susceptible to these effects.

In experiments using the adult leopard frog (*Rana pipiens*), lead poisoning caused the sloughing of integument, decreased muscle tone, reduced numbers of red and white blood cells, and the wearing away of the gastric mucosa. Waterfowl that have ingested lead shot generally die within two to three weeks. The birds become less active, tend to isolate themselves from other birds, and are more vulnerable to predation.

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[3]Eisler, Ronald. 1988. Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Fish and Wildlife Service, Biological Report 85(1.14). 134 pp.

[4]Baudo, R., Giesy, J. and Muntau, H. 1990. Sediments: Chemistry and Toxicity of In-Place Pollutants, p. 193. Lewis Publishers, Inc., Chelsea, Michigan.

EXAMPLE CALCULATION

Ingestion of Arsenic in Sediment

$$\text{Chronic Daily Intake (mg/kg/day)} = \frac{(CS)\ (IR)\ (CF)\ (FI)\ (EF)\ (ED)\ (AF)}{(BW)\ (AT)}$$

where,

CS	=	Chemical Concentration in Soil (mg/kg)	= 1754.8 mg/kg
IR	=	Ingestion Rate (mg soil/day)	= 11.2 x 10^3 mg/day
CF	=	Conversion Factor (kg/mg)	= 10^{-6} kg/mg
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BW	=	Body Weight (kg)	= 1.18 kg
AT	=	Averaging Time (period over which exposure is averaged -- days)	= 3 years X 365/yr

$$\frac{459.7\,mg/kg\ x\ 11.2\ x\ 10^3 mg/d\ x\ 10^{-6} kg/mg\ x\ 0.5\ x\ 90 d/yr\ x\ 3yr\ x\ 0.11}{1.18 kg\ x\ (3yr\ x\ 365 d/yr)} = 5.92E\text{-}02$$

Hazard Quotient for Arsenic

$$\frac{Chronic\ Daily\ Intake}{Reference\ Dose} \qquad \frac{5.92\ x\ 10^{-2} mg/kg\text{-}d}{1.27\,mg/kg\text{-}d} = 4.66E\text{-}02$$

APPENDIX D6

Ecological Assessment

Example Calculation

EXAMPLE CALCULATION

Ingestion of Arsenic in Sediment

$$\text{Chronic Daily Intake (mg/kg/day)} = \frac{(CS)\ (IR)\ (CF)\ (FI)\ (EF)\ (ED)\ (AF)}{(BW)\ (AT)}$$

where,

CS	=	Chemical Concentration in Soil (mg/kg)	= 1754.8 mg/kg
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AF	=	Availability Factor (unitless; fraction available for absorption from intestine)	= 0.11
BW	=	Body Weight (kg)	= 1.18 kg
AT	=	Averaging Time (period over which exposure is averaged -- days)	= 3 years X 365/yr

$$\frac{1754.8\,mg/kg\ x\ 11.2\ x\ 10^3 mg/d\ x\ 10^{-6} kg/mg\ x\ 0.5\ x\ 90 d/yr\ x\ 3 yr\ x\ 0.11}{1.18 kg\ x\ (3yr\ x\ 365 d/yr)} = 2.26E\text{-}01$$