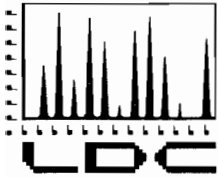


# APPENDIX C. DATA VALIDATION REPORTS

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**LABORATORY DATA CONSULTANTS, INC.**

7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

LDC #14326  
January 16, 2006

Windward Environmental, LLC  
200 West Mercer Street, Suite 401  
Seattle, WA 98119  
ATTN: Ms. Marina Mitchell

**SUBJECT: Lower Duwamish Waterway Group Tissue Sample Data Validation**

Dear Ms. Mitchell,

This report details the revised findings of an EPA Level III and Level IV data validation review of analytical chemistry results generated in support of the Lower Duwamish Waterway Group project. The analyses were performed by Analytical Resources, Inc. Samples were analyzed for GC Polychlorinated Biphenyls by EPA SW 846 Method 8082, Percent Lipids by Bligh-Dyer Method, and Total Solids by EPA Method 160.3. Samples are referenced under the following Sample Delivery Groups: IQ22, IQ23, IQ24, IQ25, and IQ30. See the Sample Analysis Table (Attachment 1) for the number of samples reviewed.

Please feel free to contact us if you have any questions.

Sincerely,

Stella S. Cuenco  
Project Manager/Senior Chemist



**CHEMICAL DATA QUALITY REVIEW FOR FISH AND CRAB TISSUE SAMPLES****Lower Duwamish Waterway Group  
LDC# 14326**

This report details the findings of an EPA Level III and Level IV data validation review of analytical chemistry results generated in support of the Lower Duwamish Waterway Group project. The analyses were performed by Analytical Resources, Inc. Samples were analyzed for GC Polychlorinated Biphenyls by EPA SW 846 Method 8082, Percent Lipids by Bligh-Dyer Method, and Total Solids by EPA Method 160.3. Samples are referenced under the following Sample Delivery Groups: IQ22, IQ23, IQ24, IQ25, and IQ30. See the Sample Analysis Table (Attachment 1) for the number of samples reviewed and the Sample Validation Table (Attachment 2) for the sample identifications and analyses. Sample IDs ending in "\*\*\*\*" underwent Level IV review.

The QC guidelines used for data qualification are those specified in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (July 2002). Specific QC criteria used follows the Fish and Crab Collection and Chemical Analyses Quality Assurance Project Plan (August 27, 2004) and Addendum (August 31, 2005). Where specific guidance is not available, the data has been evaluated in a conservative manner using professional experience.

The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Instrument Calibration
- Blanks
- Matrix Spike/Matrix Spike Duplicates
- Internal Standards
- Laboratory Control Samples
- Target Compound Identifications\*
- Compound Quantitation and CRQLs\*
- System Performance\*
- Field Duplicates

\*Data were not reviewed for Level III.

Attachment 1

LDC #14326 (Windward Environmental, LLC - Seattle WA / Lower Duwamish Waterway Group)

LDC	SDG#	DATE REC'D	(3) DATE DUE	PCBs (8082)		% Lipids (B&D)		Total Solids (160.3)																													
				T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S
Matrix:	Tissue/Sediment																																				
A	IQ22	11/22/05	12/15/05	8	0	8	0	8	0																												
B	IQ23	11/22/05	12/15/05	20	0	20	0	20	0																												
C	IQ24	11/22/05	12/15/05	20	0	20	0	20	0																												
D	IQ25	11/22/05	12/15/05	7	0	7	0	7	0																												
E	IQ30	11/22/05	12/15/05	10	0	10	0	10	0																												



## Attachment 2

SDG#: IQ23

## VALIDATION SAMPLE TABLE

LDC#: 14326B

Project Name: Lower Duwamish Waterway Group

Parameters/Analytical Method

Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	PCBs (8082)	% Lipids (B&D)	Total Solids (160.3)												
LDW-05-T1-C-PS-WB-COMP1	IQ23A	tissue	08/29/05	X	X	X												
LDW-05-T2-E-PS-WB-COMP1	IQ23B	tissue	09/01/05	X	X	X												
LDW-05-T3-F-PS-WB-COMP1	IQ23C	tissue	08/31/05	X	X	X												
LDW-05-T4-C-PS-WB-COMP1	IQ23D	tissue	08/30/05	X	X	X												
LDW-05-T1-M-ES-FL-COMP1	IQ23E	tissue	08/29/05	X	X	X												
LDW-05-T1-M-ES-FL-COMP2	IQ23F	tissue	08/30/05	X	X	X												
LDW-05-T1-M-ES-FL-COMP3	IQ23G	tissue	08/29/05	X	X	X												
LDW-05-T2-M-ES-FL-COMP1	IQ23H	tissue	09/01/05	X	X	X												
LDW-05-T2-M-ES-FL-COMP2	IQ23I	tissue	09/01/05	X	X	X												
LDW-05-T2-M-ES-FL-COMP2DL	IQ23IDL	tissue	09/01/05	X														
LDW-05-T2-M-ES-FL-COMP3	IQ23J	tissue	09/01/05	X	X	X												
LDW-05-T3-M-ES-FL-COMP1	IQ23K	tissue	09/01/05	X	X	X												
LDW-05-T3-M-ES-FL-COMP2	IQ23L	tissue	09/01/05	X	X	X												
LDW-05-T3-M-ES-FL-COMP3	IQ23M	tissue	09/01/05	X	X	X												
LDW-05-T4-M-ES-FL-COMP1	IQ23N	tissue	09/06/05	X	X	X												
LDW-05-T1-A-SS-WB-COMP1	IQ23O	tissue	08/30/05	X	X	X												
LDW-05-T1-B-SS-WB-COMP1	IQ23P	tissue	08/30/05	X	X	X												
LDW-05-T1-C-SS-WB-COMP1	IQ23Q	tissue	08/29/05	X	X	X												
LDW-05-T1-D-SS-WB-COMP1	IQ23R	tissue	08/29/05	X	X	X												
LDW-05-T1-E-SS-WB-COMP1	IQ23S	tissue	08/29/05	X	X	X												
LDW-05-T1-F-SS-WB-COMP1	IQ23T	tissue	08/29/05	X	X	X												
LDW-05-T1-C-PS-WB-COMP1MS	IQ23AMS	tissue	08/29/05	X														
LDW-05-T1-C-PS-WB-COMP1MSD	IQ23AMSD	tissue	08/29/05	X														
LDW-05-T1-C-PS-WB-COMP1DUP	IQ23ADUP	tissue	08/29/05		X													
LDW-05-T1-C-PS-WB-COMP1TRP	IQ23ATRP	tissue	08/29/05		X													

Note: X = Validation was performed.

14326VALB.wpd

SDG#: IQ23

## VALIDATION SAMPLE TABLE

LDC#: 14326B

Project Name: Lower Duwamish Waterway Group

Parameters/Analytical Method

Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	PCBs (8082)	% Lipids (B&D)	Total Solids (160.3)										
LDW-05-T2-M-ES-FL-COMP1DUP	IQ23HDUP	tissue	09/01/05			X										
LDW-05-T2-M-ES-FL-COMP1TRP	IQ23HTRP	tissue	09/01/05			X										
LDW-05-T4-M-ES-FL-COMP1MS	IQ23NMS	tissue	09/06/05	X												
LDW-05-T4-M-ES-FL-COMP1MSD	IQ23NMSD	tissue	09/06/05	X												
LDW-05-T4-M-ES-FL-COMP1DUP	IQ23NDUP	tissue	09/06/05		X											
LDW-05-T4-M-ES-FL-COMP1TRP	IQ23NTRP	tissue	09/06/05		X											
LDW-05-T1-A-SS-WB-COMP1DUP	IQ23ODUP	tissue	08/30/05			X										
LDW-05-T1-A-SS-WB-COMP1TRP	IQ23OTRP	tissue	08/30/05			X										
LDW-05-T1-D-SS-WB-COMP1MS	IQ23RMS	tissue	08/29/05	X												
LDW-05-T1-D-SS-WB-COMP1MSD	IQ23RMSD	tissue	08/29/05	X												
LDW-05-T1-D-SS-WB-COMP1DUP	IQ23RDUP	tissue	08/29/05		X											
LDW-05-T1-D-SS-WB-COMP1TRP	IQ23RTRP	tissue	08/29/05		X											

Note: X = Validation was performed.

