Lipids % Dry Weight

LIS DO#13
Pitar Morrhuana (Clams) QA/QC SUMMARY - LIPIDS
Bligh and Dyer Batch 02-119

PROJECT:	Long Island Sound – Tissue Chemistry (DO#13)
PARAMETER:	Lipids
LABORATORY:	Battelle, Duxbury, MA
MATRIX:	Tissues; Clams (Pitar Morrhuana)
SAMPLE CUSTODY:	Tissue samples were collected between 7/10/00 and 9/1/00 and have been stored frozen at Woods Hole Group in Wareham, MA. Sample custody was transferred to Battelle on 1/22/02. All samples were received in good condition. Samples were stored frozen (at, or below –20°C) until processing. All clams were of the species Pitar Morrhuana.

QA/QC DATA QUALITY OBJECTIVES:

	Reference Method	Surrogate Recovery	Blank Criteria	LCS/MS Recovery	SRM % Diff.	Relative Precision	Detection Limits (% wet wt.)
Lipids	Battelle SOP 5-299 (mod. Bligh Dyer)	NA	< 0.1% wet wt.	NA	NA	<30% RPD; RSD	0.1%

METHOD: Percent total lipids found in tissue samples were determined using a method based on the original Bligh and Dyer method (Bligh and Dyer, 1959) for extracting lipids. Modifications included using a much smaller sample aliquot (<10 grams wet) and using centrifugation rather than filtering to separate and isolate the appropriate solvent layers. The method is described in Battelle SOP 5-299 *Determination of Tissue Lipid Concentration Using the Modified Bligh and Dyer Method.*

HOLDING TIMES: Tissue samples were stored at -20° C until extraction. No holding times are established for lipid analysis.

Batch	Extraction Date	Analysis Date
02-119	3/4/02	3/5/02

BLANKS: A procedural blank (PB) was prepared with each analytical batch. Blanks were analyzed to ensure the sample extraction and analysis methods were free of contamination.

02-119 – 0 exceedences

LABORATORY CONTROL SAMPLE (Blank Spike) Not Applicable.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES: Not Applicable

LIS DO#13
Pitar Morrhuana (Clams) QA/QC SUMMARY - LIPIDS
Bligh and Dyer Batch 02-119

LABORATORY SAMPLE TRIPLICATE PRECISION	One sample in each analytical batch was prepared triplicate to assess precision. The relative standard deviation (RSD) amongst the three was calculated to measure data quality in terms of precision.
	02-119 – 0 exceedences
	Comments - None
SURROGATES:	Not applicable

LIS DO#13

Pitar Morrhuana Modified Bligh Dyer Lipid Results

Study Area	Station	Client ID	Battelle ID	% Total Lipid (Wet)	RSD (%)
Blank	NA	NA	NA	<.001%	
CLIS	REF	LIS04CLREFC5	V1273	1.21	
		LIS06CLREFC4	V1295	1.13	
CLIS	FVP	LIS04CLFVPC4	V1277	0.99	
		LIS06CLFVPC1	V1296	1.14	
CLIS	NHAV93	LIS04CLN93C2	V1279	0.95	
		LIS06CLN93C2	V1300	0.72	
NLDS	LRF	LIS04NLLRFC2	V1258	0.51	
NLDS	RLC	LIS04NLRLCC1	V1262	0.74	
		LIS04NLRLCC2	V1263	0.70	
		LIS04NLRLCC3	V1264	0.56	23
			V1264DUP	0.84	
			V1264TRIP	0.89	
		LIS06NLRLCC1	V1287	0.88	
NLDS	SEA	LIS06NLSEAC1	V1289	0.63	
		LIS06NLSEAC2	V1290	0.65	

Battelle Duxbury Operations

Pitar Morrhuana

Dry and Wet Weights

Sample ID	% Dry Wt.	% Moisture
ZW87PB	NA	NA
V1264TRIP	11.4	88.60
V1264DUP	11.4	88.60
V1264	11.4	88.60
V1273	11.0	89.00
V1295	11.4	88.60
V1277	11.5	88.50
V1296	11.5	88.50
V1279	11.9	88.10
V1300	10.3	89.70
V1258	9.8	90.20
V1262	11.0	89.00
V1263	10.5	89.50
V1287	10.9	89.10
V1289	9.9	90.10
V1290	10.9	89.10

Third Party
Validation Reports

EcoChem, Inc.

Environmental Science and Chemistry

QUALITY ASSURANCE REPORT

LONG ISLAND SOUND STUDY
CLAM TISSUE
LOBSTER MEAT REANALYSIS

Prepared for:

Battelle Duxbury Operations
397 Washington Street
Duxbury, Massachusetts 02332

Prepared by:

EcoChem, Inc.
405 Westland Building
100 South King Street
Seattle, Washington 98104-2885

EcoChem Project Number: C18002-02

May 20, 2002

APPROVED FOR RELEASE

Eric Strout
Project Manager
EcoChem, Inc.

DATA VALIDATION PROJECT NARRATIVE

1.0 Introduction/Basis For Validation

This report summarizes the results of full data validation performed on the data from clam tissue and associated quality control (QC) samples. The data for one lobster tissue (meat) sample reanalysis (originally presented in laboratory batch 2B0169) were also reviewed. The samples were collected in support of the Long Island Sound Study. The **SAMPLE INDEX** (following this page) lists all samples reviewed.

Samples were analyzed by PSC Analytical Services, Burlington, Ontario, Canada. Analytical methods and EcoChem project chemists are listed below.

Analysis	Method of Analysis	Primary Review	Secondary Review
WHO-List PCB Congeners	EPA 1668A	Mark Brindle	Eric Strout
Dioxin/Furan Compounds	EPA 1613B	Jeff McLeod	Eric Strout

The data validation is based on QC criteria documented in the above listed methods; the *Quality Assurance Project Plan: Long Island Sound Study, Task I QAPP (Final),* Battelle, January 2002; the *U.S. EPA Region II Data Validation SOP for EPA Method 1613, Revision A,* U.S. EPA, September 1999; and the *U.S. EPA Region 10 SOP for the Validation of Method 1668, Toxic, Dioxin-like, PCB Data,* U.S. EPA, December 1995.

