Attachment 5
Data Validation

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Letter of Transmittal

Geotechnical Engineers &
Environmental Consultants

	Labella Associates P.C.	Date	24 March 1994
	300 State Street Suite 201	File Number	70475-40
	Rochester, New York 14614-1003	Subject	Re-Submittal
Attention	Steve Campbell		Data Validation Report

No.	Date	Description
1	7 March 94	Data Validation of Consolidated Freightways Sample Analysis Data Package

Remarks

Denis M. Conley

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Geotechnical Engineers &
Environmental Consultants

7 March 1994
File No. 70475-40

Labella Associates P.C.
300 State Street Suite 201
Rochester, New York 14614-1003

Attention: Steve Campbell

Subject: Data Validation of Consolidated Freightways
Sample Analysis Data Package
Recra Environmental, Inc. Case #3584

Ladies and Gentlemen:

This letter presents the data validation of the Recra Environmental, Inc. Case #3584 analytical laboratory report. The data package contains analysis results for one sample delivery group (SDG) received by the laboratory on 10 November 1993. The SDG consists of seven (7) soil boring samples, one (1) surface water sample and associated quality assurance samples.

The analytical data was evaluated for compliance with the New York State Department of Environmental Conservation (NYSDEC) "Analytical Services Protocol", revised 12/91, quality control/quality assurance requirements. Guidance for the review was provided by the "Functional Guidelines for Evaluating Organic and Inorganic Analyses", USEPA, 1988.

Generally, the data package was found to be compliant in content and format with NYSDEC ASP 91 Category B deliverables and the data is useable. Qualifiers have been assigned to a limited number of values and should be considered in using the data. There was one omission of an instrument calibration record. The missing record was requested and received by facsimile from Mr. Richard Orlowski of Recra Environmental, Inc. on 3 March 1993. The facsimile is attached with the summary of the validation findings.

Recommended corrective actions for use of the data presented in the package include flagging selected data with qualifiers. We have included your data summary table with this letter, hand-marked to show appropriate qualifiers.

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Gaithersburg, Maryland
Silver Spring, Maryland
Cleveland, Ohio

Thank you for asking our assistance with this project. If you have any questions or need further assistance, do not hesitate to contact us.

Sincerely,
H&A OF NEW YORK

Denis M. Conley
Senior Scientist

Vincent B. Dick
Vice President

Attachments

DMC:VBD:\wpdoc\labdvr.wp

LABORATORY DATA VALIDATION

The results for the analysis of subsurface soils and surface water collected as part of the Phase II Investigation conducted by LaBella Associates at the Consolidated Freightways Facility in November 1993 is contained in one sample delivery group and laboratory data report. Sample analysis and report preparation were performed by Recra Environmental, Inc. of Amherst, NY.

Each sample analysis conducted as part of the Phase II Investigation was performed in compliance with protocols as prescribed by the "Analytical Services Protocol" (ASP), revised 12/91, New York Department of Environmental Conservation, Bureau of Technical Services and Research. The data package contains chain of custody documents, analytical report forms, site specific quality assurance/quality control and sample preparation and analysis raw data. This data validation report reviews each sample analysis for compliance with ASP (12/91) protocols for method-specific and project-specific Quality Assurance/Quality Control (QA/QC) requirements including:

- Holding Times
- Instrument Calibration Requirements
- Instrument Tuning Procedures (GC/MS only)
- Surrogate Recoveries (where applicable)
- Internal Standard Recoveries (where applicable)
- Laboratory Control Sample Results
- Matrix Spike/Matrix Spike Duplicate Analyses
- Method Blank Sample Analyses
- Target Compound/Analyte Quantitation Procedures

Guidance for the evaluation of the laboratory results was provided from the "Functional Guidelines for Evaluating Organic and Inorganic Analyses", USEPA, Hazardous Site Evaluation Division. 1988. Any deviation from NYSDEC ASP (12/91) analytical protocol data quality objectives is noted. Each non-compliant QA/QC result is evaluated for the effect of the anomaly on the analytical data reported and the reviewer's opinion is provided for corrective actions to be taken by the laboratory or data user.

A. HOLDING TIME COMPLIANCE

Each project sample was analyzed for volatile organic compounds (VOCs) by NYSDEC ASP Method 91-1 within seven (7) days of verified time of sample receipt (VTSR), as required by NYSDEC ASP (12/91), without exception.