14326VALB.wpd



Attachment 2

SDG#: IQ24

VALIDATION SAMPLE TABLE

LDC#: 14326C

Project Name: Lower Duwamish Waterway Group

Parameters/Analytical Method

Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	PCBs (8082)	% Lipids (B&D)	Total Solids (160.3)											
LDW-05-T2-A-SS-WB-COMP1	IQ24A	tissue	09/01/05	X	X	X											
LDW-05-T2-B-SS-WB-COMP1	IQ24B	tissue	09/01/05	X	X	X											
LDW-05-T2-C-SS-WB-COMP1	IQ24C	tissue	09/01/05	X	X	X											
LDW-05-T2-D-SS-WB-COMP1	IQ24D	tissue	09/01/05	X	X	X											
LDW-05-T2-E-SS-WB-COMP1	IQ24E	tissue	09/01/05	X	X	X											
LDW-05-T2-E-SS-WB-COMP1DL	IQ24EDL	tissue	09/01/05	X													
LDW-05-T2-F-SS-WB-COMP1	IQ24F	tissue	09/01/05	X	X	X											
LDW-05-T3-A-SS-WB-COMP1	IQ24G	tissue	08/31/05	X	X	X											
LDW-05-T3-B-SS-WB-COMP1	IQ24H	tissue	08/30/05	X	X	X											
LDW-05-T3-C-SS-WB-COMP1	IQ24I	tissue	08/31/05	X	X	X											
LDW-05-T3-D-SS-WB-COMP1	IQ24J	tissue	08/31/05	X	X	X											
LDW-05-T3-E-SS-WB-COMP1	IQ24K	tissue	08/30/05	X	X	X											
LDW-05-T3-F-SS-WB-COMP1	IQ24L	tissue	08/30/05	X	X	X											
LDW-05-T3-F-SS-WB-COMP1DL	IQ24LDL	tissue	08/30/05	X													
LDW-05-T1-M-ES-WB-COMP1	IQ24M	tissue	08/29/05	X	X	X											
LDW-05-T1-M-ES-WB-COMP1DL	IQ24MDL	tissue	08/29/05	X													
LDW-05-T1-M-ES-WB-COMP2	IQ24N	tissue	08/29/05	X	X	X											
LDW-05-T1-M-ES-WB-COMP2DL	IQ24NDL	tissue	08/29/05	X													
LDW-05-T1-M-ES-WB-COMP3	IQ24O	tissue	08/29/05	X	X	X											
LDW-05-T1-M-ES-WB-COMP3DL	IQ24ODL	tissue	08/29/05	X													
LDW-05-T2-M-ES-WB-COMP1	IQ24P	tissue	09/01/05	X	X	X											
LDW-05-T2-M-ES-WB-COMP1DL	IQ24PDL	tissue	09/01/05	X													
LDW-05-T2-M-ES-WB-COMP2	IQ24Q	tissue	09/01/05	X	X	X											
LDW-05-T2-M-ES-WB-COMP2DL	IQ24QDL	tissue	09/01/05	X													
LDW-05-T2-M-ES-WB-COMP3	IQ24R	tissue	09/01/05	X	X	X											

Note: X = Validation was performed.

SDG#: IQ24

## VALIDATION SAMPLE TABLE

LDC#: 14326C

Project Name: Lower Duwamish Waterway Group

Parameters/Analytical Method

Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	PCBs (8082)	% Lipids (B&D)	Total Solids (160.3)										
LDW-05-T2-M-ES-WB-COMP3DL	IQ24RDL	tissue	09/01/05	X												
LDW-05-T4-M-ES-WB-COMP1	IQ24S	tissue	09/06/05	X	X	X										
LDW-05-T4-M-ES-WB-COMP1DL	IQ24SDL	tissue	09/06/05	X												
LDW-05-T4-M-ES-WB-COMP2	IQ24T	tissue	09/06/05	X	X	X										
LDW-05-T2-B-SS-WB-COMP1DUP	IQ24BDUP	tissue	09/01/05			X										
LDW-05-T2-B-SS-WB-COMP1TRP	IQ24BTRP	tissue	09/01/05			X										
LDW-05-T4-M-ES-WB-COMP1MS	IQ24SMS	tissue	09/06/05	X												
LDW-05-T4-M-ES-WB-COMP1MSD	IQ24SMSD	tissue	09/06/05	X												
LDW-05-T4-M-ES-WB-COMP1DUP	IQ24SDUP	tissue	09/06/05		X											
LDW-05-T4-M-ES-WB-COMP1TRP	IQ24STRP	tissue	09/06/05		X											

Note: X = Validation was performed.

14326VALC.wpd



## Attachment 2

SDG#: IQ30

## VALIDATION SAMPLE TABLE

LDC#: 14326E

Project Name: Lower Duwamish Waterway Group

Parameters/Analytical Method

Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	PCBs (8082)	% Lipids (B&D)	Total Solids (160.3)											
LDW-05-T1-M-ES-RM-COMP1	IQ30A	tissue	08/29/05	X	X	X											
LDW-05-T1-M-ES-RM-COMP1DL	IQ30ADL	tissue	08/29/05	X													
LDW-05-T1-M-ES-RM-COMP2	IQ30B	tissue	08/29/05	X	X	X											
LDW-05-T1-M-ES-RM-COMP2DL	IQ30BDL	tissue	08/29/05	X													
LDW-05-T1-M-ES-RM-COMP3	IQ30C	tissue	08/29/05	X	X	X											
LDW-05-T2-M-ES-RM-COMP1	IQ30D	tissue	09/01/05	X	X	X											
LDW-05-T2-M-ES-RM-COMP1DL	IQ30DDL	tissue	09/01/05	X													
LDW-05-T2-M-ES-RM-COMP2	IQ30E	tissue	09/01/05	X	X	X											
LDW-05-T2-M-ES-RM-COMP2DL	IQ30EDL	tissue	09/01/05	X													
LDW-05-T2-M-ES-RM-COMP3	IQ30F	tissue	09/01/05	X	X	X											
LDW-05-T2-M-ES-RM-COMP3DL	IQ30FDL	tissue	09/01/05	X													
LDW-05-T3-M-ES-RM-COMP1	IQ30G	tissue	09/01/05	X	X	X											
LDW-05-T3-M-ES-RM-COMP2	IQ30H	tissue	09/01/05	X	X	X											
LDW-05-T3-M-ES-RM-COMP3	IQ30I	tissue	09/01/05	X	X	X											
LDW-05-T4-M-ES-RM-COMP1	IQ30J	tissue	09/06/05	X	X	X											
LDW-05-T4-M-ES-RM-COMP1DL	IQ30JDL	tissue	09/06/05	X													
LDW-05-T1-M-ES-RM-COMP1MS	IQ30AMS	tissue	08/29/05	X													
LDW-05-T1-M-ES-RM-COMP1MSD	IQ30AMSD	tissue	08/29/05	X													
LDW-05-T1-M-ES-RM-COMP1DUP	IQ30ADUP	tissue	08/29/05		X												
LDW-05-T1-M-ES-RM-COMP1TRP	IQ30ATRP	tissue	08/29/05		X												
LDW-05-T3-M-ES-RM-COMP1DUP	IQ30GDUP	tissue	09/01/05			X											
LDW-05-T3-M-ES-RM-COMP1TRP	IQ30GTRP	tissue	09/01/05			X											

Note: X = Validation was performed.

