APPENDIX B: DATA VALIDATION REPORT

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

LDC #14126/14297
January 10, 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,

Enclosed is our revised 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/MS Bis(2-ethylhexyl)phthalate by EPA SW 846 Method 8270C, and GC Pentachlorophenol by EPA SW 846 Method 8041. Samples are referenced under the following Sample Delivery Groups: IH50, IH51, IH52, and IM87. 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

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

LDC #14126/14297
December 2, 2005

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,

Enclosed is our 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/MS Bis(2-ethylhexyl)phthalate by EPA SW 846 Method 8270C, and GC Pentachlorophenol by EPA SW 846 Method 8041. Samples are referenced under the following Sample Delivery Groups: IH50, IH51, IH52, and IM87. 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

Attachment 1

LDC #14126 (Windward Environmental, LLC - Seattle WA / Lower Duwamish Waterway Group)																																			
LDC	SDG#	DATE REC'D	(3) DATE DUE	BEPH (8270C)		PCP (8041)																													
Matrix: Tissue/Sediment				T	S	T	S	T	S	T	S	T	S	T	S	T	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	IH52	10/10/05	10/31/05	15	0	22	0																												
Total	B/SC			15	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include DLs, MS/MSD, and DUPs

LDC #14297 (Windward Environmental, LLC - Seattle WA / Lower Duwamish Waterway Group)

LDC	SDG#	DATE REC'D	(3) DATE DUE	BEPH (8270C)		PCP (8041)																													
Matrix: Tissue/Sediment				T	S	T	S	T	S	T	S	T	S	T	S	T	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	IH50	11/15/05	12/08/05	10	0	10	0																												
B	IH51	11/15/05	12/08/05	14	0	14	0																												
C	IM87	11/15/05	12/08/05	10	0	3	0																												
Total	B/SC			34	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include DLs, MS/MSD, and DUPs

CHEMICAL DATA QUALITY REVIEW FOR FISH AND CRAB TISSUE SAMPLES

Lower Duwamish Waterway Group
LDC# 14126 & 14297

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/MS Bis(2-ethylhexyl)phthalate by EPA SW 846 Method 8270C, and GC Pentachlorophenol by EPA SW 846 Method 8041. Samples are referenced under the following Sample Delivery Groups: IH50, IH51, IH52, and IM87. 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). Specific QC criteria used follows the Fish and Crab Collection and Chemical Analyses Quality Assurance Project Plan (August 27, 2004). 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 #14126 (Windward Environmental, LLC - Seattle WA / Lower Duwamish Waterway Group)

LDC	SDG#	DATE REC'D	(3) DATE DUE	BEPH (8270C)		PCP (8041)																													
Matrix: Tissue/Sediment				T	S	T	S	T	S	T	S	T	S	T	S	T	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	IH52	10/10/05	10/31/05	15	0	22	0																												
Total	B/SC			15	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include DLs, MS/MSD, and DUPs

LDC #14297 (Windward Environmental, LLC - Seattle WA / Lower Duwamish Waterway Group)

LDC	SDG#	DATE REC'D	(3) DATE DUE	BEPH (8270C)		PCP (8041)																													
Matrix: Tissue/Sediment				T	S	T	S	T	S	T	S	T	S	T	S	T	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	IH50	11/15/05	12/08/05	10	0	10	0																												
B	IH51	11/15/05	12/08/05	14	0	14	0																												
C	IM87	11/15/05	12/08/05	10	0	3	0																												
Total	B/SC			34	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include DLs, MS/MSD, and DUPs

Attachment 2

SDG#: IH52 VALIDATION SAMPLE TABLE **LDC#:** 14126A

Project Name: Lower Duwamish Waterway Group Parameters/Analytical Method Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	BEHP (8270C)	PCP (8041)										
LDW-T3-M-DC-EM-comp-1	IH52A	tissue	08/30/04	X	X										
LDW-T3-M-DC-EM-comp-2	IH52B	tissue	09/03/04	X	X										
LDW-T3-M-DC-EM-comp-3	IH52C	tissue	09/01/04	X	X										
LDW-T3-M-DC-HP-comp-1	IH52D	tissue	08/30/04	X	X										
LDW-T3-M-SC-EM-comp-2	IH52E	tissue	09/03/04		X										
LDW-T3-M-SC-EM-comp-3	IH52F	tissue	09/03/04	X	X										
LDW-T3-M-SC-HP-comp-1	IH52G	tissue	09/03/04		X										
LDW-T4-M-DC-HP-comp-1	IH52H	tissue	08/31/04		X										
LDW-T4-M-ES-FL-comp-1	IH52I	tissue	08/30/04		X										
LDW-T4-M-ES-WB-comp-1	IH52J	tissue	08/30/04	X	X										
LDW-T4-M-ES-WB-comp-3	IH52K	tissue	08/30/04	X	X										
LDW-T1-M-DC-EM-comp-1	IH52M	tissue	08/30/04		X										
LDW-T1-M-DC-EM-comp-2	IH52N	tissue	08/30/04	X	X										
LDW-T1-M-DC-EM-comp-3	IH52O	tissue	08/30/04	X	X										
LDW-T1-M-DC-HP-comp-1	IH52P	tissue	08/30/04	X	X										
LDW-T1-M-SC-HP-comp-1	IH52Q	tissue	08/30/04		X										
LDW-T2-M-SC-EM-comp-1	IH52R	tissue	08/31/04	X	X										
LDW-T2-M-SC-EM-comp-2	IH52S	tissue	08/31/04		X										
LDW-T2-M-SC-EM-comp-3	IH52T	tissue	08/31/04	X	X										
LDW-T2-M-SC-EM-comp-4	IH52U	tissue	08/31/04	X	X										
LDW-T2-M-SC-EM-comp-5	IH52V	tissue	08/31/04	X	X										
LDW-T2-M-SC-EM-comp-6	IH52W	tissue	08/31/04	X	X										
LDW-T3-M-DC-EM-comp-1MS	IH52AMS	tissue	08/30/04	X	X										
LDW-T3-M-DC-EM-comp-1MSD	IH52AMSD	tissue	08/30/04	X	X										
LDW-T1-M-DC-EM-comp-3MS	IH52OMS	tissue	08/30/04	X											

Note: X = Validation was performed.