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are assigned a J or UJ, data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the above-referenced documents and methods.

Completeness is defined as the percentage of measurements which are judged to be valid for the intended use, relative to the total number of measurements planned. No data were rejected. All data, as qualified, are usable. The overall percent completeness for these analyses in the Long Island Sound Study is 100%.

Data qualifier definitions are included as **APPENDIX A**. **APPENDIX B** contains the Qualified Sample Result Summaries (Forms I). All Data Validation Worksheets are in **APPENDIX C**. **APPENDIX D** contains the Communication Records.

2.0 Summary Of Data Validation

2.1 Laboratory Compliance

2.1.1 Correctable Deficiencies

The laboratory did not flag quality control outliers using the flags as specified in the QAPP (page 27). However, the laboratory did flag outliers and defined the flags in the case narrative. No action was taken.

No other correctable deficiencies were noted.

2.1.2 Non-Correctable Deficiencies

Low levels of target compounds were present in all method blanks, for both the PCB congener and dioxin/furan analyses. For the dioxin/furan method blank, all results were less than the PQL, so no additional corrective action was required by the laboratory. However, for the PCB congener analyses, five concentrations were greater than the PQL. The corrective action specified in the QAPP (Table 11.1) is that the source of contamination must be located and all samples re-extracted and reanalyzed. This was not done. During validation, the data were qualified as detailed in the data validation reports.

For the dioxin/furan analyses, several of the labeled compound recovery values were outside the control limits specified in Table 5.6 of the QAPP. No corrective action is required. During validation, the data were qualified as detailed in the data validation reports.

Several compound concentrations were outside the control limits for the SRM analyses associated with the PCB congener analyses. The specified corrective action is to flag the outliers. The flags were added to the EDD by the reviewer. During validation, the data were qualified as detailed in the data validation reports.

2.1.3 Comments

No data were rejected. Overall, the data are useable for the intended purposes.

SAMPLE INDEX
Battelle - Long Island Sound
Philip Submission #:2B0341 and 2B0169 (resub)
EcoChem, Inc. Project No.:C18002-2

Philip ID	Client Sample ID	Dioxins/Furans	PCB Congeners	Date Shipped
007416 02	V1273	x	x	2/11/02
007417 02	V1293	x	x	2/11/02
007418 02	V1295	x	x	2/11/02
007419 02	V1277	x	x	2/11/02
007420 02	V1296	x	x	2/11/02
007421 02	V1298	x	x	2/11/02
007422 02	V1279	x	x	2/11/02
007423 02	V1299	x	x	2/11/02
007424 02	V1300	x	x	2/11/02
007425 02	V1258	x	x	2/11/02
007426 02	V1283	x	x	2/11/02
007427 02	V1286	x	x	2/11/02
007428 02	V1262	x	x	2/11/02
007429 02	V1263	x	x	2/11/02
007430 02	V1264	x	x	2/11/02
007431 02	V1287	x	x	2/11/02
007432 02	V1265	x	x	2/11/02
007437 02	V1289	x	x	2/11/02
007438 02	V1290	x	x	2/11/02
006476 02	V1239		x	2/4/02

DATA REVIEW
WHO Dioxin-like PCB Congeners
Method 1668A
SDG: 2B0169

Analytical data for one lobster meat tissue sample was reviewed using a combination of method-specific criteria and the *U.S. EPA Region 10 Data Validation SOP for the Validation of method 1668 Toxic, Dioxin-like, PCB Data* (Revision 1.0, 12/8/95). The sample was collected by Battelle and shipped to the laboratory on February 4, 2002. The sample was analyzed by PSC Analytical Services. These data are from a re-extraction and reanalysis of a sample (V1239) previously submitted as part of laboratory batch 2B0169.

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and anomalies were discussed in the case narrative.

II. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

- Technical Holding Times and Sample Receipt
- GC/MS Tuning
- Initial Calibration (ICAL)
- Calibration Verification (CVER)
- Isomer Specificity
- * Blanks
- Labeled Compound Recovery
- * Matrix Spike/Matrix Spike Duplicate (MS/MSD)
- * Standard Reference Material (SRM) Analysis
- * Laboratory Control Sample (LCS)
- * Replicate Analyses
- Compound Identification
- Compound Quantitation and Reporting Limits

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria. No data were qualified. Sample result summary forms are presented in APPENDIX B.

Blanks

Several compounds were reported at low concentrations in the method blank associated with this sample. Action levels of five times the concentrations were established to evaluate the associated sample. The reported concentrations in the sample were greater than the action levels, thus no qualifiers were assigned.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses not performed with this analytical batch. Accuracy was verified using the labeled compound recovery values. Precision could not be assessed.

Laboratory Control Sample (LCS)

Laboratory control sample (LCS) analysis was not performed.

Standard Reference Material (SRM) Analysis

Analysis of a standard reference material (SRM) analysis was not performed. Region II guidelines do not include evaluation criteria for SRM samples. No action was taken.

Replicate Analyses

Triplicate analyses were not performed.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified method. Accuracy was acceptable, as demonstrated by the %R values for the labeled compound recovery values. Precision was not evaluated.

All data, as reported, are acceptable for use.

DATA REVIEW
WHO Dioxin-like PCB Congeners
Method 1668A
SDG: 2B0341

Analytical data for 19 clam tissue samples were reviewed using a combination of method-specific criteria and the *U.S. EPA Region 10 Data Validation SOP for the Validation of method 1668 Toxic, Dioxin-like, PCB Data* (Revision 1.0, 12/8/95). The samples were collected by Battelle and shipped to the laboratory on February 11, 2002. The samples were analyzed by PSC Analytical Services.

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and anomalies were discussed in the case narrative.

II. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

* * Technical Holding Times and Sample Receipt
  GC/MS Tuning
  Initial Calibration (ICAL)
  Calibration Verification (CVER)
  Isomer Specificity
* * Blanks
  Labeled Compound Recovery
  Matrix Spike/Matrix Spike Duplicate (MS/MSD)
* * Standard Reference Material (SRM) Analysis
  Laboratory Control Sample (LCS)
  Replicate Analyses
  Compound Identification
  Compound Quantitation and Reporting Limits

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria. Qualified data summary forms are presented in APPENDIX B. Data qualifiers were also entered into the electronic data deliverable.