14326VALE.wpd

Only issues which require comment or action are discussed in this report. Data deficiencies are arranged by method. Potential effects of data anomalies have been described where possible.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.

## Overall Data Assessment

### \*I. Usability

Several samples required reanalysis at dilutions in the PCB analyses due to analytes found above the calibrated range of the instrument.

The pattern of peaks on detected samples were possibly weathered aroclors. The results were reported on the best possible match.

Compound quantitation problems have warranted the qualification of Aroclor-1254 detected results as estimated (J) for several samples in the PCB analyses.

Precision exceedances for duplicate and triplicate sample analyses have warranted the qualification of lipid detected results as estimated (J) for several samples.

Field duplicates were not collected for this sampling event.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

\*Removed duplicate text for total solids, added 3<sup>rd</sup> and 4<sup>th</sup> paragraph and revised last paragraph.

## **GC Polychlorinated Biphenyls by EPA SW 846 Method 8082**

### **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

### **III. Initial Calibration**

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

### **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

Retention times (RT) of all compounds in the calibration standards were within QC limits

### **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

### **\*VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

All internal standard areas and retention times were within QC limits.

\*Added internal standard text

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits in SDGs IQ24 and IQ25.

Percent recoveries (%R) and relative percent differences (RPD) were not within the QC limits in LDW-05-T2-M-SC-HP-COMP1MS/MSD in SDG IQ22, LDW-05-T1-C-PS-WB-COMP1MS/MSD in SDG IQ23, and LDW-05-T1-M-ES-RM-COMP1MS/MSD in SDG IQ30. Since the samples were diluted out, no data were qualified.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. The percent recoveries (%R) were within the QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Pesticide Cleanup Checks**

### **a. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **b. GPC Calibration**

Although GPC cleanup was not required by the method, silica gel cleanup was performed by the laboratory for SDGs IQ22, IQ24, and IQ30.

## **XI. Target Compound Identification**

All target compound identifications were within validation criteria.

Target compound identification data were not reviewed for Level III.

## **XII. Compound Quantitation and CRQLs**

All compound quantitation and CRQLs were within validation criteria with the following exceptions:



Associated SDG	Sample	Compound	Finding	Criteria	Flag	A or P
IQ24 IQ25 IQ26	LDW-05-T2-E-SS-WB-COMP1 LDW-05-T3-F-SS-WB-COMP1 LDW-05-T1-M-ES-WB-COMP1 LDW-05-T1-M-ES-WB-COMP2 LDW-05-T1-M-ES-WB-COMP3 LDW-05-T2-M-ES-WB-COMP1 LDW-05-T2-M-ES-WB-COMP2 LDW-05-T2-M-ES-WB-COMP3 LDW-05-T4-M-ES-WB-COMP1 LDW-05-T3-M-ES-WB-COMP1 LDW-05-T3-M-ES-WB-COMP2 LDW-05-T1-M-ES-RM-COMP1 LDW-05-T1-M-ES-RM-COMP2 LDW-05-T2-M-ES-RM-COMP1 LDW-05-T2-M-ES-RM-COMP2 LDW-05-T2-M-ES-RM-COMP3 LDW-05-T4-M-ES-RM-COMP1	Aroclor-1254	Sample result exceeded calibration range.	Reported result should be within calibration range.	N/A*	-
IQ23	LDW-05-T2-M-ES-FL-COMP2**	Aroclor-1254	Sample result exceeded calibration range.	Reported result should be within calibration range.	N/A*	-

\*N/A = Not applicable

For the results above flagged "Not applicable", the affected compound results in the associated samples were deemed unusable and did not warrant qualification of the data.

The sample results for detected compounds from the two columns were within 40.0% relative percent differences (RPD) with the following exceptions:

Associated SDG	Sample	Compound	RPD	Flag	A or P
IQ23	LDW-05-T1-C-PS-WB-COMP1**	Aroclor-1254	44	J (all detects)	A
IQ23	LDW-05-T1-D-SS-WB-COMP1**	Aroclor-1254	58	J (all detects)	A
IQ23	LDW-05-T1-E-SS-WB-COMP1**	Aroclor-1254	47	J (all detects)	A

Several samples required reanalysis at dilutions due to analytes found above the calibrated range of the instrument.

The pattern of peaks on detected samples were possibly weathered aroclors. The results were reported on the best possible match.

Compound quantitation and CRQLs data were not reviewed for Level III.

### XIII. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Associated SDG	Sample	Compound	Flag	A or P
IQ23 IQ24 IQ30	LDW-05-T2-M-ES-FL-COMP2** LDW-05-T2-E-SS-WB-COMP1 LDW-05-T3-F-SS-WB-COMP1 LDW-05-T1-M-ES-WB-COMP1 LDW-05-T1-M-ES-WB-COMP2 LDW-05-T1-M-ES-WB-COMP3 LDW-05-T2-M-ES-WB-COMP1 LDW-05-T2-M-ES-WB-COMP2 LDW-05-T2-M-ES-WB-COMP3 LDW-05-T4-M-ES-WB-COMP1 LDW-05-T1-M-ES-RM-COMP1 LDW-05-T1-M-ES-RM-COMP2 LDW-05-T2-M-ES-RM-COMP1 LDW-05-T2-M-ES-RM-COMP2 LDW-05-T4-M-ES-RM-COMP1	Aroclor-1254	R	A
IQ23 IQ24 IQ30	LDW-05-T2-M-ES-FL-COMP2DL** LDW-05-T2-E-SS-WB-COMP1DL LDW-05-T3-F-SS-WB-COMP1DL LDW-05-T1-M-ES-WB-COMP1DL LDW-05-T1-M-ES-WB-COMP2DL LDW-05-T1-M-ES-WB-COMP3DL LDW-05-T2-M-ES-WB-COMP1DL LDW-05-T2-M-ES-WB-COMP2DL LDW-05-T2-M-ES-WB-COMP3DL LDW-05-T4-M-ES-WB-COMP1DL LDW-05-T1-M-ES-RM-COMP1DL LDW-05-T1-M-ES-RM-COMP2DL LDW-05-T2-M-ES-RM-COMP1DL LDW-05-T2-M-ES-RM-COMP2DL LDW-05-T4-M-ES-RM-COMP1DL	All TCL compounds except Aroclor-1254	R	A
IQ25 IQ30	LDW-05-T3-M-ES-WB-COMP1 LDW-05-T3-M-ES-WB-COMP2 LDW-05-T2-M-ES-RM-COMP3	Aroclor-1254	R	A
IQ25 IQ30	LDW-05-T3-M-ES-WB-COMP1DL LDW-05-T3-M-ES-WB-COMP2DL LDW-05-T2-M-ES-RM-COMP3DL	All TCL compounds except Aroclor-1254	R	A

### XIV. Field Duplicates

No field duplicates were identified in this SDG.