SDG#: IH52 | VALIDATION SAMPLE TABLE | **LDC#:** 14126A

Project Name: Lower Duwamish Waterway Group | Parameters/Analytical Method | Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	BEHP (8270C)	PCP (8041)										
LDW-T1-M-DC-FM-comp-3MSD	IH52OMSD	tissue	08/30/04	X											

Note: X = Validation was performed.

Attachment 2

SDG#: IH50 | VALIDATION SAMPLE TABLE | **LDC#:** 14297A

Project Name: Lower Duwamish Waterway Group | Parameters/Analytical Method | Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	BEHP (8270C)	PCP (8041)										
LDW-T3-M-SC-EM-comp-1	IH50A	tissue	09/03/04	X	X										
LDW-T4-M-DC-EM-comp-1	IH50B	tissue	08/31/04	X	X										
LDW-M-M-PP-FL-comp-1	IH50C	tissue	08/03/04	X	X										
LDW-M-M-SP-FL-comp-1	IH50D	tissue	08/04/04	X	X										
LDW-T3-B-SS-WB-comp-1	IH50E	tissue	08/03/04	X	X										
LDW-T3-C-SS-WB-comp-1	IH50F	tissue	08/03/04	X	X										
LDW-T3-M-ES-FL-comp-1	IH50G	tissue	08/03/04	X	X										
LDW-T4-M-SF-WB-comp-2	IH50H	tissue	08/02/04	X	X										
LDW-T4-M-SF-WB-comp-2DL	IH50HDL	tissue	08/02/04	X											
LDW-T2-M-ES-WB-comp-4	IH50I	tissue	08/03/04	X	X										
LDW-T2-M-ES-WB-comp-4DL	IH50IDL	tissue	08/03/04	X											
LDW-T3-M-ES-WB-comp-3	IH50J	tissue	08/03/04	X	X										
LDW-T3-M-ES-WB-comp-3DL	IH50JDL	tissue	08/03/04	X											

Note: X = Validation was performed.

Attachment 2

SDG#: IH51 — VALIDATION SAMPLE TABLE — **LDC#:** 14297B

Project Name: Lower Duwamish Waterway Group — Parameters/Analytical Method — Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	BEHP (8270C)	PCP (8041)										
LDW-T3-M-ES-WB-comp-4	IH51A	tissue	08/03/04	X	X										
LDW-T3-M-ES-WB-comp-5	IH51B	tissue	08/05/04	X	X										
LDW-T3-M-ES-WB-comp-6	IH51C	tissue	08/05/04	X	X										
LDW-T3-M-ES-WB-comp-6DL	IH51CDL	tissue	08/05/04	X											
LDW-T4-M-SF-WB-comp-1	IH51D	tissue	08/04/04	X	X										
LDW-T4-M-SF-WB-comp-3	IH51E	tissue	08/04/04	X	X										
LDW-T4-M-SF-WB-comp-3DL	IH51EDL	tissue	08/04/04	X											
LDW-T1-M-ES-FL-comp-2	IH51F	tissue	08/02/04	X	X										
LDW-T1-M-ES-FL-comp-2DL	IH51FDL	tissue	08/02/04	X											
LDW-T2-M-ES-FL-comp-1	IH51G	tissue	08/03/04	X	X										
LDW-T2-M-ES-FL-comp-1DL	IH51GDL	tissue	08/03/04	X											
LDW-T2-M-ES-FL-comp-2	IH51H	tissue	08/03/04	X	X										
LDW-T2-M-ES-FL-comp-2DL	IH51HDL	tissue	08/03/04	X											
LDW-T2-M-ES-WB-comp-5	IH51I	tissue	08/03/04	X	X										
LDW-T2-M-ES-WB-comp-5DL	IH51IDL	tissue	08/03/04	X											
LDW-T2-M-ES-WB-comp-6	IH51J	tissue	08/03/04	X	X										
LDW-T2-M-ES-WB-comp-6DL	IH51JDL	tissue	08/03/04	X											
LDW-T3-M-ES-WB-comp-1	IH51K	tissue	08/03/04	X	X										
LDW-T3-M-ES-WB-comp-1DL	IH51KDL	tissue	08/03/04	X											
LDW-T3-M-ES-WB-comp-2	IH51L	tissue	08/03/04	X	X										
LDW-T3-M-ES-WB-comp-2DL	IH51LDL	tissue	08/03/04	X											
LDW-T3-A-SS-WB-comp-1	IH51M	tissue	08/02/04	X	X										
LDW-T3-A-SS-WB-comp-1DL	IH51MDL	tissue	08/02/04	X											
LDW-T3-D-SS-WB-comp-1	IH51N	tissue	08/02/04	X	X										
LDW-T3-D-SS-WB-comp-1DL	IH51NDL	tissue	08/02/04	X											

Note: X = Validation was performed.