Technical Holding Times and Sample Receipt

The cooler temperature was less than the control limit of 4°C ±2°C (at 1.4°C). The outlier was judged to have no significant impact on data quality. No action was taken.

Blanks

Several compounds were reported at low concentrations in the method blank associated with these samples. Action levels of five times the concentrations were established to evaluate the associated samples. Results less than the action levels were qualified as not detected (U).

Standard Reference Material (SRM)

Analysis of a SRM (SRM1-Clams Batch 1) was performed with the samples in this SDG. The results for PCB 118 and PCB 169 were outside of the criteria specified in the QAPP (±30% of true value for concentrations greater than 10x the MDL). Recoveries for these compounds were acceptable in the MS/MSD and LCS analyses. No action was taken.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified method. Accuracy was acceptable, as demonstrated by the %R values for the labeled compounds, the matrix spike/matrix spike duplicate and the laboratory control sample compounds. Precision was acceptable as demonstrated by the triplicate analysis %RSD values and the matrix spike/matrix spike duplicate RPD values.

Data were qualified because of method blank contamination.

All data, as qualified, are acceptable for use.

DATA REVIEW
Dioxin/Furan Compounds
Method 1613B
SDG: 2B0341

Analytical data for 19 clam tissue samples were reviewed using a combination of method-specific criteria and the *USEPA Region II Data Validation SOP for EPA Method 1613, Revision A*. The samples were collected by Battelle and shipped to the laboratory on February 11, 2002. The samples were analyzed by PSC Analytical Services.

I. DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and anomalies were discussed in the case narrative.

II. TECHNICAL DATA VALIDATION

The QC requirements that were reviewed are listed below.

* * Technical Holding Times and Sample Receipt
  GC/MS Tuning
  Initial Calibration (ICAL)
  Calibration Verification (CVER)
  Isomer Specificity
* * Blanks
* * Labeled Compound Recovery
  Matrix Spike/Matrix Spike Duplicate (MS/MSD)
  Standard Reference Material (SRM) Analysis
  Replicate Analyses
  Laboratory Control Sample (LCS)
* * Compound Identification
  Compound Quantitation and Reporting Limits

Those items marked with an asterisk (*) did not meet all specified QC criteria and are discussed below. QC items not marked with an asterisk meet all QC criteria. Qualified data summary forms are presented in **APPENDIX B**. Data qualifiers were also entered into the electronic data deliverable.

Technical Holding Times and Sample Receipt

The cooler temperature was outside the control limit of 4°C ±2° (at 1.4°C). The outlier was judged to have no significant impact on data quality. No action was taken.

Blanks

Several compounds were reported at low concentrations in the method blank associated with these samples. Action levels of five times the concentrations were established to evaluate the associated samples. Results less than the action levels were qualified as not detected (U).

Labeled Compound Recovery

The percent recovery (%R) values for the cleanup standard (37Cl-2378-TCDD) were less than the 35% lower control limit specified in the QAPP for Samples V1264 (at 28%), V1287 (at 31%) and V1290 (at 29%), and greater than the upper control limit of 197% for the SRM (at 431%). As all other labeled compound recovery values were acceptable, no action was taken.

The %R values for $^{13}C_{12}$-2378-TCDD in Sample V1298 (at 22%), and $^{13}C_{12}$-2378-TCDD and $^{13}C_{12}$-2378-TCDF in Sample V1265 (at 16% and 18%), were less than the 24% lower control limit. No positive results were reported for any associated compound in these samples. Due to the possible low bias, reporting limits for associated compounds were estimated (UJ).

Standard Reference Material (SRM) Analysis

An SRM was analyzed with this batch. Due to interferences, most target compounds were not detected with elevated reporting limits. Other analytes were present at levels less than the contamination level in the associated method blank. For the remaining detected analytes with concentrations greater than 10 times the MDL, all results were within ±30% of the true value.

Compound Identification

Low level positive results for 2378-TCDF were present in most samples. During second column (DB225) analysis, these results were not confirmed (all DB225 2378-TCDF results were non-detect). However, the DB225 detection limits were greater than the reported concentrations from the DB5 column. No action was taken, other than to note the discrepancy.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified method. Accuracy was acceptable, as demonstrated by the %R values for the labeled compounds and the laboratory control sample and MS/MSD compounds, with the noted exceptions. Precision was acceptable as demonstrated by the MS/MSD RPD values.

Data were qualified because of method blank contamination and labeled compound percent recovery outliers.

All data, as qualified, are acceptable for use.

EcoChem, Inc.

Environmental Science and Chemistry

APPENDIX A
DATA QUALIFIER DEFINITIONS

DATA VALIDATION QUALIFIER CODES

National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned in the data review process:

DNR	Do-not-report. Duplicate results exist due to reanalyses. This result should not be reported.

Chain of Custody

CHAIN OF CUSTODY RECORD

Client/Project Name: ACOE / LIS04 Benthic	Project Location: Long Island Sound
Project Number: 9000-184	Field Logbook No.: 02COA379
Sampler: (Print Name) /Affiliation: Don Boyle / ENSR	Chain of Custody Tape No.:
Signature:	Send Results/Report to: Deb McGrath / ENSR

Analysis Requested: TISSUE

Field Sample No./ Identification	Date 2000	Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	Field Filtered	TISSUE						Lab I.D.	Remarks
LIS04NLLRFC1	7-10	1920	X	X	8oz GLASS	Nephtys incisa	-20°C	N/A	X						1 bottle	≈ 47g tissue
LIS04NLLRFC2	7-10	1920	X	X	8oz (3) GLASS	Pitar morrhuana	"	"	X						3 bottles	≈ 59g tissue
LIS04NLLRFC3	7-10	1920	X	X	Foil / (2) bag	Mercenaria mercenaria	"	"	X						2 individuals	297g gross 204g gross
LIS04NLLRFC4	7-10	1920	X	X	8oz GLASS	Diopatra cuprea	"	"	X						1 bottle	≈ 14.6g tissue
LIS04NLLRFC5	7-10	1920	X	X	8oz GLASS	Pharusa albinis	"	"	X						1 bottle	≈ 20.4g tissue
LIS04NLLRLC1	7-12	0530	X	X	8oz (2) GLASS	Pitar morrhuana	"	"	X						2 bottles	collected on 7-11 frozen on 7-12-00
LIS04NLLRLC2	7-12	0530	X	X	"	"	"	"	X						2 bottles	"
LIS04-NLLRLC3	7-12	0530	X	X	"	"	"	"	X						2 bottles	"
LIS04NLSEAC1	7-11	0640	X	X	"	"	"	"	X						2 bottles	≈ 52g tissue
LIS04NLSEAC2	7-11	0640	X	X	8oz GLASS	Pharusa albinis	"	"	X						1 bottle	≈ 29g tissue