### XV. Field Blanks

Samples RINSATE BLANK #1 BLENDER, RINSATE BLANK #2 BLENDER, RINSATE BLANK #1 GRINDER, and RINSATE BLANK #2 GRINDER were identified as rinsate blanks. No polychlorinated biphenyl contaminants were found in these blanks.

**Percent Lipids By Bligh-Dyer Method  
Total Solids By EPA Method 160.3**

**I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

**II. Calibration**

**a. Initial Calibration**

All criteria for the initial calibration of each method were met.

Initial calibration data were not reviewed for Level III.

**b. Calibration Verification**

Calibration verification frequency and analysis criteria were met for each method when applicable.

Continuing calibration data were not reviewed for Level III.

**III. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks with the following exceptions:

Associated SDG	Method Blank ID	Analyte	Concentration	Associated Samples
IQ22	Method Blank	Lipids	0.0080 %	LDW-05-T4-M-DC-EM-COMP1 LDW-05-T4-M-DC-HP-COMP1 LDW-05-T1-M-DC-EM-COMP1 LDW-05-T1-M-DC-HP-COMP1 LDW-05-T3-M-DC-EM-COMP1 LDW-05-T3-M-DC-HP-COMP1 LDW-05-T2-M-SC-EM-COMP1 LDW-05-T2-M-SC-HP-COMP1

Associated SDG	Method Blank ID	Analyte	Concentration	Associated Samples
IQ23	Method Blank	Lipids	0.010 %	LDW-05-T1-C-PS-WB-COMP1** LDW-05-T2-E-PS-WB-COMP1** LDW-05-T3-F-PS-WB-COMP1** LDW-05-T4-C-PS-WB-COMP1** LDW-05-T1-M-ES-FL-COMP1** LDW-05-T1-M-ES-FL-COMP2** LDW-05-T1-M-ES-FL-COMP3** LDW-05-T2-M-ES-FL-COMP1** LDW-05-T2-M-ES-FL-COMP2** LDW-05-T2-M-ES-FL-COMP3** LDW-05-T3-M-ES-FL-COMP1** LDW-05-T3-M-ES-FL-COMP2** LDW-05-T3-M-ES-FL-COMP3** LDW-05-T4-M-ES-FL-COMP1** LDW-05-T1-A-SS-WB-COMP1** LDW-05-T1-B-SS-WB-COMP1** LDW-05-T1-C-SS-WB-COMP1** LDW-05-T1-D-SS-WB-COMP1** LDW-05-T1-E-SS-WB-COMP1** LDW-05-T1-F-SS-WB-COMP1**
IQ24 IQ30	Method Blank	Lipids	0.020 %	LDW-05-T2-A-SS-WB-COMP1 LDW-05-T2-B-SS-WB-COMP1 LDW-05-T2-C-SS-WB-COMP1 LDW-05-T2-D-SS-WB-COMP1 LDW-05-T2-E-SS-WB-COMP1 LDW-05-T2-F-SS-WB-COMP1 LDW-05-T3-A-SS-WB-COMP1 LDW-05-T3-B-SS-WB-COMP1 LDW-05-T3-C-SS-WB-COMP1 LDW-05-T3-D-SS-WB-COMP1 LDW-05-T3-E-SS-WB-COMP1 LDW-05-T3-F-SS-WB-COMP1 LDW-05-T1-M-ES-WB-COMP1 LDW-05-T1-M-ES-WB-COMP2 LDW-05-T1-M-ES-WB-COMP3 LDW-05-T2-M-ES-WB-COMP1 LDW-05-T2-M-ES-WB-COMP2 LDW-05-T2-M-ES-WB-COMP3 LDW-05-T4-M-ES-WB-COMP1 LDW-05-T4-M-ES-WB-COMP2 LDW-05-T1-M-ES-RM-COMP1 LDW-05-T1-M-ES-RM-COMP2 LDW-05-T1-M-ES-RM-COMP3 LDW-05-T2-M-ES-RM-COMP1 LDW-05-T2-M-ES-RM-COMP2 LDW-05-T2-M-ES-RM-COMP3 LDW-05-T3-M-ES-RM-COMP1 LDW-05-T3-M-ES-RM-COMP2 LDW-05-T3-M-ES-RM-COMP3 LDW-05-T4-M-ES-RM-COMP1
IQ25	Method Blank	Lipids	0.0040 %	LDW-05-T3-M-ES-WB-COMP1 LDW-05-T3-M-ES-WB-COMP2 LDW-05-T3-M-ES-WB-COMP3 LDW-05-T4-A-SS-WB-COMP1 LDW-05-T4-B-SS-WB-COMP1 LDW-05-T4-C-SS-WB-COMP1 LDW-05-T4-D-SS-WB-COMP1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

#### IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

#### \*V. Duplicates/Triplicates

Duplicate (DUP) and triplicate (TRP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits with the following exceptions:

Associated SDG	DUP ID (Associated Samples)	Analyte	RPD (Limits)	Flag	A or P
IQ22	LDW-05-T3-M-DC-EM-COMP1DUP (LDW-05-T4-M-DC-EM-COMP1 LDW-05-T4-M-DC-HP-COMP1 LDW-05-T1-M-DC-EM-COMP1 LDW-05-T1-M-DC-HP-COMP1 LDW-05-T3-M-DC-EM-COMP1 LDW-05-T3-M-DC-HP-COMP1 LDW-05-T2-M-SC-EM-COMP1 LDW-05-T2-M-SC-HP-COMP1 LDW-05-T3-M-DC-EM-COMP1DUP)	Lipids	42.8 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	A

Associated SDG	TRP ID (Associated Samples)	Analyte	RPD (Limits)	Flag	A or P
IQ22	LDW-05-T3-M-DC-EM-COMP1TRP (LDW-05-T4-M-DC-EM-COMP1 LDW-05-T4-M-DC-HP-COMP1 LDW-05-T1-M-DC-EM-COMP1 LDW-05-T1-M-DC-HP-COMP1 LDW-05-T3-M-DC-EM-COMP1 LDW-05-T3-M-DC-HP-COMP1 LDW-05-T2-M-SC-EM-COMP1 LDW-05-T2-M-SC-HP-COMP1 LDW-05-T3-M-DC-EM-COMP1TRP)	Lipids	49.7 ( $\leq 30$ )	J (all detects) UJ (all non-detects)	A

\*Removed duplicate text for total solids.

#### VI. Laboratory Control Samples

Laboratory control samples were not required by the method.

#### VII. Sample Result Verification

All sample result verifications met validation criteria.

Sample result verification data were not reviewed for Level III.

**VIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**IX. Field Duplicates**

No field duplicates were identified in this SDG.

**X. Field Blanks**

No field blanks were identified in this SDG.