Project samples analyzed for semi-volatiles organic compounds (SVOCs) and Pesticides/PCBs by NYSDEC ASP 91-2 and 91-3 were extracted within 5 days and analyzed within 40 days of VTSR, as required by NYSDEC ASP 12/91 protocol, without exception.

Project samples analyzed for inorganic parameters, including mercury by cold-vapor atomic absorption and cyanide by distillation/UV-VIS spectrophotometry, were prepared within 26 and 14 days of sample collection respectively, as required by NYSDEC ASP 12/91, without exception.

B. INSTRUMENT CALIBRATION PROCEDURES

Volatiles Analysis
Combined Gas Chromatograhy/Mass Spectrometry (GC/MS) instruments used for VOCs analysis by NYSDEC ASP 91-1 was calibrated with Standard Reference Materials (SRM) at concentrations of 10, 20, 50, 100, 200 parts per billion respectively. Continuing calibration standards at 50 ppb were analyzed every twelve (12) hours to confirm the initial calibration curve. The relative response factor (RRF) and minimum detector response factors of each calibrant monitored met NYSDEC ASP 12/91 requirements without exception.

Semi-Volatiles Analysis
GC/MS instruments used for SVOCs analysis by NYSDEC Method 91-2 were calibrated with SRMs at concentrations of 20, 50, 80 120, 160 parts per billion. Continuing calibration standards at 50 ppb were analyzed every twelve hours. RRF and minimum detector response met NYSDEC ASP 12/91 requirements for each monitored compound without exception.

Pesticides/PCBs Analysis
Pesticide/PCBs analysis of project samples was performed on a HP5890 gas chromatograph equipped with a dual column split injector. Calibration sequences for each analytical column was monitored for relative retention time (RRT), peak resolution, and linear detector response. Columns included a DB608 and DB-1701 megabore (0.53um) capillary manufactured by J&W Scientific. RRT and calibration factors for each single and multicomponent pesticide/aroclor met relative standard deviation (RSD) criteria as specified by NYSDEC ASP 91, without exception.

Continuing calibration sequences were performed in accordance with methodology requirements. DDT and endrin breakdown %, RRT, and the standard recovery precision (RPD) measurements met NYSDEC ASP 91 criteria with one exception. Endrin breakdown in the continuing calibration sample analyzed at 2310 12/01/93 exceeded NYSDEC ASP 91 criteria. Since endrin was not detected in associated project samples, none of the reported results was affected. The anomaly was noted in the laboratory Case Narrative and no further corrective action is recommended.

Inorganics/Metals and Cyanide Analysis

Initial calibration and continuing calibration of each target analyte was performed in accordance with analytical method specifications. The percent recovery and relative percent difference (RPD) calculated for each analyte measured fell within NYSDEC ASP 91 acceptance criteria without exception.

C. INSTRUMENT TUNING PROCEDURES

GC/MS instruments used in the analysis of project samples for VOCs and SVOCs were tuned with Bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP) every twelve hours of operation. Intrument tunings met NYSDEC ASP 91 criteria without exception.

D. SURROGATE COMPOUND RECOVERIES

Surrogate compounds were added to project sample aliquots as per the analytical protocols for the analysis of VOCs, SVOCs and Pesticides/PCBs. Calculated recovery of each surrogate compound was within NYSDEC ASP 91 QA/QC requirements with two exceptions. Surrogate terphenyl-d14 (TPH) exhibited high recoveries during the analysis of sample BW#3 and BW#4. Each sample was reanalyzed with similarly high recoveries. Target analytes detected in the samples were flagged "J" as estimated concentrations below the practical quantitation limit (PQL) and the case narrative indicated that a matrix effect was observed, no further corrective action is recommended.

Generally, the consistent high recovery indicates that the sample extraction procedure was performed correctly and the total ion chromatogram (TIC) indicates that the matrix interference was due to non-target compound contaminants (hydrocarbons). The data as presented is acceptable as estimated concentrations. The satifactory recovery of surrogate compounds in the remaining project samples indicates that each analysis performed was within acceptable quality control and no matrix problems interfered with the detection of target analytes within the project samples.