Relinquished by: (Print Name) Don Boyle	Date: 7/13/2000	Received by: (Print Name) Dianne M Jones	Date: 7/13/2000
Signature:	Time: 1210	Signature:	Time: 1210
Relinquished by: (Print Name) Elizabeth Ponta	Date: 1/22/02	Received by: (Print Name) JAMES D. HALL	Date: 1/22/02
Signature: Elizabeth Ponta	Time: 9:30	Signature:	Time: 11:30AM
Relinquished by: (Print Name)	Date:	Received by: (Print Name)	Date:
Signature:	Time:	Signature:	Time:

Analytical Laboratory (Destination):

Woods Hole Group

Raynham, MA

ATTN: Heller Costa

Serial No. 31076

M901376

ENSR

CHAIN OF CUSTODY RECORD

Client/Project Name: ACOE/LIS04 BENTHIC

Project Location: Long Island Sound

Project Number: 9000 184

Field Logbook No.: 0200A379

Sampler: (Print Name) /Affiliation: Dan Boyé /ENSR

Chain of Custody Tape No.:

Signature:

Send Results/Report to: DEB McGRATH /ENSR

Analysis Requested: Tissue

Field Sample No./ Identification	Date 2000	Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	Field Filtered	Tissue						Lab I.D.	Remarks
LIS04CLPVPC4	7-12	0800	X	X	8oz GLASS	Pitar morrhuana	-20°C	NA	X		J1277				2 bottles	"
LIS04CLN93C1	7-12	0930	X	X	8oz GLASS	"	"	"	X		J1278				1 bottle	1 ≈ 118g Tissue TOTAL
LIS04CLN93C2	7-12	0930	X	X	8oz GLASS	"	"	"	X		J1279				2 bottles	"
LIS04CLN93C3	7-12	0930	X	X	8oz GLASS	Nephtys incisa	"	"	X		J1280				1 bottle	1 ≈ 43.5g Tissue
LIS04CLN93C4	7-12	0930	X	X	8oz GLASS	Anadara transversa	"	"	X		J1281				2 bottles	" ≈ 62g Tissue

Relinquished by: (Print Name)	Date:	Received by: (Print Name)	Date:
Dan Boyé	7/13/2000	Dianne M Jenack	7/13/2000
Signature:	Time: 1210	Signature:	Time: 1210
Relinquished by: (Print Name) Ellen Porter	Date: 1/22/02	Received by: (Print Name) JAMES D. WATRY	Date: 1/22/02
Signature:	Time: 9:25	Signature:	Time: 11:30AM
Relinquished by: (Print Name)	Date:	Received by: (Print Name)	Date:
Signature:	Time:	Signature:	Time:

Analytical Laboratory (Destination):

Woods Hole Group
Raynham, MA

ATTN: HELDER COSTA

Serial No. 31078

M901376

ENSR CHAIN OF CUSTODY RECORD

Client/Project Name: ACOE/LIS Benthic II

Project Location: Long Island Sound

Project Number: 3600 - 184

Field Logbook No.: 2200 A379

Sampler: (Print Name) /Affiliation: Jan Tracey/ENSR

Chain of Custody Tape No.:

Signature: Jan K Tracey

Send Results/Report to: Deb McGrath/ENSR

Analysis Requested: Tissue

Field Sample No./ Identification	Date 2000	Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	Field Filtered	Tissue		Lab I.D.					Remarks
LISOUNDREF1	8-29	1045	X	X	tin foil	Mercenaria mercenaria	-20°C	N/A	X		J11282					283 grams
LISOUNDREF2	8-29	1045	X	X	16oz glass	Pitar morrhuana	-20°C	N/A	X		J11283					250 grams
LISOUNDREF3	8-29	1045	X	X	8oz glass	Nephtys incisa	-20°C	N/A	X		J1284					51 grams
LISOUNDREF4	8-30	0835	X	X	8oz glass	Nephtys incisa	-20°C	N/A	X		J11285					51 grams
LISOUNDREF5	8-30	0835	X	X	16oz glass	pitar morrhuana	-20°C	N/A	X		J11286					260 grams
MS/MSD LISOUNDREF1	8-30	1015	X	X	3-16oz glass	pitar morrhuana	-20°C	N/A	X		J11287				3 JARS	1005 grams
LISOUNDREF2	8-30	1015	X	X	8oz glass	nephtys incisa	-20°C	N/A	X		J11288					8 grams (partial sam
LISOUNDSEA1	8-30	1745	X	X	1602 glass	Pitar morrhuana	-20°C	N/A	X		J11289					245 grams
LISOUNDSEA2	8-30	2345	X	X	1603 glass	Pitar morrhuana	-20°C	N/A	X		J11290					249 grams
LISOUNDSEA3	8-30	2345	X	X	8oz glass	Nephtys incisa	-20°C	N/A	X		J11291					50 grams

Relinquished by: (Print Name)	Date:	Received by: (Print Name)	Date:
Jan K Tracey	9/1/00	Pete Rama	9/1/00
Signature: Jan K Tracey	Time: 0800	Signature:	Time: 3:15 pm
Relinquished by: (Print Name) Elizabeth Porta	Date: 1/22/02	Received by: (Print Name) JAMES D. HATCH	Date: 1/22/02
Signature: Elizabeth Porta	Time: 9:30	Signature:	Time: 11:30AM
Relinquished by: (Print Name)	Date:	Received by: (Print Name)	Date:
Signature:	Time:	Signature:	Time:

Analytical Laboratory (Destination): Woods Hole Group Raynham, MA

Serial No. 25480

M901376

ENSR CHAIN OF CUSTODY RECORD

Client/Project Name: LTS Benthic II	Project Location: Long Island Sound
Project Number: 4000-184	Field Logbook No.: 0200 A 379
Sampler: (Print Name) /Affiliation: Joan K. Tracey / ENSR	Chain of Custody Tape No.:
Signature: J. K Tracey	Send Results/Report to: Deb Mcgrath / ENSR

Analysis Requested: Tissues

Field Sample No./ Identification	Date	Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	Field Filtered			Lab I.D.	Remarks
LTSO6CLREFC1	8/31	0611	X	X	8oz glass	Nephtys incisa	-20°C	N/A	X		V1292	50 grams
LTSO6CLREFC2	8/31	1130	X	X	16oz Glass	Pitar morrhuana	-20°C	N/A	X		V1293	250 grams
LSO6CLREFC3	8/31	1505	X	X	16oz glass	Nephtys incisa	-20°C	N/A	X		V1294	MS/MSD 205 grams
LTSO6CLREFC4	8/31	1600	X	X	16oz glass	Pitar morrhuana	-20°C	N/A	X		V1295	25 grams
LTSO6CLFVFC1	8/31	2300	X	X	16oz glass	Pitar morrhuana	-20°C	N/A	X		V1296	250 grams
LTSO6CLFVFC2	8/31	2300	X	X	8oz glass	Nephtys incisa	-20°C	N/A	X		V1297	56 grams
LTSO6CLFVFC3	9/1	0430	X	X	16oz glass	Pitar morrhuana	-20°C	N/A	X		V1298	200 grams
LTSO6CLN93C4	9/1	0450	X	X	16oz glass	Pitar morrhuana	-20°C	N/A	X		V1299	276 grams
LTSO6CLN93C2	9/1	0630	X	X	16oz glass	Pitar morrhuana	-20°C	N/A	X		V1300	275 grams
LTSO6CLN93C3	9/1	0630	X	X	16oz glass	Nephtys incisa	-20°C	N/A	X		V1301	50 grams
LTSO6CLN93C4	9/1	0655	X	X	16oz glass	Nephtys incisa	-20°C	N/A	X		V1302	52 grams

Relinquished by: (Print Name) Joan K Tracey	Date: 9/1/00	Received by: (Print Name) Peter Kane	Date: 9/1/00
Signature: J. K Tracey	Time: 0800	Signature: Peter Kane	Time: 8:15A
Relinquished by: (Print Name) Elizabeth Porta	Date: 1/22/02	Received by: (Print Name) JAMES D. HALL	Date: 1/22/02
Signature: Elizabeth Porta	Time: 9:30	Signature: James D Hall	Time: 11:30AM
Relinquished by: (Print Name)	Date:	Received by: (Print Name)	Date:
Signature:	Time:	Signature:	Time:

Analytical Laboratory (Destination): Woods Hole Group Raynham, MA

Serial No. 31109

M901376

ENSR CHAIN OF CUSTODY RECORD

Page 1 of 1

Client/Project Name: ALOE/LIS Benthic II

Project Location: Long Island Sound

Project Number: 9000-184

Field Logbook No.: 02000A379

Sampler: (Print Name) /Affiliation: Isabelle P. Williams / ENSR

Chain of Custody Tape No.:

Signature: Isabelle P. Williams

Send Results/Report to: Deb McGrath / ENSR

Analysis Requested: Tissue

Field Sample No./ Identification	Date 2000	Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	Field Filtered	Tissue						Lab I.D.	Remarks
LISBONLSEA C4	9/1	2300	X	X	16oz glass	Nephtys Incisa	-20° C	N/A	X							53 grams

Relinquished by: (Print Name)	Date:	Received by: (Print Name)	Date:
Isabelle P. Williams	9/5/2000	DIANNE M JANEK	9/5/2000
Signature: Isabelle P. Williams	Time: 1440	Signature:	Time: 1440
Relinquished by: (Print Name) Elizabeth Porta	Date: 1/22/02	Received by: (Print Name) JAMES D. WATCH	Date: 1/22/02
Signature: Elizabeth Porta	Time: 9:25	Signature:	Time: 11:30AM
Relinquished by: (Print Name)	Date:	Received by: (Print Name)	Date:
Signature:	Time:	Signature:	Time:

Analytical Laboratory (Destination):

Woods Hole Group

Raynham, MA

Serial No. 31101

FAX

PHILIP
ANALYTICAL SERVICES

To: Stacy Abramson

From: Mary-Anne Johnson
Project Manager

Company: Battelle

Date: 14-Feb-02

Tel Number: 781-952-5330

Fax Number: 781-934-2124

Subject: Receipt of samples

The shipment of 19 clam samples arrived intact on Tuesday.

Signed chains of custody are attached.

Regards,

M. Johnson

Original to follow: Yes _____ No _____ If Requested X
Via: Mail _____ Courier _____ Other _____

If you do not receive all pages, please call...

Zenon Laboratories, 5555 North Service Road, Burlington, ON L7L 5H7
Tel: (905) 332-8788 Fax: (905) 332-9169 ext. 288

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Chain of Custody

Mary-Anne Johnson
PSC Analytical Services
5555 North Service Rd
Burlington, Ontario
Canada, L7L 5H7

oj. No	Proj. Name
	Long Island Sound

AMPLERS: Signature
Jessica M. Fahy

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB Dioxins	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
	1457	V1289	LISOHNLSEAC1	Prime mercharoo (clams)		✓									1
	1456	V1290	LISO6NLSEAC2	↓		✓									1

linquished by:	Date/Time	Received by:	Date/Time
Jessica M. Fahy	2/11/02 4:00 pm		02/02/12 12:00
linquished by:	Date/Time	Received by:	Date/Time

omments:

ORIGINAL

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Chain of Custody

Mary-Anne Johnson
PSC Analytical Services
5555 North Service Rd
Burlington, Ontario
Canada L7L 5H7