LDC #: 14326A3

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12-1-05

SDG #: IQ22

Level III

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	Δ	Sampling dates: 8/30 → 9/2/05
II.	GC/ECD Instrument Performance Check	NA	
III.	Initial calibration	Δ	
IV.	Continuing calibration	Δ	
V.	Blanks	Δ	
VI.	Surrogate spikes	Δ	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	Silica Clean-up performed
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	N	
XIII.	Overall assessment of data	SW	<del>Silica clean-up performed</del>
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Tissue

1	LDW-05-T4-M-DC-EM-COMP1	11	LDW-05-T2-M-SC-HP-COMP1MS	21	
2	LDW-05-T4-M-DC-HP-COMP1	12	LDW-05-T2-M-SC-HP-COMP1MSD	22	
3	LDW-05-T1-M-DC-EM-COMP1	13	IQ22MBST	23	
4	LDW-05-T1-M-DC-HP-COMP1	14	MB - 102405	24	
5	LDW-05-T3-M-DC-EM-COMP1	15		25	
6	LDW-05-T3-M-DC-HP-COMP1	16		26	
7	LDW-05-T2-M-SC-EM-COMP1	17		27	
8	LDW-05-T2-M-SC-HP-COMP1	18		28	
9	LDW-05-T3-M-DC-EM-COMP1MS	19		29	
10	LDW-05-T3-M-DC-EM-COMP1MSD	20		30	

## VALIDATION FINDINGS WORKSHEET

**METHOD:** Pesticide/PCBs (EPASW 846 Method 8081/8082)

<b>A. alpha-BHC</b>	<b>I. Dieldrin</b>	<b>Q. Endrin ketone</b>	<b>Y. Aroclor-1242</b>	<b>GG.</b>
<b>B. beta-BHC</b>	<b>J. 4,4'-DDE</b>	<b>R. Endrin aldehyde</b>	<b>Z. Aroclor-1248</b>	<b>HH.</b>
<b>C. delta-BHC</b>	<b>K. Endrin</b>	<b>S. alpha-Chlordane</b>	<b>AA. Aroclor-1254</b>	<b>II.</b>
<b>D. gamma-BHC</b>	<b>L. Endosulfan II</b>	<b>T. gamma-Chlordane</b>	<b>BB. Aroclor-1260</b>	<b>JJ.</b>
<b>E. Heptachlor</b>	<b>M. 4,4'-DDD</b>	<b>U. Toxaphene</b>	<b>CC. DB 608</b>	<b>KK.</b>
<b>F. Aldrin</b>	<b>N. Endosulfan sulfate</b>	<b>V. Aroclor-1016</b>	<b>DD. DB 1701</b>	<b>LL.</b>
<b>G. Heptachlor epoxide</b>	<b>O. 4,4'-DDT</b>	<b>W. Aroclor-1221</b>	<b>EE.</b>	<b>MM.</b>
<b>H. Endosulfan I</b>	<b>P. Methoxychlor</b>	<b>X. Aroclor-1232</b>	<b>FF.</b>	<b>NN.</b>

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_







LDC #: 14326B3

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12/2/05

SDG #: IQ23

Level IV

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: P

2nd Reviewer:

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 8/29 → 9/1/05
II.	GC/ECD Instrument Performance Check	NA	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	A	
XII.	Compound quantitation and reported CRQLs	SW	
XIII.	Overall assessment of data	SW	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Tissue

1	LDW-05-T1-C-PS-WB-COMP1	X	5	11	LDW-05-T2-M-ES-FL-COMP3	✓	6	21	LDW-05-T1-F-SS-WB-COMP1	✓	5
2	LDW-05-T2-E-PS-WB-COMP1	✓	6	12	LDW-05-T3-M-ES-FL-COMP1	✓	5	22	LDW-05-T1-C-PS-WB-COMP1MS		
3	LDW-05-T3-F-PS-WB-COMP1	✓	5	13	LDW-05-T3-M-ES-FL-COMP2	✓	5	23	LDW-05-T1-C-PS-WB-COMP1MSD		
4	LDW-05-T4-C-PS-WB-COMP1	✓	6	14	LDW-05-T3-M-ES-FL-COMP3	✓	5	24	LDW-05-T4-M-ES-FL-COMP1MS		
5	LDW-05-T1-M-ES-FL-COMP1	✓	5	15	LDW-05-T4-M-ES-FL-COMP1	✓	5	25	LDW-05-T4-M-ES-FL-COMP1MSD		
6	LDW-05-T1-M-ES-FL-COMP2	✓	5	16	LDW-05-T1-A-SS-WB-COMP1		5	26	LDW-05-T1-D-SS-WB-COMP1MS		
7	LDW-05-T1-M-ES-FL-COMP3	✓	5	17	LDW-05-T1-B-SS-WB-COMP1		5	27	LDW-05-T1-D-SS-WB-COMP1MSD		
8	LDW-05-T2-M-ES-FL-COMP1	✓	5	18	LDW-05-T1-C-SS-WB-COMP1		5	28	MB-102405		
9	LDW-05-T2-M-ES-FL-COMP2	✓	5	19	LDW-05-T1-D-SS-WB-COMP1	X	5	29			
10	LDW-05-T2-M-ES-FL-COMP2DL		5	20	LDW-05-T1-E-SS-WB-COMP1	X	5	30			

LDC #: 1432683  
 SDG #: I023

VALIDATION FINDINGS CHECKLIST

Page: 6 of 2  
 Reviewer: AB  
 2nd Reviewer: \_\_\_\_\_

Method: GC HPLC

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the RT windows properly established?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
What type of continuing calibration calculation was performed? ___%D or %R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) < 15%.0 or percent recoveries 85-115%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all the retention times within the acceptance windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

LDC #: 14326B3  
 SDG #: I Q23

VALIDATION FINDINGS CHECKLIST

Page: 26 <sup>2</sup>  
 Reviewer: B  
 2nd Reviewer: \_\_\_\_\_

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the performance evaluation (PE) samples within the acceptance limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>X. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XI. Compound quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XII. System performance</b>				
System performance was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XIV. Field duplicates</b>				
Were field duplicate pairs identified in this SDG?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field duplicates?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>XV. Field blanks</b>				
Were field blanks identified in this SDG?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field blanks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	





LDC #: 14326 B3  
 SDG #: I023

**VALIDATION FINDINGS WORKSHEET**  
**Compound Quantitation and Reported CRQLs**

Page: 1 of 1  
 Reviewer: B  
 2nd Reviewer: \_\_\_\_\_

METHOD:  GC  HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

**Level IV/D Only**

- Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?  
Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?

#	Compound Name	Finding	Associated Samples	Qualifications
	AA	exceeded cal range	9	<del>H/A det</del> NA
	Due to the level of target analytes, all samples were diluted 5X, except sample # 10, it was diluted 10X			Text

Comments: See sample calculation verification worksheet for recalculations



LDC #: 14326B3  
 SDG #: IQ23

**VALIDATION FINDINGS WORKSHEET**  
**Overall Assessment of Data**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: \_\_\_\_\_

METHOD:  GC  HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y  N  N/A Was the overall quality and usability of the data acceptable?

#	Compound Name	Finding	Associated Samples	Qualifications
	AA	exceeded cd range	9	R/A
	<del>BB</del>	<del>lower results</del>	↓	↓
	All exupt AA, BB	diluted	10	R/A
	The pattern of peaks on detected samples were possibly weathered aromatics. The results were reported on the best match possible aromatic pattern			text
				should be under compound search

Comments: \_\_\_\_\_

LDC #: 14326B3  
 SDG #: I Q 23

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: \_\_\_\_\_

METHOD: GC \_\_\_\_\_ HPLC \_\_\_\_\_

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C  
 average CF = sum of the CF/number of standards  
 %RSD = 100 \* (S/X)

A = Area of compound,  
 C = Concentration of compound,  
 S = Standard deviation of the CF  
 X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				CF <sub>pb</sub> (7SD) std	CF <sub>pb</sub> (7SD) std	Average CF (initial)	Average CF (initial)	%RSD	%RSD
1	ICAL DB5	10/17/05	1260-1	0.0516	0.0516	0.0534	0.0534	7.4	7.4
2	ZB35	10/17/05	1260-1	0.0879	0.0879	0.0877	0.0877	5.9	5.9
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