Attachment 2

SDG#: IM87 VALIDATION SAMPLE TABLE **LDC#:** 14297C

Project Name: Lower Duwamish Waterway Group Parameters/Analytical Method Project #04-08-06-22

Client ID #	Lab ID #	Matrix	Date Collected	BEHP (8270C)	PCP (8041)											
LDW-T4-M-ES-FL-comp-1	IM87A	tissue	08/30/04	X												
LDW-T4-M-SF-FL-comp-1	IM87B	tissue	08/30/04	X	X											
LDW-T1-M-SC-HP-comp-1	IM87C	tissue	08/30/04	X												
LDW-T2-M-SC-EM-comp-2	IM87D	tissue	08/31/04	X												
LDW-T2-M-SC-HP-comp-1	IM87E	tissue	08/31/04	X	X											
LDW-T2-M-SC-HP-comp-2	IM87F	tissue	08/31/04	X	X											
LDW-T3-M-SC-EM-comp-2	IM87G	tissue	09/03/04	X												
LDW-T3-M-SC-HP-comp-1	IM87H	tissue	09/03/04	X												
LDW-T1-M-DC-EM-comp-1	IM87I	tissue	08/30/04	X												
LDW-T4-M-DC-HP-comp-1	IM87J	tissue	08/31/04	X												
LDW-T4-M-SF-FL-comp-1MS	IM87BMS	tissue	08/30/04	X	X											
LDW-T4-M-SF-FL-comp-1MSD	IM87BMSD	tissue	08/30/04	X	X											

Note: X = Validation was performed.

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

Technical holding time exceedances have warranted the qualification of bis(2-ethylhexyl)phthalate and pentachlorophenol results as estimated (J) and non-detected results as estimated (UJ) in SDG IM87.

Method blank contamination have warranted the qualification of bis(2-ethylhexyl)phthalate as non-detected (U) in SDG IM87.

Other QC accuracy and precision exceedances have warranted the qualification of bis(2-ethylhexyl)phthalate and pentachlorophenol results as estimated (J) and non-detected results as estimated (UJ) in SDGs IH50, IH51, IH52 and IM87.

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,UJ) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

GCMS Bis(2-ethylhexyl)phthalate by EPA SW846 Method 8270C

I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Associated SDG	Sample	Compound	Total Time From Sample Collection Until Extraction	Required Holding Time From Sample Collection Until Extraction	Flag	A or P
IM87	LDW-T4-M-ES-FL-comp-1 LDW-T4-M-SF-FL-comp-1 LDW-T1-M-SC-HP-comp-1 LDW-T1-M-DC-EM-comp-1	Bis(2-ethylhexyl)phthalate	1 year 13 days	1 year	J (all detects) UJ (all non-detects)	P
IM87	LDW-T2-M-SC-EM-comp-2 LDW-T2-M-SC-HP-comp-1 LDW-T2-M-SC-HP-comp-2 LDW-T4-M-DC-HP-comp-1	Bis(2-ethylhexyl)phthalate	1 year 12 days	1 year	J (all detects) UJ (all non-detects)	P
IM87	LDW-T3-M-SC-EM-comp-2 LDW-T3-M-SC-HP-comp-1	Bis(2-ethylhexyl)phthalate	1 year 9 days	1 year	J (all detects) UJ (all non-detects)	P

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

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for bis(2-ethylhexyl)phthalate were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% .

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values for bis(2-ethylhexyl)phthalate were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No bis(2-ethylhexyl)phthalate contaminants were found in the method blanks with the following exceptions:

Associated SDG	Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
IH52	MB-083005	8/30/05	Bis(2-ethylhexyl)phthalate	350 ug/Kg	LDW-T3-M-DC-EM-comp-1**
IM87	IM87MBS2	9/12/05	Bis(2-ethylhexyl)phthalate	130 ug/Kg	LDW-T4-M-ES-FL-comp-1 LDW-T2-M-SC-EM-comp-2 LDW-T3-M-SC-HP-comp-1 LDW-T1-M-DC-EM-comp-1 LDW-T4-M-DC-HP-comp-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Associated SDG	Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
IM87	LDW-T3-M-SC-HP-comp-1	Bis(2-ethylhexyl)phthalate	230 ug/Kg	230U ug/Kg

No field blanks were identified in these SDGs.

VI. Surrogate Spikes

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

Associated SDG	Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
IM87	LDW-T4-M-DC-HP-comp-1	Terphenyl-d14	136 (20-130)	Bis(2-ethylhexyl)phthalate	J (all detects)	P

Surrogate recoveries (%R) were not within QC limits for sample LDW-T3-M-ES-WB-comp-3DL in SDG IH50. Since the sample was diluted out, no data were qualified.

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 with the following exceptions:

Associated SDG	Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
IH52	LDW-T1-M-DC-EM-comp-3MS/MSD (LDW-T1-M-DC-EM-comp-3**)	Bis(2-ethylhexyl)phthalate	-	12.7 (20-130)	59.2 (≤50)	J (all detects) UJ (all non-detects)	A
IM87	LDW-T4-M-SF-FL-comp-1MS/MSD (LDW-T4-M-SF-FL-comp-1)	Bis(2-ethylhexyl)phthalate	-	-	78.9 (≤50)	J (all detects) UJ (all non-detects)	A

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Associated SDG	Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
IH50	LDW-T4-M-SF-WB-comp-2	Di-n-octylphthalate-d4	161605 (198726-794902)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH50	LDW-T2-M-ES-WB-comp-4	Di-n-octylphthalate-d4	92148 (198726-794902)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH50	LDW-T3-M-ES-WB-comp-3	Di-n-octylphthalate-d4	94049 (198726-794902)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T3-M-ES-WB-comp-6	Di-n-octylphthalate-d4	232293 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T4-M-SF-WB-comp-3	Di-n-octylphthalate-d4	232372 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A