E. INTERNAL STANDARD RECOVERIES

Internal standard (IS) compounds were used in the quantitation of target compounds detected within project samples for VOCs and SVOCs analysis using NYSDEC ASP Methods 91-1 and 91-2. The recovery of each IS fell within method specific QA/QC requirements with a few exceptions. Low recovery of Perylene-d12 and Chysene-d12 during SVOCs analysis by NYSDEC ASP Method 91-2 within samples BW#1, BW#3, BW#4, B#5MS, and B#5MSD was observed and noted in the laboratory Case Narrative. Based on the evaluation of the TIC, the apparent low recovery was due to the presence of non-target compounds (hydrocarbons) in the sample matrix. The concentration reported for each target analyte detected which used these internal standards for quantitation should be considered estimated. Each sample result should be flagged "J" in summary data tables and/or graphical depictions of the laboratory results. For each additional sample analysis, acceptable recovery of each IS indicates that reported concentrations of detected target analytes were correct for each project sample analyzed and can be utilized without qualification.

F. LABORATORY CONTROL SAMPLE ANALYSES

Laboratory control samples (LCS) for inorganic parameters and matrix spike blanks (MSB) for organic parameters were analyzed concurrently with each batch of project samples to assess analytical accuracy. LCS/MB target compounds included each parameter prescribed by the analytical method performed. The calculated recovery of each LCS/MSB parameter fell within NYSDEC ASP 91 QA/QC acceptance criteria without exception. Acceptable MSB analyses indicate that the analytical instruments and system were under control at the time project samples were analyzed by the laboratory.

G. MATRIX SPIKE AND MATRIX SPIKE DUPLICATE ANALYSES

Matrix spike and matrix spike duplicate (MS/MSD) analyses were performed for each analytical method and sample matrix as part of the Phase II Investigation. MS/MSD target analytes and acceptance limits were prescribed by the respective analytical protocols. Calculated recovery for MS/MSD target analytes for VOCs, inorganic and conventional parameters fell between 80 and 120% of true value while calculated recovery for SVOCs showed a greater variance ranging from 20 - 110 %. Each calculated recovery fell within NYSDEC ASP 91 criteria with one exception. 4-Nitrophenol was recovered at 91 % of true value which is above the NYSDEC ASP 91 criteria of 80%. The high recovery is most likely due to the use of liquid/liquid extraction techniques which provide better recovery of acid extractable compounds. No corrective action is recommended.

Replicate percent difference (RPD) calculations of MS analyte recoveries was performed to establish the repeatability of the results reported. The calculated RPD fell within NYSDEC ASP 91 precision QA/QC limits without exception. The precision data indicates that the laboratory procedures used to prepare and analyze the project samples were uniformly applied and that the reported results are representative of sample conditions.

H. METHOD BLANK SAMPLE ANALYSES

Method blank samples were analyzed concurrently with each batch of project samples analyzed for each target analyte as prescribed by the analytical method. Target analytes were not detected in method blank samples with two exceptions. During VOCs analysis by NYSDEC ASP 91 Method 91-1, chlorobenzene was detected in sample VBLK 13 at a concentration of 0.9 ppb. Associated projects samples analyzed concurrently included BW#1, BW#2, BW#3, BW#4, BW#5, BW#6 and BW#5 MS/MSD. Detection of chlorobenzene in these samples at a concentration below 9.0 ppb (10X the blank detection) should be flagged "B" and considered a result of laboratory contamination and not indicative of site conditions. Bis (2-ethylhexyl) phthalate (BIS2EHP) was detected in sample SBLK05 at a concentration of 70 ppb. Each project sample was extracted and analyzed in the same batch. Detected concentrations of BIS2EHP in any project samples at a concentration below 700 ppb (10X the blank detection) should be flagged "B" as a laboratory contaminant not indicative of site conditions.

I. TARGET COMPOUND/ANALYTE QUANTITATION PROCEDURES

Target compounds detected in the samples were identified and quantified following method-specified procedures without exception. SVOCs and VOCs analysis by GC/MS were identified by mass spectral characteristics and quantified using internal standard techniques. A spot check of representative sample results indicated that the procedures were performed in accordance with NYSDEC ASP 12/91 protocols.

Pesticides/PCBs target compounds detected in the project samples were identified by retention time confirmations on dissimilar columns. Quantitation was performed on the primary column using external calibration factors based on total area detector response. The reported concentrations of target analytes detected on each column fell within the NYSDEC ASP 12/91 acceptance criteria of +/-15% with two exceptions. Aroclor-1254 detected in samples BW#4 and BW#6 exhibited variable concentrations on the two analytical columns. In each case, the lower quantified result was reported. The laboratory flagged the results with a "P" to indicate this anomaly. The "P" qualifier should be added to summaries and/or graphical depictions of the data.