** TOTAL PAGE.03 **

No	Proj. Name	
	Long Island Sound	MB-7414

SAMPLERS: Signature: Jessica M. Fahey

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB Dioxin	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
	7416	V1273	LIS04CLREFC5	Picnic Marrhuana (clams) SRM-7415		✓									120
	7417	V1293	LIS06CLREFC2			✓									
	7418	V1295	LIS06CLREFC4			✓									
	7419	V1277	LIS04CLEVPC4			✓									
	7420	V1296	LIS06CLEVPC1			✓									
	7421	V1298	LIS06CLEVPC3			✓									
	7422	V1279	LIS04CLN93C2			✓									
	7423	V1299	LIS06CLN93C1			✓									
	7424	V1300	LIS06CLN93C2			✓									
	7425	V1258	LIS04NLLREC2			✓									
	7426	V1283	LIS06NLLREC2			✓									
	7427	V1286	LIS06NLLREC5	7423-24-25-26 TO BE USED FOR: MDL Verification		✓									
	7428	V1262	LIS04NLRLCC1	TO BE USED FOR: MS/MSD		✓									
	7429	V1263	LIS04NLRLCC2	TO BE USED FOR: TRIPLICATE		✓									
	7430	V1264	LIS04NLRLCC3			✓									
	7431	V1287	LIS06NLRLCC1			✓									
	7432	V1265	LIS04NLSEAC1			✓									

Relinquished by:	Date/Time	Received by:	Date/Time
Jessica M. Fahey	2/11/02 4:00 pm		12/02/12 12:00
Relinquished by:	Date/Time	Received by:	Date/Time

Comments: cooler temperature upon receipt at PSC Analytical - 1.4°C.

ORIGINAL

Central File #: 1767 Project Manager: Barrows

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: WP#:

Yes	No	
☐	☐	Navy-type Project (requires high-level sample tracking procedures)
☐	☐	Filter Samples: Amount: Entire sample: Half of sample
☐	☐	Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Lab# 130)
☐	☐	Special instructions:

Sample Preservation Instructions:

Date To Archive: Date To Dispose:

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
☐	☒	☐	Was a custody seal present?
☐	☐	☒	Was the custody seal intact?
☒	☐	☐	Was cooler(s) temperature(s) within acceptable range of 4±2°C? (if multiple coolers, note temp. of each) °C °C
☐	☐	☒	Was Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)? Comment/Remedy:
☒	☐	☐	Were all chain of custody forms signed and dated?
☐	☒	☐	Were samples filtered at MSL?

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon Poly Glass (Spex) Other:

Notes:

Completed By: [signature] Date/Time: 02/12/02 1250

SAMPLE PRESERVATION

☒ Sample(s) were preserved at MSL

☐ Sample(s) were preserved upon arrival at MSL (noted on CoC / Sample / per PM Instruction)

☐ Random pH checked for ~10% of samples (use dip paper) Sample IDs:

☐ Complete pH check required for project (use pH meter and record on pH Record form)

If preservation necessary, record Acid Lot#

Type: ☐	0.2% HNO3	Notes:
☐	0.5% HCl (Hg samples)	Notes:
☒	Refrigerate/Freeze	Notes: Deep freeze
☐	Other	Notes:

Completed By: [signature] Date/Time: 02/12/02 1250

159

1767 Bot 3 ESB Wipy for 3

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Chain of Custody

Elizabeth Barrows
Battelle MSL
1529 Sequim Bay Rd.
Sequim, WA 98382

Proj. No	Proj. Name
	Long Island Sound

SAMPLERS: Signature
Jessica M. Fahey

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
		V1273	LIS04CLREFC5	Pitar morrhuana (clams)	1767-91							✓				
		V1293	LIS06CLREFC2		92							✓				
		V1295	LIS06CLREFC4		93							✓				
		V1277	LIS04CLEVPC4		94							✓				
		V1296	LIS06CLEVPC1		95							✓				
		V1298	LIS06CLEVPC3		96							✓				
		V1279	LIS04CLN93C2		97							✓				
		V1299	LIS06CLN93C1		98							✓				
		V1300	LIS06CLN93C2		99							✓				
		V1258	LIS04NLLREC2		100							✓				
		V1283	LIS06NLLREC2	TO BE USED FOR: MS/MSD	101							✓				
		V1286	LIS06NLLREC5		102							✓				
		V1262	LIS04NLRLCC1		103							✓				
		V1263	LIS04NLRLCC2	TO BE USED FOR: TRIPLICATE	104							✓				
		V1264	LIS04NLRLCC3		105							✓				
		V1287	LIS06NLRLCC1		106							✓				
		V1265	LIS04NLSPAC1	TO BE USED FOR: MDL	1767-107							✓				

Relinquished by:	Date/Time	Received by:	Date/Time
Jessica M. Fahey	2/11/02 4:00 pm		
Relinquished by:	Date/Time	Received by:	Date/Time
			02/12/02 R40

Comments:

ORIGINAL

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Chain of Custody

Elizabeth Barrows
Battelle MSL
1529 Sequim Bay Rd
Sequim, WA 98382

Proj. No	Proj. Name
	Long Island Sound

SAMPLERS: Signature: Jessica M. Jahn

DATE	TIME	BATTELLE ID	CLIENT ID	SAMPLE DESCRIPTION	PEST	PCB	TPH FINGERPRINT	PAH	VOA	TBT	METALS	OTHER	ACIDIFIED	PRESERVED	Total Number of Containers
		V1289	LISOUNLSEAC1	Pitar morrhuana (clams) 1767-108							✓				
		V1290	LISOUNLSEAC2	↓ 1767-109							✓				

Relinquished by:	Date/Time	Received by:	Date/Time
Jessica M. Jahn	2/11/02 4:00 pm		02/12/02 1400
Relinquished by:	Date/Time	Received by:	Date/Time

Comments:

ORIGINAL

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Response to Comments

Battelle Response to Comments **July 10, 2002**
Clam (*Pitar morrhuana*) Analytical Results Draft Report (June 3, 2002)

Comments: Jeannie Brochi, EPA New England and EPA Region II

EPA New England and EPA Region 2 provide the following comments on the Battelle Clam Tissue Report:

PAHs:

1. Please note that a "B" flag essentially means that the analyte was not detected.

Response – The flagging conventions for all data (excluding blank flags for WHO PCBs and dioxin/furans) were defined in the QAPP (see worksheet 9a "Data Reporting Qualifiers – Chemistry"). The action limit for blank flagging is as follows:

1.) If the concentration in the blank was greater than the RL the blank itself was flagged with a "B".