Associated SDG	Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
IH51	LDW-T1-M-ES-FL-comp-2	Di-n-octylphthalate-d4	195789 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T2-M-ES-FL-comp-1	Di-n-octylphthalate-d4	155419 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T2-M-ES-FL-comp-2	Di-n-octylphthalate-d4	139818 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T2-M-ES-WB-comp-5	Di-n-octylphthalate-d4	107495 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T2-M-ES-WB-comp-6	Di-n-octylphthalate-d4	113982 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T3-M-ES-WB-comp-1	Di-n-octylphthalate-d4	122931 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T3-M-ES-WB-comp-2	Di-n-octylphthalate-d4	112816 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T3-A-SS-WB-comp-1	Di-n-octylphthalate-d4	116425 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T3-D-SS-WB-comp-1	Di-n-octylphthalate-d4	116991 (249956-999824)	Bis(2-ethylhexyl)phthalate	J (all detects) UJ (all non-detects)	A
IH51	LDW-T2-M-ES-WB-comp-6DL	Di-n-octylphthalate-d4	154628 (206664-826658)	Bis(2-ethylhexyl)phthalate	NA*	-
IH51	LDW-T3-M-ES-WB-comp-1DL	Di-n-octylphthalate-d4	135532 (206664-826658)	Bis(2-ethylhexyl)phthalate	NA*	-
IH51	LDW-T3-M-ES-WB-comp-2DL	Di-n-octylphthalate-d4	125262 (206664-826658)	Bis(2-ethylhexyl)phthalate	NA*	-
IH51	LDW-T3-A-SS-WB-comp-1DL	Di-n-octylphthalate-d4	132165 (206664-826658)	Bis(2-ethylhexyl)phthalate	NA*	-
IH51	LDW-T3-D-SS-WB-comp-1DL	Di-n-octylphthalate-d4	134052 (206664-826658)	Bis(2-ethylhexyl)phthalate	NA*	-

*N/A = Not applicable

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

XI. Target Compound Identifications

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.

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

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

System performance data were not reviewed for Level III.

XV. Overall Assessment

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
IH50	LDW-T4-M-SF-WB-comp-2DL LDW-T2-M-ES-WB-comp-4DL LDW-T3-M-ES-WB-comp-3DL	Bis(2-ethylhexyl)phthalate	R	A
IH51	LDW-T3-M-ES-WB-comp-6DL LDW-T4-M-SF-WB-comp-3DL LDW-T1-M-ES-FL-comp-2DL LDW-T2-M-ES-FL-comp-1DL LDW-T2-M-ES-FL-comp-2DL LDW-T2-M-ES-WB-comp-5DL LDW-T2-M-ES-WB-comp-6DL LDW-T3-M-ES-WB-comp-1DL LDW-T3-M-ES-WB-comp-2DL LDW-T3-A-SS-WB-comp-1DL LDW-T3-D-SS-WB-comp-1DL	Bis(2-ethylhexyl)phthalate	R	A

Silica gel clean-up performed for SDGs IH50, IH51, and IM87.

XVI. Field Duplicates

No field duplicates were identified in these SDGs.

GC Pentachlorophenol by EPA SW846 Method 8041

*I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Associated SDG	Sample	Compound	Total Time From Sample Collection Until Extraction	Required Holding Time From Sample Collection Until Extraction	Flag	A or P
IM87	LDW-T4-M-SF-FL-comp-1	Pentachlorophenol	1 year 13 days	1 year	J (all detects) UJ (all non-detects)	P
IM87	LDW-T2-M-SC-HP-comp-1 LDW-T2-M-SC-HP-comp-2	Pentachlorophenol	1 year 12 days	1 year	J (all detects) UJ (all non-detects)	P

*Removed holding time findings for samples LDW-T1-M-SC-HP-comp-1 and LDW-T3-M-SC-EM-comp-2 from above table.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed for the primary (quantitation) column and confirmation column as required by this 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.

b. Calibration Verification

Calibration verification was performed at the 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.

III. Blanks

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

No field blanks were identified in these SDGs.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

Associated SDG	Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
IH52	LDW-T3-M-SC-EM-comp-2**	2,4,6-Tribromophenol	167 (30-160)	Pentachlorophenol	J (all detects)	P
IH52	LDW-T4-M-ES-WB-comp-1**	2,4,6-Tribromophenol	205 (30-160)	Pentachlorophenol	J (all detects)	P
IH52	LDW-T4-M-ES-WB-comp-3**	2,4,6-Tribromophenol	198 (30-160)	Pentachlorophenol	J (all detects)	P
IH52	LDW-T1-M-SC-HP-comp-1**	2,4,6-Tribromophenol	171 (30-160)	Pentachlorophenol	J (all detects)	P
IH50	LDW-T3-B-SS-WB-comp-1	2,4,6-Tribromophenol	168 (30-160)	Pentachlorophenol	J (all detects)	P
IH50	LDW-T3-C-SS-WB-comp-1	2,4,6-Tribromophenol	161 (30-160)	Pentachlorophenol	J (all detects)	P
IH51	LDW-T3-A-SS-WB-comp-1	2,4,6-Tribromophenol	222 (30-160)	Pentachlorophenol	J (all detects)	P
IH51	LDW-T3-D-SS-WB-comp-1	2,4,6-Tribromophenol	202 (30-160)	Pentachlorophenol	J (all detects)	P

b. Matrix Spike/(Matrix Spike) Duplicate

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 with the following exceptions:

Associated SDG	Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
IM87	LDW-T4-M-SF-FL-comp-1MS/MSD (LDW-T4-M-SF-FL-comp-1)	Pentachlorophenol	-	-	59.4 (≤50)	J (all detects) UJ (all non-detects)	A

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. 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.

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

XIII. System Performance

The system performance was acceptable.

System performance data were not reviewed for Level III.

XIV. Overall Assessment

The overall assessment of data was acceptable.

Silica gel clean-up performed for SDGs IH50, IH51, and IM87.

XV. Field Duplicates

No field duplicates were identified in these SDGs.