Inorganic parameters detected in the project samples were identified by atomic emission and atomic or UV-VIS absorption characteristics. Quantitation was performed using linear calibration curves bracketing the detected analyte concentrations. A spot check of representative sample results indicated that the concentrations were determined in compliance with NYSDEC ASP 12/91 protocols without exception.

J. SUMMARY

The analytical laboratory data generated as part of the Phase II Investigation at the Consolidated Freightways Facility included several precision and accuracy QA/QC analyses of laboratory procedures. Generally, the QA/QC analyses performed met and/or exceeded method-specific and project-specific data quality objectives as defined by NYSDEC "Analytical Services Protocol", revised 12/91. Based on this review, the analytical data is representative of site conditions at the time the samples were collected with the exception of the items listed above. These items are:

- SVOCs detected in Sample BW#6 should be flagged "J" as estimated.
- Aroclor 1254 detections in samples BW#4 and BW#6 should be flagged "P" for potentially low quantitation.
- Detections of Chlorobenzene and Bis (2-EH) phthalate below thresholds should be flagged "B" as detected in the associated method blank.

DMC:M:\wpdoc\labellad.wp

TRANSMITTAL INFORMATION SHEET

DATE: 3/2/94

The follcwing pages are for:

NAME: MR. Dennis Conley

FIRM: H + A of New York

ADDRESS: _____

_____

_____

FAX NUMBER: (716) 232-6768

FROM: R. Orlowski

SPECIAL INSTRUCTIONS: Initial Calibration Data

_____

_____

_____

_____

Total number of pages _____(including information sheet).

If you have any problems during the transmission of these documents, please call (716) 691-2600, extension_____.

RECRA ENVIRONMENTAL INC.

Telephone: (716) 691-2600

Fax No: (716) 691-3011

Audubon Business Centre • 10 Hazelwood Drive • Amherst New York 14228-2298 • (716) 691-2600

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: RECRA ENVIRON Contract: NY93-584