2.) If the sample concentration was less than 10 times the blank concentration, the sample value was flagged with a "B". The "10x" action level was a carryover from the LIS program, since that QAPP was adapted for all analyses (except dioxin/furan and WHO congeners)

Therefore, data that has been qualified with a "B" is most likely due to contamination and not a reflection of the analyte concentration in the sample.

2. Please clarify why the 10X factor was used for blanks. It appears PAHs found in the blank include the carcinogenic PAHs and now these are considered undetected. What would the effect of using a 5x factor on the data usability?

Response – Data was qualified according to the QAPP worksheet 9a "Data Reporting Qualifiers – Chemistry". Please see above response for the explanation of the "10x" action level. While an action limit of "5x" is probably more realistic, the QAPP specified an action limit of "10x". PAH data could be reflagged to reflect an action limit of "5x" blank concentration: and would be noted as a deviation from the QAPP. To be consistent, this should be done for all matrices. If action limits were reduced to 5x blank concentration the following data would no longer need to be "B" qualified, however it is important to note that most "B" flags would remain even if the action limit was lowered.

V1262(LIS04NLRLCC1) –Benzo(k)flouranthene, Perylene

V1265(LIS04NLSEAC1) – Benzo(a)anthracene, Benzo(k)flouranthene, Benzo(a)pyrene,

V1273(LIS04CLREFC5) – Acenaphthylene, Benzo(ghi)perylene

V1277(LIS04CLFVPC4) – Perylene, Benzo(ghi)perylene

V1279(LIS04CLN93C2) - Perylene, Benzo(ghi)perylene

V1283(LIS06NLLRFC2) – 2-6, Dimethylnaphthalene, Benzo(k)flouranthene

V1287(LIS06NLRLCC1) – Benzo(a)anthracene, Benzo(k)flouranthene, Perylene

V1290(LIS06NLSEAC2) – Benzo(a)anthracene

V1293(LIS06CLREFC2) – Acenaphthylene, Chrysene, Indeno(123c-d)pyrene, Benzo(ghi)perylene

V1295(LIS06CLREFC4) – Perylene, Benzo(ghi)perylene

V1296(LIS06CLFVPC1) – 2,6-Dimethylnaphthalene, Perylene

V1298(LIS06CLFVPC3) – Acenaphthylene, Perylene, Benzo(ghi)perylene

V1299(LIS06CLN93C1) – Acenaphtylene, Perylene, Benzo(ghi)perylene

V1300(LIS06CLN93C2) – Benzo(ghi)perylene

3. Were the PAH blanks run directly after the LCSs?

Response – No. PAH blanks were the first samples ran on the instrument. The LCS ran directly after the blank.

Tributyltins:

1. The blank was 6.45 and it is above the RL. This blank essentially wipes out all the data that is now considered undetected. Why wasn't corrective action performed immediately to determine why the blank levels were so high?

Response – The TBT concentration of 6.45 ug/kg is above the MDL, however it is below the RL, which is 8.46 ug/kg. TBT is often detected at low levels in blanks due to contamination in reagents used during the sample preparation process. Battelle proactively attempts to keep the contamination to a minimum by rinsing the entire lab with 10% HCl, using new solvents and reagents, however sometimes TBT is still detected in blanks. Tissue mass was limited for clam samples, making re-extraction not a useful option for corrective action.

Dioxins and congener PCBs:

1. Were all dioxin concentrations <5x blank levels flagged "B"? It appears that there may be some inconsistencies. NLDS RLC not flagged, nor were the triplicate analysis. How do we evaluate the triplicate analysis if some of the analytes are undetected? Were all samples flagged using the 5x rule consistently?

Response – All samples should have been flagged according to the "5x rule", however confusion may have occurred between the analytical labs and the third-party validators. The QAPP originally called for an action limit of 10x blank concentration to be established, however third party validators established an action limit of 5x blank concentrations, which is consistent with the EPA Region I and II validation criteria. Since the third party validators used these criteria, it was decided to flag all

dioxin data using the "5x rule". Discrepancies may have arisen due to this confusion. All data will be looked at again, to ensure sample concentration less than 5x the blank concentration were flagged with a "B".

2. Blanks negate results except for the high concentration congeners; #105, #118 and #180 because the concentrations of the congeners occur naturally in each Aroclor. What would be the effect if all blanks were not run after the LCS? Any sample run after the LCS may be affected.

Response – Blank contamination observed in the PBs (procedural blanks) was a result of carryover from running the PB immediately following the ongoing precision and recovery (OPR) standard as required by the method. All PBs have been re-analyzed (for both PCBs and dioxin/furans) with a solvent blank run prior to the PB. Target analyte concentrations for all PCB PB re-runs were lower, in some cases by an order of magnitude. Two sample extracts from each batch were also re-ran. Those results helped support the belief that the carryover issue has not affected sample concentrations. Results for those analyses were provided on July 8, 2002 and corrective action for this issue will be formalized some time soon. Sample data will most likely be reevaluated against the new PB data.

Comments: Thomas Fredette

Similar observations and comments as were made on the Lobster reports.

1. Presuming all we pretty much asked from the contractor was a data dump then these reports are fine. I was hoping to see some summary tables and data analysis discussion (means, comparisons between stations, etc.), but perhaps that wasn't the task requested. If not, then I guess that will be done in the Future?

Response – Data synthesis was not part of this task.

2. Page 7, Section 4.0. I didn't see any discussion of QC for the radionuclides nor lipids. Was there any QC?

Response – This section focused on QA/QC issues. However, a brief discussion of acceptable QC for radionuclides will be added.

3. Page 7, Section 4.3 you state that the TBT data are considered unusable, yet on page 9, Section 5.3 you state no data were rejected and all the data are usable. It can't be both. This also seems inconsistent with your commentary on dioxin/furans and dioxin-like PCBs. Isn't there some question about their usability? It doesn't sound like Section 5.3 is telling the true story.