LDC #: 14126A2 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/12/05
SDG #: IH52 Level IV Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: 1
2nd Reviewer: R

METHOD: GC/MS bis(2-Ethylhexyl)phthalate (EPA SW 846 Method 8270C)

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 - 9/3/04
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	no ccc & spcc
IV.	Continuing calibration	A	↓
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS. No SRM
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/CRQLs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	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 Tissues

1	LDW-T3-M-DC-EM-comp-1	11	LDW-T2-M-SC-EM-comp-1	21	MB-083005-1
2	LDW-T3-M-DC-EM-comp-2	12	LDW-T2-M-SC-EM-comp-3	22	MB-083105
3	LDW-T3-M-DC-EM-comp-3	13	LDW-T2-M-SC-EM-comp-4	23	MB-083005-2
4	LDW-T3-M-DC-HP-comp-1	14	LDW-T2-M-SC-EM-comp-5	24	
5	LDW-T3-M-SC-EM-comp-3	15	LDW-T2-M-SC-EM-comp-6	25	
6	LDW-T4-M-ES-WB-comp-1	16	LDW-T3-M-DC-EM-comp-1MS	26	
7	LDW-T4-M-ES-WB-comp-3	17	LDW-T3-M-DC-EM-comp-1MSD	27	
8	LDW-T1-M-DC-EM-comp-2	18	LDW-T1-M-DC-EM-comp-3MS	28	
9	LDW-T1-M-DC-EM-comp-3	19	LDW-T1-M-DC-EM-comp-3MSD	29	
10	LDW-T1-M-DC-HP-comp-1	20		30	

LDC #: 14126A2
SDG #: 1H52

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: K

Method: Semivolatiles (EPA SW 846 Method 8270C)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?			✓	
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?			✓	
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓	✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
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.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓	✓		
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 14126A2
SDG #: 14152

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: M

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniiine
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT.
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU.
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV.
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW.

LDC #: 41264
SDG #: 1452

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: 9
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Y N N/A Was a method blank analyzed for each matrix?
Y N N/A Was a method blank analyzed for each concentration preparation level?
Y N N/A Was a method blank associated with every sample?
Y N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 8/30/05 **Blank analysis date:** 9/5/05
Conc. units: ug/kg Associated Samples: 1

Compound	Blank ID	Sample Identification								
	MB-083005									
1,4-D	~~MB~~									
	350									

Blank extraction date: _____ **Blank analysis date:** _____
Conc. units: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 14768²
SDG #: 1452

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

(Y) N N/A 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.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		18/19	22E	( )	12.7 (20-130)	59.² (≤ 50)	9	J/UJ/A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	GG.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
C.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	II.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
E.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	KK.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
J.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	TT.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
R.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	ZZ.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
V.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 14262
SDG #: 1452

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: AC

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
$\%RSD = 100 * (S/X)$

A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard
S = Standard deviation of the RRFs, X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (25 std)	Recalculated RRF (25 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	7/18/05	Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (~~5th~~ 7th internal standard)	0.595	0.595	0.584	0.584	6.0	6.0
			Benzo(a)pyrene (6th internal standard)						
2	ICAL	9/9/05	Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (~~5th~~ 7th internal standard)	0.605	0.605	0.639	0.639	5.2	5.3
			Benzo(a)pyrene (6th internal standard)						
3			Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						

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 #: 14126A2
SDG #: 1H52

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: A

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CC0905	9/5/05	Phenol (1st internal standard)	~~0.584~~				
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (~~5th~~ 7th internal standard)	0.582	0.64266	0.64266	10.00672	10.04
			Benzo(a)pyrene (6th internal standard)					
2	CC0906	9/6/05	Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (~~5th~~ 7th internal standard)	0.584	0.62827	0.62827	7.54379	7.581
			Benzo(a)pyrene (6th internal standard)					
3	CC0920	9/20/05	Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (~~5th~~ 7th internal standard)	0.639	0.64053	0.64053	0.15019	0.24
			Benzo(a)pyrene (6th internal standard)					

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

LDC #: 14126A-2
SDG #: 1452

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: [illegible]

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270)

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 Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14	25	7.37748	29.5	29.5	0
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 14126A2
SDG #: 1H52

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: Q
2nd Reviewer: A

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

The percent recoveries (%R) and Relative Percent Difference (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; SA = Spike added; SC = Sample concentation

RPD = I MS - MSD I * 2/(MS + MSD) MS = Matrix spike percent recovery MSD = Matrix spike duplicate percent recovery

MS/MSD samples: 16/17

Compound	Spike Added (µg/kg)		Sample Concentration (µg/kg)	Spiked Sample Concentration (µg/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
~~Phenol~~ EEE	997	1000	ND	575	355	57.7	57.7	35.5	35.5	47.3	47.3
2-Chlorophenol											
1,4-Dichlorobenzene											
N-Nitroso-di-n-propylamine											
1,2,4-Trichlorobenzene											
4-Chloro-3-methylphenol											
Acenaphthene											
4-Nitrophenol											
2,4-Dinitrotoluene											
Pentachlorophenol											
Pyrene											

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 #: 14176A2
SDG #: 1H52

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: M

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = | LCS - LCSD | * 2/(LCS + LCSD) LCS = Laboratory control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: LCS-083005

Compound	Spike Added (ug/kg)		Spike Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
~~Phenol~~ EEC	1000	NA	299	NA	29.9	29.9				
2-Chlorophenol										
1,4-Dichlorobenzene										
N-Nitroso-di-n-propylamine										
1,2,4-Trichlorobenzene										
4-Chloro-3-methylphenol										
Acenaphthene										
4-Nitrophenol										
2,4-Dinitrotoluene										
Pentachlorophenol										
~~Pyrene~~										

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

LDC #: 41268 2
SDG #: 41452

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: X

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

(Y) N N/A Were all reported results recalculated and verified for all level IV samples?
(Y) N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. ND , _____:

Conc. = ( )( )( )( )( )
( )( )( )( )( )

=

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

LDC #: 14297A2 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/23/05

SDG #: IH50 Level III Page: 1 of 1

Laboratory: Analytical Resources, Inc. Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS bis(2-Ethylhexyl)phthalate (EPA SW 846 Method 8270C)