La Code: RECNY Case No.: 3935 SAS No.: _____ SDG No.: BW1

Instrument ID: I50Y Calibration Date(s): 11/09/93 11/09/93

Calibration Times: 1732 2051

I B FILE ID: RRF20 = 15678Y RRF50 = 15675Y
RRF80 = 15679Y RRF120= 15677Y RRF160= 15676Y

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
D ethylphthalate	1.747	1.667	1.443	1.524	1.540	1.584	7.7
4 Chlorophenyl-phenylether *	0.826	0.810	0.742	0.774	0.812	0.793	4.3*
Fluorene *	1.575	1.537	1.289	1.160	1.222	1.357	13.9*
4-Nitroaniline		0.519	0.532	0.559	0.631	0.560	8.9
4 6-Dinitro-2-Methylphenol		0.209	0.225	0.231	0.261	0.232	9.4
N-Nitrosodiphenylamine (1)	0.766	0.679	0.660	0.637	0.686	0.686	7.1
4-Bromophenyl-phenylether *	0.288	0.286	0.269	0.258	0.282	0.277	4.6*
H xachlorobenzene *	0.338	0.316	0.308	0.299	0.315	0.315	4.6*
P ntachlorophenol *		0.190	0.192	0.191	0.212	0.196	5.4*
Phenanthrene *	1.469	1.359	1.160	1.153	1.202	1.269	11.0*
A thracene *	1.492	1.402	1.251	1.217	1.249	1.323	9.1*
C rbazole	1.447	1.314	1.209	1.184	1.356	1.302	8.3
Di-n-Butylphthalate	1.918	1.848	1.627	1.658	1.815	1.773	7.1
Fluoranthene *	1.469	1.387	1.176	1.182	1.266	1.296	9.9*
P rene *	1.439	1.351	1.128	1.188	1.284	1.278	9.7*
B tylbenzylphthalate	0.783	0.737	0.735	0.746	0.794	0.759	3.6
3,3'-Dichlorobenzidine	0.521	0.487	0.499	0.482	0.456	0.489	4.9
B nzo(a)Anthracene *	1.331	1.212	1.099	1.098	1.159	1.180	8.2*
C rysene *	1.296	1.224	1.166	1.161	1.229	1.215	4.5*
Bis(2-Ethylhexyl)Phthalate	1.155	1.154	1.169	1.261	1.385	1.225	8.2
Di-n-Octyl Phthalate	1.905	1.810	1.775	1.693	1.851	1.807	4.4
B nzo(b)Fluoranthene *	1.187	1.123	1.121	1.214	1.120	1.153	3.9*
B nzo(k)Fluoranthene *	1.263	1.173	1.065	0.981	1.191	1.135	9.8*
Benzo(a)Pyrene *	1.156	1.127	1.044	1.000	1.058	1.077	5.9*
I deno(1,2,3-cd)Pyrene *	0.930	0.970	0.845	0.938	0.834	0.903	6.7*
D benz(a,h)Anthracene *	1.029	1.016	0.885	0.852	0.871	0.931	9.1*
Benzo(g,h,i)Perylene *	0.991	1.015	0.858	0.843	0.893	0.920	8.5*
N trobenzene-d5 *	0.545	0.513	0.496	0.490	0.558	0.520	5.8*
2-Fluorobiphenyl *	1.352	1.372	1.155	1.177	1.258	1.263	7.8*
Terphenyl-d14 *	1.159	1.083	0.955	0.969	1.004	1.034	8.3*
P enol-d5 *	2.436	2.237	2.226	2.237	2.482	2.324	5.4*
2 Fluorophenol *	1.536	1.336	1.354	1.369	1.479	1.415	6.2*
2,4,6-Tribromophenol	0.267	0.288	0.259	0.268	0.271	0.271	3.9
2-Chlorophenol-d4 *	1.745	1.747	1.707	1.720	1.971	1.778	6.1*
1 2-Dichlorobenzene-d4 *	1.044	1.019	0.907	0.892	0.937	0.960	7.1*

* Compounds with required minimum RRF and maximum %RSD values.
11 other compounds must meet a minimum RRF of 0.010.

Table 1
Consolidated Freightways Subsurface Soil Boring Investigation
Analytical Summary
First Sample

Boring No.		BW #1	BW #2	BW #3	BW #4	BW #5	BW #6	BW #7
Sample No.		BW #1	BW #2	BW #3	BW #4	BW #5	BW #6	BW #7
Sample Type		Soil	Soil	Soil	Soil	Soil	Soil	Soil
Collection Date		11/5/93	1/4/94	1/4/94	1/10/94	1/10/94	1/3/94	1/6/94
Parameter	**Method**							
Total Metals								
Arsenic	7060	1.0 mg/kg	1.0 mg/kg	2.3 mg/kg	2.1 mg/kg	1.7 mg/kg	3.5 mg/kg	3.1 mg/kg
Barium	6010	62.6 mg/kg	120 mg/kg	95.8 mg/kg	132 mg/kg	101 mg/kg	107 mg/kg	102 mg/kg
Cadmium	6010	1.1 mg/kg	1.4 mg/kg	4.8 mg/kg	4.4 mg/kg	5.9 mg/kg	4.2 mg/kg	4.4 mg/kg
Chromium	6010	3.3 mg/kg	6.6 mg/kg	15.1 mg/kg	17.7 mg/kg	20.7 mg/kg	13.1 mg/kg	14.7 mg/kg
Lead	6010	36.5 mg/kg	17.7 mg/kg	11.0 mg/kg	14.5 mg/kg	26.0 mg/kg	120 mg/kg	13.1 mg/kg
Mercury	7471	0.10 mg/kg	0.10 mg/kg	0.10 mg/kg	0.11 mg/kg	0.098 mg/kg	0.10 mg/kg	0.11 mg/kg
Selenium	7740	0.34 mg/kg	0.33 mg/kg	0.34 mg/kg	0.36 mg/kg	0.32 mg/kg	0.38 mg/kg	0.36 mg/kg
Silver	7761	0.023 mg/kg	0.22 mg/kg	0.034 mg/kg	0.035 mg/kg	0.021 mg/kg	0.051 mg/kg	0.036 mg/kg
Volatiles								
Acetone	8240		87 ug/kg					
Base Neutrals								
Pyrene	8270						6600 ug/kg	
Phenanthrene	8270						8600 ug/kg	
Napthalene	8270						990 ug/kg	
Bis(2-ethylhexyl)phthalate	8270	2000 ug/kg		4400 ug/kg			500 ug/kg	
Acenapthene	8270						1400 ug/kg	
Benzo(A)Anthracene	8270						4500 ug/kg	
Benzo(B)Fluoranthene	8270						6200 ug/kg	
Benzo(K)Fluoranthene	8270						2100 ug/kg	
Benzo(ghi)perylene	8270						1200 ug/kg	
Benzo(A)Pyrene	8270						3400 ug/kg	
Chrysene	8270						4100 ug/kg	
Dibenzo Furan	8270						1000 ug/kg	
Fluoroanthene	8270						13,000 ug/kg	
Fluorene	8270						1300 ug/kg	
Indeno(1,2,3-cd)pyrene	8270						1600 ug/kg	
2-Methylnapthalene	8270						500 ug/kg	