LDC# 1432683  
 SDG #: IQ23

**Surrogate Results Verification**

page 19 /  
 Reviewer: F7  
 2nd reviewer: \_\_\_\_\_

METHOD:  GC  HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
 SS = Surrogate Spiked

Sample ID: #1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
PCB	ZB35	33	32.67	99	99	0
TCMX	DB-5	40	45	113	113	↓

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 14326 B3  
 SDG #: I Q23

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer:         

METHOD: GC HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 \* (SSC - SC)/SA                      Where                      SSC = Spiked sample concentration                      SC = Sample concentration  
 RPD = (((SSCMS - SSCMSD) \* 2) / (SSCMS + SSCMSD)) \* 100                      SA = Spike added                      MS = Matrix spike                      MSD = Matrix spike duplicate

MS/MSD samples: 22+23

Compound	Spike Added (ug/kg)		Sample Conc. (ug/kg)	Spike Sample Concentration (ug/kg)		Matrix spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
Aroclor 1260	100	100	343	570	461	167	167	118	118	10.1	10.1

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14326B3  
 SDG #: EQ23

**VALIDATION FINDINGS WORKSHEET**

**Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer:

METHOD: GC HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery =  $100 * (SSC - SC) / SA$

Where SSC = Spiked sample concentration  
 SA = Spike added

SC = Sample concentration

RPD =  $((SSCLCS - SSCLCSD) * 2) / (SSCLCS + SSCLCSD) * 100$

LCS = Laboratory Control Sample

LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS - 102405

Compound	Spike Added		Sample Conc.	Spike Sample Concentration		LCS		LCSD		LCS/LCSD		
	LCS	LCSD		---	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
							Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)												
Diesel (8015)												
Benzene (8021B)												
Methane (RSK-175)												
2,4-D (8151)												
Dinoseb (8151)												
Naphthalene (8310)												
Anthracene (8310)												
HMX (8330)												
2,4,6-Trinitrotoluene (8330)												
<u>Aroclor 1260</u>	<u>100</u>	<u>NA</u>	<u>0</u>	<u>100</u>	<u>NA</u>	<u>100</u>	<u>100</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14326 B3  
 SDG #: FQ23

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

Page: 1 of 1  
 Reviewer: JS  
 2nd Reviewer: \_\_\_\_\_

METHOD: GC HPLC

Y N N/A  
Y N N/A

Were all reported results recalculated and verified for all level IV samples?  
 Were all recalculated results for detected target compounds agree within 10% of the reported results?

Concentration =  $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

Example:

Sample ID: #1 Compound Name 1260

- A= Area or height of the compound to be measured
- Fv= Final Volume of extract
- Df= Dilution Factor
- RF= Average response factor of the compound  
In the initial calibration
- Vs= Initial volume of the sample
- Ws= Initial weight of the sample
- %S= Percent Solid

*final*  
 Concentration =  $\frac{343.9 \times 2 \times 5}{10}$   
 = 343.9 ug/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications
		1260-1 = 2296434 (80)	=	299.1	
		11503914 (0.0534)			
		1260-1 = 299.1			
		- 2 = 76.8			
		- 3 = 495.5			
		- 4 = 439.7			
		- 5 = 408.1	Ave =	343.9	

Comments: \_\_\_\_\_

LDC #: 14326C3  
 SDG #: IQ24  
 Laboratory: Analytical Resources, Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level III

Date: 12/01/05

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8/29/05 - 9/6/05
II.	GC/ECD Instrument Performance Check	NA	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	Silica Gel clean-up performed
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	SW	
XIII.	Overall assessment of data	SW	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Tissue

1	LDW-05-T2-A-SS-WB-COMP1 ✓ 3X	11	LDW-05-T3-D-SS-WB-COMP1 ✓ 10	21	LDW-05-T2-M-ES-WB-COMP1 ✓ 5
2	LDW-05-T2-B-SS-WB-COMP1 ✓ 5X	12	LDW-05-T3-E-SS-WB-COMP1 ✓ 3	22	LDW-05-T2-M-ES-WB-COMP1DL ✓ 10
3	LDW-05-T2-C-SS-WB-COMP1 ✓ 10	13	LDW-05-T3-F-SS-WB-COMP1 ✓ 5	23	LDW-05-T2-M-ES-WB-COMP2 ✓ 5
4	LDW-05-T2-D-SS-WB-COMP1 ✓ 5	14	LDW-05-T3-F-SS-WB-COMP1DL ✓ 10	24	LDW-05-T2-M-ES-WB-COMP2DL ✓ 10
5	LDW-05-T2-E-SS-WB-COMP1 ✓ 5	15	LDW-05-T1-M-ES-WB-COMP1 ✓ 3	25	LDW-05-T2-M-ES-WB-COMP3 ✓ 5
6	LDW-05-T2-E-SS-WB-COMP1DL ✓ 10	16	LDW-05-T1-M-ES-WB-COMP1DL ✓ 10	26	LDW-05-T2-M-ES-WB-COMP3DL ✓ 10
7	LDW-05-T2-F-SS-WB-COMP1 ✓ 3	17	LDW-05-T1-M-ES-WB-COMP2 ✓ 5	27	LDW-05-T4-M-ES-WB-COMP1 ✓ 3
8	LDW-05-T3-A-SS-WB-COMP1 ✓ 5	18	LDW-05-T1-M-ES-WB-COMP2DL ✓ 10	28	LDW-05-T4-M-ES-WB-COMP1DL ✓ 10
9	LDW-05-T3-B-SS-WB-COMP1 ✓ 3	19	LDW-05-T1-M-ES-WB-COMP3 ✓ 5	29	LDW-05-T4-M-ES-WB-COMP2 ✓ 3
10	LDW-05-T3-C-SS-WB-COMP1 ✓ 5	20	LDW-05-T1-M-ES-WB-COMP3DL ✓ 10	30	LDW-05-T4-M-ES-WB-COMP1MS
			MB-102605	31	LDW-05-T4-M-ES-WB-COMP1MSD



## VALIDATION FINDINGS WORKSHEET

**METHOD:** Pesticide/PCBs (EPASW 846 Method 8081/8082)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG.
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH.
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II.
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ.
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. DB 608	KK.
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. DB 1701	LL.
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE.	MM.
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF.	NN.

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 14320C3

SDG #: 1Q 24

### VALIDATION FINDINGS WORKSHEET Compound Quantitation and Reported CRQLs

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD:  GC  HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

**Level IV/D Only**

Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?

Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?

#	Compound Name	Finding	Associated Samples	Qualifications
①	AA	exceeded cal range	5, 13, 15, 17, 19, 21, 23, 25, 27	J/Adet NA
②	Due to the level of target analytes, all samples were diluted 3 to 10 times			Text
③	The pattern of peaks on detected samples were possibly weathered Aroclors. The results were reported on the best match possible aroclor pattern			Text

Comments: See sample calculation verification worksheet for recalculations



LDC #: 14326D3

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12/30/05

SDG #: IQ25

Level III

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area		Comments	
I.	Technical holding times	A SW	Sampling dates: 8/30/05 - 9/1/05 -> 10/14/05
II.	GC/ECD Instrument Performance Check	NA	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LC9
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	SW	
XIII.	Overall assessment of data	SW	
XIV.	Field duplicates	N	
XV.	Field blanks	ND	RB = Rinstate Blank #1 + #2 Blender = Rinstate Blank #1 + #2 Grinder

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinstate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Tissue

1	LDW-05-T3-M-ES-WB-COMP1	5	11	LDW-05-T3-M-ES-WB-COMP3MSD	21	MB - 102505
2	LDW-05-T3-M-ES-WB-COMP1DL	10	12	Rinstate Blank #1 Blender	22	
3	LDW-05-T3-M-ES-WB-COMP2	3	13	Rinstate Blank #1 Grinder	23	
4	LDW-05-T3-M-ES-WB-COMP2DL	10	14	Rinstate Blank #2 Grinder	24	
5	LDW-05-T3-M-ES-WB-COMP3	5	15	Rinstate Blank #2 Blender	25	
6	LDW-05-T4-A-SS-WB-COMP1	3	16		26	
7	LDW-05-T4-B-SS-WB-COMP1	3	17		27	
8	LDW-05-T4-C-SS-WB-COMP1	3	18		28	
9	LDW-05-T4-D-SS-WB-COMP1	3	19		29	
10	LDW-05-T3-M-ES-WB-COMP3MS		20		30	

LDC #: 14326D3  
 SDG #: I Q 25

**VALIDATION FINDINGS WORKSHEET**  
**Compound Quantitation and Reported CRQLs**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

METHOD:  GC  HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

**Level IV/D Only**

- Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?  
 Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?