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: 8/3 - 9/3/04
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RRF mm SPCC mm CC
IV.	Continuing calibration	A	ICV ≤ 25 ↓ ↓
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	No MS/MSD due to insufficient sample
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentitatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	SW	Silica gel clean up performed
XVI.	Field duplicates	N	
XVII.	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-T3-M-SC-EM-comp-1	11	LDW-T2-M-ES-WB-comp-4DL	21	
2	LDW-T4-M-DC-EM-comp-1	12	LDW-T3-M-ES-WB-comp-3	22	
3	LDW-M-M-PP-FL-comp-1	13	LDW-T3-M-ES-WB-comp-3DL	23	
4	LDW-M-M-SP-FL-comp-1	14	IH50MBS1	24	
5	LDW-T3-B-SS-WB-comp-1	15		25	
6	LDW-T3-C-SS-WB-comp-1	16		26	
7	LDW-T3-M-ES-FL-comp-1	17		27	
8	LDW-T4-M-SF-WB-comp-2	18		28	
9	LDW-T4-M-SF-WB-comp-2DL	19		29	
10	LDW-T2-M-ES-WB-comp-4	20		30	

LDC #: 14297A2
SDG #: 1H50

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Y N N/A Were percent recoveries (%R) for surrogates within QC limits?
Y N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
		8 13	TPH	138 (20-130)	no QUAL 5x DIL
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

* QC limits are advisory	QC Limits (Soil)	QC Limits (Water)
S1 (NBZ) = Nitrobenzene-d5	23-120	35-114
S2 (FBP) = 2-Fluorobiphenyl	30-115	43-116
S3 (TPH) = Terphenyl-d14	18-137	33-141
S4 (PHL) = Phenol-d5	24-113	10-94
S5 (2FP)= 2-Fluorophenol	25-121	21-100
S6 (TBP) = 2,4,6-Tribromophenol	19-122	10-123
S7 (2CP) = 2-Chlorophenol-d4	20-130*	33-110*
S8 (DCB) = 1,2-Dichlorobenzene-d4	20-130*	16-110*

LDC #: 14297A2
SDG #: 1H50

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Y (N) N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		8	*	161605 (198726-794902)		J/UJ/A
		10	*	92148		
		12	*	94049		
			* Di-n-octylphthalate-d4			

* QC limits are advisory

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

LDC #: 14297A2
SDG #: 1H50

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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?

#	Date	compds Sample ID	Finding	Associated Samples	Qualifications
		All	higher R.L	9, 11, 13	R/A

Comments: _____

LDC #: 14297B2 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/23/05
SDG #: IH51 Level III Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: 9
2nd Reviewer: M

METHOD: GC/MS bis(2-Ethylhexyl)phthalate (EPA SW 846 Method 8270C)

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: 8/2/04 – 8/5/04
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RRF min SPCC ↓ min CCC ↓
IV.	Continuing calibration	A	ICV = 25
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	~~insufficient sample Amt~~
VIII.	Laboratory control samples	A	LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentitatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	SW	Silica clean up performed
XVI.	Field duplicates	N	
XVII.	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-T3-M-ES-WB-comp-4	11	LDW-T2-M-ES-FL-comp-1DL	21	LDW-T3-M-ES-WB-comp-2DL
2	LDW-T3-M-ES-WB-comp-5	12	LDW-T2-M-ES-FL-comp-2	22	LDW-T3-A-SS-WB-comp-1
3	LDW-T3-M-ES-WB-comp-6	13	LDW-T2-M-ES-FL-comp-2DL	23	LDW-T3-A-SS-WB-comp-1DL
4	LDW-T3-M-ES-WB-comp-6DL	14	LDW-T2-M-ES-WB-comp-5	24	LDW-T3-D-SS-WB-comp-1
5	LDW-T4-M-SF-WB-comp-1	15	LDW-T2-M-ES-WB-comp-5DL	25	LDW-T3-D-SS-WB-comp-1DL
6	LDW-T4-M-SF-WB-comp-3	16	LDW-T2-M-ES-WB-comp-6	26	MB-072905
7	LDW-T4-M-SF-WB-comp-3DL	17	LDW-T2-M-ES-WB-comp-6DL	27	
8	LDW-T1-M-ES-FL-comp-2	18	LDW-T3-M-ES-WB-comp-1	28	
9	LDW-T1-M-ES-FL-comp-2DL	19	LDW-T3-M-ES-WB-comp-1DL	29	
10	LDW-T2-M-ES-FL-comp-1	20	LDW-T3-M-ES-WB-comp-2	30	

All ND

LDC #: 14297B2
SDG #: 1H51

VALIDATION FINDINGS WORKSHEET
Internal Standards

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Y (N) N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?

Y (N) N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		3	*	232293 (249956-999824)		J/UJ/A
		6		232372		
		8		195789		
		10		155419		
		12		139818		
		14		107495		
		16		113982		
		18		122931		
		20		112816		
		22		116425		
		24	↓	116991		↓
			* Di-n-octylphthalate-d4			

* QC limits are advisory

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

LDC #: 14297B2
SDG #: 1H51

VALIDATION FINDINGS WORKSHEET
Internal Standards

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Y N N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?

Y N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		17	*	154628 (206664-	826658)	J/NJ/A
		19		135532		
		21		125262		
		23		132165		
		25	↓	134052	↓	↓

* QC limits are advisory

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

LDC #: 14297B2
SDG #: 1451

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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?