Response – Section 5 of the report provides results of the Tier III validation on one batch of clam data for dioxin/furan and WHO Congeners only. The butyltin data did not undergo the Tier III validation. Section 5.3 is the opinion of the Tier III validators.

In addition to the above comments:

1. It is unclear from these two reports whether the species analyzed was the same for all stations. This should be clarified in both the introductory portion of the report and the data tables themselves. Further, if in each case it was a single species (Pitar morrhuana and Nephtys incisa), then it would be far better to make reference in the lab reports to the species name itself rather than the generic "worm" or "clam" which may suggest it was a mix of species. This is inconsistently done. For example, in the Worm report it is clear that N. incisa was the source for the pesticide and PCB data, but on the actual metals results pages we see "worms" listed. A reader can verify the species by referring back to the QA/QC summary where it does in fact show that N. incisa was used. However, when one looks at the clam report this same consistency in the QA/QC summary for each analyte set is not found.

   To clarify this unequivocally the title of the reports should be changed to reflect this singularity. That is, "Nephtys incisa Analytical Results" or even "Polychaete Worm (Nephtys incisa) Analytical Results."

   Response – All clam samples were of the species Pitar morrhuana and all worm samples were of the species Nephtys incisa. No other species were used. The title of the final reports will be changed to reflect this. This will also be clarified in the introductory portion of the report.

Comments: Chris High **17 Jun 02**

Comments for review of: Draft Report Clam Analytical Results in support of the LIS EIS. Overall I found the data well-presented and formatted with sufficient detail. My comments are very similar to those for the Lobster Meat and Hep. draft reports.

New Comments:

1. When the report is finalized please number the pages of the final report sequentially as opposed to X of Y type page numbers. This applies to the Lobster Meat data final report.

   Response – This will be done in the final report.

2. Sec 5.2 in introduction g 8 of 9 states that …Concentrations of PCDDs/Fs were less than the PQL so no additional corrective action required…this is a bit misleading. The analytes found in the blanks, particularly for the PCB Congeners were in some instances found >RL. The reruns of the blanks and representative samples will need to be performed and this section (5.2) and sec 4.5 of the introduction will need to be modified to include those results.

Response – Five PCBs were detected in the blank above the RL PCB 126, 156/157, 169, 170, and 189. All PCDDs/Fs in the blank were detected at levels less than the RL. Due to limited sample mass, re-extraction was not possible. The results of reruns and representative samples were submitted on July 8 2002. Final reports will be modified to include those results.

3. Is any of the TBT data useful since it was found in the blank, albeit below the RL?

Response – **Due** to limited sample mass re-extraction for TBT is not possible. Because TBT was not detected in any sample at a concentration greater than 5x that found in the blank, and the levels found in the blank are similar to the levels found in the samples, TBT is probably not a significant contaminant in these samples.

Similar Comments:

1. For the Dioxins and Furans, has the alternate SRM, EDF 2526 been run? If so what were the results.

Response – Results for SRM EDF 2526 were attached to the Battelle Response to Comments for the Lobster Meat Draft Report, submitted on June 28, 2002.

2. In the section on metals, the holding times statement is somewhat misleading. Please remove the two sentences which state that the samples were extracted within 28 days or 6 mo of receipt. The following table adequately describes this.

Response – This will be done in the final report.

3. Where there is surrogate recovery data presented please qualify with a %. Some of the data is appropriately qualified, however, some like the PCB data is not.

Response – This will be corrected for the final report.

4. The certificate of analysis from PSC in section I. Sample Receipt/Analysis has a column entitled "data sampled". This should be renamed "date shipped".

Response – This will be done on the final report.

5. The MDLs for the Dioxins/Furans and 12 WHO Congeners are presented as MDL ranges. Is this typical?

Response – Yes. The data format that was developed for this program did not include reporting MDLs for each sample/analyte. Because all the results are reported on a sample specific basis, the MDLs are different for each analyte. The ranges are presented to indicate whether the target MDLs were met for that batch.

6. In the QA/QC summary, please note which batch of the Dioxins/Furans and PCB Congeners received the Tier 3 evaluation. It is evident if one observes the additional set of data flags but may be not so evident to the casual reader. Point of note on these additional data flags, these data flags need to be reconciled with the standard data flags as the combination of the two are very misleading. Also, it is my understanding that these additional data flags in the first batch will cause difficulties when placing the data in the data usability tables along with the remaining two batches (which don't have the same flags). Therefore, these flags in the first batch need to somehow be reconciled into one set of data flags similar to the remaining two batches.

Response – Only one batch of clams went for Dioxin/Furan and PCB Congener analysis, therefore all Dioxin/Furan and PCB Congener clam data received Tier III evaluation. This will be added to the QA/QC summary in the final report. The issue of two sets of qualifiers still needs to be resolved. The Tier II validation that all data received used the QAPP qualifiers, while the Tier III validation used the standard EPA qualifiers. For example, the QAPP qualifier for a blank exceedence (sample concentration < 5x blank concentration) is "B", while the Tier III validation procedure is to flag with a "U" to make the concentration into a "non-detect" value. Because this has not been reconciled, and because only batches that received Tier III validation have "validation" EPA qualifiers, both were left on the reports. There are two solutions to this problem:

1.) Only load QAPP qualifiers into the database. This will mean that for all future use of the data (for EIS preparation/reporting) only the QAPP qualifiers will be propagated.
2.) Go back and requalify all non-Tier III validation batches using Tier III qualifiers. This means that any time the sample concentration is <5x the blank concentration the sample value will turn into a non-detect value. If these data are used for any calculations, the convention is to use ½ of a non-detect (or "U" flagged) value. For the purpose of the EIS, this may not be the best approach.

7.) In regards to the radionuclides, the overall count time was increased from 30 min to 2 hrs to obtain the MDA (appropriate sensitivity via number of hits etc). I am assuming the sample data was normalized for the extended count when determining the pCi/ g amount of radioactive isotopes. Is this correct?

Response – Yes, data were calculated for the time counted. The extended count time was used because of the relatively small sample mass available.