#	Compound Name	Finding	Associated Samples	Qualifications
	AD	exceeded cal range	1, 3	J/A det NA
	Due to the hnd were diluted	of target analytes <sup>All</sup> 3 to 20x	in samples	Text
	The pattern of peaks on detected samples were possibly weathered aromatics. The results were reported on the best match possible aromatic pattern			Text

Comments: See sample calculation verification worksheet for recalculations



LDC #: 14326E3

## VALIDATION COMPLETENESS WORKSHEET

Date: 12/1/05

SDG #: IQ30

Level III

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8/29 → 9/6/05
II.	GC/ECD Instrument Performance Check	NA	
III.	Initial calibration	A	
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	Silica gel clean up performed
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	SW	
XIII.	Overall assessment of data	SW	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

1	LDW-05-T1-M-ES-RM-COMP1	5x	11	LDW-05-T2-M-ES-RM-COMP3DL	10	21	MB-102705
2	LDW-05-T1-M-ES-RM-COMP1DL	10	12	LDW-05-T3-M-ES-RM-COMP1	10	22	
3	LDW-05-T1-M-ES-RM-COMP2	5	13	LDW-05-T3-M-ES-RM-COMP2	3	23	
4	LDW-05-T1-M-ES-RM-COMP2DL	10	14	LDW-05-T3-M-ES-RM-COMP3	10	24	
5	LDW-05-T1-M-ES-RM-COMP3	5	15	LDW-05-T4-M-ES-RM-COMP1	3	25	
6	LDW-05-T2-M-ES-RM-COMP1	5	16	LDW-05-T4-M-ES-RM-COMP1DL	10	26	
7	LDW-05-T2-M-ES-RM-COMP1DL	10	17	LDW-05-T1-M-ES-RM-COMP1MS		27	
8	LDW-05-T2-M-ES-RM-COMP2	5	18	LDW-05-T1-M-ES-RM-COMP1MSD		28	
9	LDW-05-T2-M-ES-RM-COMP2DL	10	19			29	
10	LDW-05-T2-M-ES-RM-COMP3	5	20			30	

## VALIDATION FINDINGS WORKSHEET

**METHOD: Pesticide/PCBs (EPASW 846 Method 8081/8082)**

<b>A. alpha-BHC</b>	<b>I. Dieldrin</b>	<b>Q. Endrin ketone</b>	<b>Y. Aroclor-1242</b>	<b>GG.</b>
<b>B. beta-BHC</b>	<b>J. 4,4'-DDE</b>	<b>R. Endrin aldehyde</b>	<b>Z. Aroclor-1248</b>	<b>HH.</b>
<b>C. delta-BHC</b>	<b>K. Endrin</b>	<b>S. alpha-Chlordane</b>	<b>AA. Aroclor-1254</b>	<b>II.</b>
<b>D. gamma-BHC</b>	<b>L. Endosulfan II</b>	<b>T. gamma-Chlordane</b>	<b>BB. Aroclor-1260</b>	<b>JJ.</b>
<b>E. Heptachlor</b>	<b>M. 4,4'-DDD</b>	<b>U. Toxaphene</b>	<b>CC. DB 608</b>	<b>KK.</b>
<b>F. Aldrin</b>	<b>N. Endosulfan sulfate</b>	<b>V. Aroclor-1016</b>	<b>DD. DB 1701</b>	<b>LL.</b>
<b>G. Heptachlor epoxide</b>	<b>O. 4,4'-DDT</b>	<b>W. Aroclor-1221</b>	<b>EE.</b>	<b>MM.</b>
<b>H. Endosulfan I</b>	<b>P. Methoxychlor</b>	<b>X. Aroclor-1232</b>	<b>FF.</b>	<b>NN.</b>

Notes: \_\_\_\_\_

\_\_\_\_\_





LDC #: 14326E3  
 SDG #: IQ30

**VALIDATION FINDINGS WORKSHEET**  
**Compound Quantitation and Reported CRQLs**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

METHOD: GC HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

**Level IV/D Only**

- Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?  
Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?

#	Compound Name	Finding	Associated Samples	Qualifications
①	AA	exceeded cal range	1, 3, 6, 8, 10 15	<del>N/A</del> N/A
②	Due to the all samples 3 to 10x	level of target analytes were diluted <del>from</del>		Text
③	The patterns of peaks on detected samples were possibly weathered aromatics. The results were reported on the best match aromatic pattern.			Text

Comments: See sample calculation verification worksheet for recalculations

LDC #: 14326E3  
 SDG #: IQ30

**VALIDATION FINDINGS WORKSHEET**  
**Overall Assessment of Data**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

METHOD:  GC  HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable?

#	Compound Name	Finding	Associated Samples	Qualifications
	AA	exceeded cal range	1, 3, 6, 8, 15	R/A
	<del>BB</del>	<del>lower results</del>	↓	↓
	All except AA, <del>BB</del>	diluted	2, 4, 7, 9, 16	R/A
	AA	exceeded cal range	10	R/A
	All except AA	diluted	11	R/A

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 14326A6  
 SDG #: IQ22  
 Laboratory: Analytical Resources, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 12-1-05  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: K

*mg* **METHOD:** Percent Lipids (Bligh-Dyer Method), Total Solids (EPA 160.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8-30-05 through 9-2-05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	N	Not required
V	Duplicates	SW	DUP/TRIP
VI.	Laboratory control samples	N	Not required
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
*all tissue*

1	LDW-05-T4-M-DC-EM-COMP1	11	LDW-05-T2-M-SC-HP-COMP1DUP	21		31
2	LDW-05-T4-M-DC-HP-COMP1	12	LDW-05-T2-M-SC-HP-COMP1TRP	22		32
3	LDW-05-T1-M-DC-EM-COMP1	13	PB	23		33
4	LDW-05-T1-M-DC-HP-COMP1	14		24		34
5	LDW-05-T3-M-DC-EM-COMP1	15		25		35
6	LDW-05-T3-M-DC-HP-COMP1	16		26		36
7	LDW-05-T2-M-SC-EM-COMP1	17		27		37
8	LDW-05-T2-M-SC-HP-COMP1	18		28		38
9	LDW-05-T3-M-DC-EM-COMP1DUP	19		29		39
10	LDW-05-T3-M-DC-EM-COMP1TRP	20		30		40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_







LDC #: 14326B6  
 SDG #: IQ23  
 Laboratory: Analytical Resources, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 12-1-05  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: *[Signature]*