#	Date	compd ~~Sample ID~~	Finding	Associated Samples	Qualifications
		All	Higher RL	4, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25	R/A

Comments: _____

OVR.2S

LDC #: 14297C2 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/24/05

SDG #: IM87 Level III Page: 1 of 1

Laboratory: Analytical Resources, Inc. Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS bis(2-Ethylhexyl)phthalate (EPA SW 846 Method 8270C)

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	SW	Sampling dates: 8/30 → 9/3/04
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RRF non-SPCC ↓ non-CCC ↓
IV.	Continuing calibration	A	ICV ✓S
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentitatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	Silica clean up performed
XVI.	Field duplicates	N	
XVII.	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

Tissue

1	LDW-T4-M-ES-FL-comp-1	11	LDW-T4-M-SF-FL-comp-1MS	21	
2	LDW-T4-M-SF-FL-comp-1	12	LDW-T4-M-SF-FL-comp-1MSD	22	
3	LDW-T1-M-SC-HP-comp-1	13		23	
4	LDW-T2-M-SC-EM-comp-2	14		24	
5	LDW-T2-M-SC-HP-comp-1	15		25	
6	LDW-T2-M-SC-HP-comp-2	16		26	
7	LDW-T3-M-SC-EM-comp-2	17		27	
8	LDW-T3-M-SC-HP-comp-1	18		28	
9	LDW-T1-M-DC-EM-comp-1	19		29	
10	LDW-T4-M-DC-HP-comp-1	20		30	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT.
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU.
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV.
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW.

LDC #: 14297C2
SDG #: 1M87

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: [illegible]
2nd Reviewer: [illegible]

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?

METHOD : GC/MS BNA (EPA SW 846 Method 8270)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
1, 2, 3, 9	tissue		8/30/04	9/12/05	9/21/05	1yr + 13 days	J/UJ/P
4, 5, 6, 10	↓		8/31/04	↓	↓	1yr + 12 days	↓
7, 8	↓		9/3/04	↓	↓	1yr + 9 days	↓
			H.T. for frozen Tissue = 1yr.				

TECHNICAL HOLDING TIME CRITERIA

Water: Extracted within 7 days, analyzed within 40 days.
Soil: Extracted within 14 days, analyzed within 40 days.

LDC #: 14297C2
SDG #: 1M87

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Y N N/A Was a method blank analyzed for each matrix?
Y N N/A Was a method blank analyzed for each concentration preparation level?
Y N N/A Was a method blank associated with every sample?
Y N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 9/12/05 **Blank analysis date:** 9/21/05
Conc. units: ug/kg Associated Samples: 1, 4, 8 → 10

Compound	Blank ID	Sample Identification								
	IM87MB2	BS2	8							
EEE	130		2304							

Blank extraction date: _____ **Blank analysis date:** _____
Conc. units: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 14297C2
SDG #: 1M87
METHOD: GC/MS BNA (EPA SW 846 Method 8270)

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: [illegible]
2nd Reviewer: [illegible]

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

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits?
Y (N) N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N (N/A) If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
		10	TPH	136 (20-130)	J/P det
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

* QC limits are advisory

	QC Limits (Soil)	QC Limits (Water)
S1 (NBZ) = Nitrobenzene-d5	23-120	35-114
S2 (FBP) = 2-Fluorobiphenyl	30-115	43-116
S3 (TPH) = Terphenyl-d14	18-137	33-141
S4 (PHL) = Phenol-d5	24-113	10-94
S5 (2FP)= 2-Fluorophenol	25-121	21-100
S6 (TBP) = 2,4,6-Tribromophenol	19-122	10-123
S7 (2CP) = 2-Chlorophenol-d4	20-130*	33-110*
S8 (DCB) = 1,2-Dichlorobenzene-d4	20-130*	16-110*

LDC #: 14297C2
SDG #: IM87

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Y N N/A 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.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		11+12		( )	( )	78.9 (50)	2	J/UJ/A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	GG.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
C.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	II.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
E.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	KK.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
J.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	TT.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
R.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	ZZ.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
V.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 14126A17 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/12/05
SDG #: IH52 Level IV Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: Q
2nd Reviewer: [illegible]

METHOD: GC Pentachlorophenol (EPA SW 846 Method 8041)

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: 8/30-9/3/04
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS. No SRM
V.	Target compound identification	A	
VI.	Compound Quantitation and CRQLs	A	
VII.	System Performance	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 Tissues

1	LDW-T3-M-DC-EM-comp-1	11	LDW-T4-M-ES-WB-comp-3	21	LDW-T2-M-SC-EM-comp-5
2	LDW-T3-M-DC-EM-comp-2	12	LDW-T1-M-DC-EM-comp-1	22	LDW-T2-M-SC-EM-comp-6
3	LDW-T3-M-DC-EM-comp-3	13	LDW-T1-M-DC-EM-comp-2	23	LDW-T3-M-DC-EM-comp-1MS
4	LDW-T3-M-DC-HP-comp-1	14	LDW-T1-M-DC-EM-comp-3	24	LDW-T3-M-DC-EM-comp-1MSD
5	LDW-T3-M-SC-EM-comp-2	15	LDW-T1-M-DC-HP-comp-1	25	MB-083005-1
6	LDW-T3-M-SC-EM-comp-3	16	LDW-T1-M-SC-HP-comp-1	26	MB-083005.2
7	LDW-T3-M-SC-HP-comp-1	17	LDW-T2-M-SC-EM-comp-1	27	
8	LDW-T4-M-DC-HP-comp-1	18	LDW-T2-M-SC-EM-comp-2	28	
9	LDW-T4-M-ES-FL-comp-1	19	LDW-T2-M-SC-EM-comp-3	29	
10	LDW-T4-M-ES-WB-comp-1	20	LDW-T2-M-SC-EM-comp-4	30	

LDC #: 14126A17
SDG #: 1452

VALIDATION FINDINGS CHECKLIST

Reviewer: a
2nd Reviewer: a

Method: ✓ GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ✓ %D or %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) < 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?		✓		
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?		✓		
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
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.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 14126B17
SDG #: 1H52

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: N

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

LDC #: 14126A17
SDG #: 1452

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: ✓ **GC** __ **HPLC**

Are surrogates required by the method? Yes✓ or No____.

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

Y N N/A Were surrogates spiked into all samples and blanks?