2392 - 6768

Table 2
Consolidated Freightways Subsurface Soil Boring Investigation
Analytical Summary
Second Sample

Boring No. Sample No. Sample Type Collection Date		BW #1 BW #1 Soil 11/5/93	BW #2 BW #2 Soil 1/4/94	BW #3 BW #3 Soil 1/4/94	BW #4 BW #4 Soil 1/10/94	BW #5 BW #5 Soil 1/10/94	BW #6 BW #6 Soil 1/3/94	BW #7 BW #7 Soil 1/6/94
Parameter	**Method**							
Total Metals								
Arsenic	ASP91	.94 mg/kg	2.7 mg/kg	3.5 mg/kg	5.5 mg/kg	4.5 mg/kg	4.0 mg/kg	3.6 mg/kg
Barium	ASP91	19.7 mg/kg	86.5 mg/kg	92.9 mg/kg	50.8 mg/kg	64.9 mg/kg	123 mg/kg	99.1 mg/kg
Cadmium	ASP91	0.35 mg/kg	0.20 mg/kg	0.17 mg/kg	0.18mg/kg	0.55 mg/kg	0.43 mg/kg	0.17 mg/kg
Chromium	ASP91	2.2 mg/kg	14.5 mg/kg	15.5 mg/kg	10.8 mg/kg	12.4 mg/kg	16.4 mg/kg	19.7 mg/kg
Lead	ASP91	18.8 mg/kg	14.7 mg/kg	13.6 mg/kg	26.0 mg/kg	54.6 mg/kg	95.6 mg/kg	14.0 mg/kg
Mercury	ASP91	0.11 mg/kg	0.11 mg/kg	0.11 mg/kg	0.10 mg/kg	0.12 mg/kg	0.11 mg/kg	0.10 mg/kg
Selenium	ASP91	0.70 mg/kg	0.67 mg/kg	0.71 mg/kg	0.66 mg/kg	0.74 mg/kg	0.76 mg/kg	0.72 mg/kg
Silver	ASP91	2.2 mg/kg	2.2 mg/kg	2.4 mg/kg	2.2 mg/kg	2.6 mg/kg	2.5 mg/kg	2.5 mg/kg
Pesticides								
Various Compounds	ASP91	*	*	*	*	*		
4,4 DDD	ASP91					5.4 ug/kg		
Alpha BHC	ASP91		3.6 ug/kg					
VOCs								
Acetone	ASP91	50 ug/kg	36 ug/kg					
Base Neutrals								
Various Compounds	ASP91	*	*	*	*	*	*	*
Pyrene	ASP91						2900 ug/kg J	
Phenanthrene	ASP91						2400 ug/kg	
Napthalene	ASP91						470 ug/kg	
Benzo(A)Anthracene	ASP91						1300 ug/kg	
Benzo(B)Fluoranthene	ASP91						1600 ug/kg	
Benzo(K)Fluoranthene	ASP91						950 ug/kg	
Benzo(A)Pyrene	ASP91						1100 ug/kg	
Chrysene	ASP91						1200 ug/kg	
Fluoranthene	ASP91						3000 ug/kg	
Fluorene	ASP91						410 ug/kg	
Indeno(1,2,3-cd)pyrene	ASP91						490 ug/kg	
PCBs								
Aroclor-1254	ASP91				75 ug/kg P		14 ug/kg P	
Total CN	ASP91	1.2	2.1	1.2	1.1	1.3	1.2	1.2

* Trace below detection

TOTAL P.03