*ENG* **METHOD:** Percent Lipids (Bligh-Dyer Method), Total Solids (EPA 160.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8-29-05 through 9-6-05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	N	Not required
V	Duplicates	<del>SW</del> A	
VI.	Laboratory control samples	N	Not required
VII.	Sample result verification	A	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
*all tissue*

1	LDW-05-T1-C-PS-WB-COMP1	11	LDW-05-T3-M-ES-FL-COMP1	21	LDW-05-T1-C-PS-WB-COMP1DUP
2	LDW-05-T2-E-PS-WB-COMP1	12	LDW-05-T3-M-ES-FL-COMP2	22	LDW-05-T1-C-PS-WB-COMP1TRP
3	LDW-05-T3-F-PS-WB-COMP1	13	LDW-05-T3-M-ES-FL-COMP3	23	LDW-05-T4-M-ES-FL-COMP1DUP
4	LDW-05-T4-C-PS-WB-COMP1	14	LDW-05-T4-M-ES-FL-COMP1	24	LDW-05-T4-M-ES-FL-COMP1TRP
5	LDW-05-T1-M-ES-FL-COMP1	15	LDW-05-T1-A-SS-WB-COMP1	25	LDW-05-T1-D-SS-WB-COMP1DUP
6	LDW-05-T1-M-ES-FL-COMP2	16	LDW-05-T1-B-SS-WB-COMP1	26	LDW-05-T1-D-SS-WB-COMP1TRP
7	LDW-05-T1-M-ES-FL-COMP3	17	LDW-05-T1-C-SS-WB-COMP1	27	PB
8	LDW-05-T2-M-ES-FL-COMP1	18	LDW-05-T1-D-SS-WB-COMP1	28	LDW-05-T3-M-ES-FL-COMP1DUP
9	LDW-05-T2-M-ES-FL-COMP2	19	LDW-05-T1-E-SS-WB-COMP1	29	↓
10	LDW-05-T2-M-ES-FL-COMP3	20	LDW-05-T1-F-SS-WB-COMP1	30	LDW-05-T1-A-SS-WB-COMP1DUP

31 ↓ TRP



LDC #: 14326B6  
 SDG #: IQ23

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: TC

Method: Inorganics (EPA Method *See cover*)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients > 0.995?			✓	
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?			✓	
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)	✓			
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water. <u>tissue</u>		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL (≤ 2X CRDL for soil) was used for samples that were < 5X the CRDL, including when only one of the duplicate sample values were < 5X the CRDL.	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?		✓		
Was an LCS analyzed per extraction batch?		✓		
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?			✓	
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 14326B6  
 SDG #: IQ23

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: AK

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were detection limits < RL?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field duplicates.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field blanks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	







LDC #: 1432686  
 SDG #: IQ23

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: KL

METHOD: Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$  Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$  Where, S = Original sample concentration  
 D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
—	Laboratory control sample	—	—	—	—	—	—
—	Matrix spike sample	—	(SSR-SR)	—	—	—	—
21	Duplicate sample	% lipids	2.10 (%)	2.32 (%)	10.0	10.0	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



LDC #: 14326C6  
 SDG #: IQ24  
 Laboratory: Analytical Resources, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 12-1-05  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: DL

*AMH* **METHOD:** Percent Lipids (Bligh-Dyer Method) , Total Solids (EPA 160.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8-29-05 through 9-6-05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	N	Not required
V	Duplicates	ASW	DUP/TRIP
VI.	Laboratory control samples	N	Not required
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
*all tissue*

1	LDW-05-T2-A-SS-WB-COMP1	11	LDW-05-T3-E-SS-WB-COMP1	21	LDW-05-T4-M-ES-WB-COMP1DUP
2	LDW-05-T2-B-SS-WB-COMP1	12	LDW-05-T3-F-SS-WB-COMP1	22	LDW-05-T4-M-ES-WB-COMP1TRP
3	LDW-05-T2-C-SS-WB-COMP1	13	LDW-05-T1-M-ES-WB-COMP1	23	PB
4	LDW-05-T2-D-SS-WB-COMP1	14	LDW-05-T1-M-ES-WB-COMP2	24	LDW-05-T2-B-SS-WB-COMP1 DUP
5	LDW-05-T2-E-SS-WB-COMP1	15	LDW-05-T1-M-ES-WB-COMP3	25	✓
6	LDW-05-T2-F-SS-WB-COMP1	16	LDW-05-T2-M-ES-WB-COMP1	26	
7	LDW-05-T3-A-SS-WB-COMP1	17	LDW-05-T2-M-ES-WB-COMP2	27	
8	LDW-05-T3-B-SS-WB-COMP1	18	LDW-05-T2-M-ES-WB-COMP3	28	
9	LDW-05-T3-C-SS-WB-COMP1	19	LDW-05-T4-M-ES-WB-COMP1	29	
10	LDW-05-T3-D-SS-WB-COMP1	20	LDW-05-T4-M-ES-WB-COMP2	30	

*TRIP*









LDC #: 14326D6

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12-1-05

SDG #: IQ25

Level III

Page: 1 of 1

Laboratory: Analytical Resources, Inc.

Reviewer: MG

2nd Reviewer: A

*MA* **METHOD:** Percent Lipids (Bligh-Dyer Method) , Total Solids (PSEP) (EPA 160.3 )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8-30-05 through 9-1-05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV.	Matrix Spike/Matrix Spike Duplicates	N	Not required
V.	Duplicates	SW	DUP/TRIP
VI.	Laboratory control samples	N	Not required
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*all tissue*

1	LDW-05-T3-M-ES-WB-COMP1	11		21	
2	LDW-05-T3-M-ES-WB-COMP2	12		22	
3	LDW-05-T3-M-ES-WB-COMP3	13		23	
4	LDW-05-T4-A-SS-WB-COMP1	14		24	
5	LDW-05-T4-B-SS-WB-COMP1	15		25	
6	LDW-05-T4-C-SS-WB-COMP1	16		26	
7	LDW-05-T4-D-SS-WB-COMP1	17		27	
8	LDW-05-T3-M-ES-WB-COMP3DUP	18		28	
9	LDW-05-T3-M-ES-WB-COMP3TRP	19		29	
10	PB	20		30	







LDC #: 14326E6  
 SDG #: IQ30  
 Laboratory: Analytical Resources, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 12-1-05  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: DL

gm

**METHOD:** Percent Lipids (Bligh-Dyer Method) , Total Solids (EPA 160.3)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8-29-05 through 9-6-05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	N	Not required
V	Duplicates	SWA	DUP/TRIP
VI.	Laboratory control samples	N	Not required
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 all tissue

1	LDW-05-T1-M-ES-RM-COMP1	11	LDW-05-T1-M-ES-RM-COMP1DUP	21	
2	LDW-05-T1-M-ES-RM-COMP2	12	LDW-05-T1-M-ES-RM-COMP1TRP	22	
3	LDW-05-T1-M-ES-RM-COMP3	13	PB	23	
4	LDW-05-T2-M-ES-RM-COMP1	14	LDW-05-T3-M-ES-RM-COMP1 Dup		
5	LDW-05-T2-M-ES-RM-COMP2	15	↓	TRP	25
6	LDW-05-T2-M-ES-RM-COMP3	16			26
7	LDW-05-T3-M-ES-RM-COMP1	17			27
8	LDW-05-T3-M-ES-RM-COMP2	18			28
9	LDW-05-T3-M-ES-RM-COMP3	19			29
10	LDW-05-T4-M-ES-RM-COMP1	20			30