Y N N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	5	NS	TBP	167 (30-160)	↓ dets / P (ND)
				( )	
	10		TBP	205 ( )	(dets)
				( )	
	11		TBP	198 ( )	
				( )	
	16		TBP	171 ( )	(Nb)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decafluorobiphenyl (DCB)	U	Tripentyltin
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	2.4.6-Tribromophenol (TBP)
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	

LDC #: 44684I7
SDG #: 1H52

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: AC

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 CF (1 std)	Recalculated CF (1 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL2	9/6/05	PCP (DB5)	4.6e+07	4.6e+07	4.64e+07	4.65e+07	5.5	5.6
			PCP (DB608)	3.4e+07	3.4e+07	3.43e+07	3.42e+07	5.1	5.0
2									
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 #: 14126017
SDG #: 1H52

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: 9
2nd Reviewer: AC

METHOD: GC ✓ HPLC ____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	PCAL2	9/5/05	PCBP (DB5)	0.025	0.0268	0.0268	7.2	7.1
			✓ (DB608)	✓	0.0266	0.0267	6.4	6.6
2	PCAL3	9/5/05	PCBP (DB-5)	0.025	0.0262	0.0262	4.8	4.9
			✓ (PB608)	✓	0.0258	0.0258	3.2	3.3
3	PCAL4	9/6/05	PCP (DB-5)	0.025	0.0274	0.0274	9.6	9.5
			✓ (DB608)	✓	0.0269	0.0269	7.6	7.6
4								

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

LDC #: 14126A17
SDG #: 1452

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: A

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	
TBP	DB-5	100	143.2	143	143	0

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 #: 14126A1T
SDG #: 1452

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: DC

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
SA = Spike added
RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike MSD = Matrix spike duplicate

MS/MSD samples: 23/24

Compound	Spike Added (MS/MSD)		Sample Conc. (MS/MSD)	Spike Sample Concentration (MS/MSD)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	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)											
PCP	33.3	33.3	ND	14.4	15.5	43.2	43.2	46.5	46.5	7.4	7.4

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 #: 14126A17
SDG #: 1452

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of: 1
Reviewer: 9
2nd Reviewer: N

____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-083005

Compound	Spike Added (MB)		Sample Conc (MB)	Spike Sample Concentration (MB)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	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)											
PCP	33.3	NA	~~18~~ -	18.1	ND	54.4	54.4				

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 #: 14126A17
SDG #: 1452

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: Q
2nd Reviewer: AC

METHOD: ✓ **GC** __ **HPLC**

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

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

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

Example:

Sample ID. 10 Compound Name POP

Concentration = $\frac{(103919)(10000)(1)}{(4.64e+07)(15.02)}$

$= 1.49$ ug/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: _____

SAMPCALew.wpd

LDC #: 14297A17 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/23/05

SDG #: IH50 Level III Page: 1 of 1

Laboratory: Analytical Resources, Inc. Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC Pentachlorophenol (EPA SW 846 Method 8041)

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: 8/3 - 9/3/04
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	N	insufficient sample Amt
IVc.	Laboratory control samples	A	LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	silica gel clean up performed
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: Tissue

1	LDW-T3-M-SC-EM-comp-1	11	IH50MS1	21	
2	LDW-T4-M-DC-EM-comp-1	12		22	
3	LDW-M-M-PP-FL-comp-1	13		23	
4	LDW-M-M-SP-FL-comp-1	14		24	
5	LDW-T3-B-SS-WB-comp-1	15		25	
6	LDW-T3-C-SS-WB-comp-1	16		26	
7	LDW-T3-M-ES-FL-comp-1	17		27	
8	LDW-T4-M-SF-WB-comp-2	18		28	
9	LDW-T2-M-ES-WB-comp-4	19		29	
10	LDW-T3-M-ES-WB-comp-3	20		30	

LDC #: 14297A17
SDG #: 1450

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: EJ
2nd Reviewer: [illegible]

METHOD: __ GC __ HPLC

Are surrogates required by the method? Yes____ or No____.

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

Y N N/A Were surrogates spiked into all samples and blanks?

Y N N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	5	not specified	*	164 (30-150)	J/P det
	6	not specified	*	161 (30-150)	↓
			*	2,4,6-Tribromophenol	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decafluorobiphenyl (DCB)	U	Tripentyltin
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate

LDC #: 14297B17 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/23/05
SDG #: IH51 Level III Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Pentachlorophenol (EPA SW 846 Method 8041)

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: 8/2/04 → 8/5/04
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	ICV = 15
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	N	No MS/MSD due to insufficient Amt of Sample
IVc.	Laboratory control samples	A	LCS 1P
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	Silica gel clean up performed
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: Tissue

1	LDW-T3-M-ES-WB-comp-4	11	LDW-T3-M-ES-WB-comp-1	21	MB-072905
2	LDW-T3-M-ES-WB-comp-5	12	LDW-T3-M-ES-WB-comp-2	22	
3	LDW-T3-M-ES-WB-comp-6	13	LDW-T3-A-SS-WB-comp-1	23	
4	LDW-T4-M-SF-WB-comp-1	14	LDW-T3-D-SS-WB-comp-1	24	
5	LDW-T4-M-SF-WB-comp-3	15		25	
6	LDW-T1-M-ES-FL-comp-2	16		26	
7	LDW-T2-M-ES-FL-comp-1	17		27	
8	LDW-T2-M-ES-FL-comp-2	18		28	
9	LDW-T2-M-ES-WB-comp-5	19		29	
10	LDW-T2-M-ES-WB-comp-6	20		30	

LDC #: 14297B17
SDG #: IHS1

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: EP
2nd Reviewer: [illegible]

METHOD: ✓ **GC** __ **HPLC**

Are surrogates required by the method? Yes____ or No____.

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

Y N N/A Were surrogates spiked into all samples and blanks?

Y N N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	13	not specified	2,4,6-tribromophenol	222 (30-150)	J/P dit
				( )	
				( )	
	14	↓	↓	202 (↓)	↓
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decafluorobiphenyl (DCB)	U	Tripentyltin
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate

LDC #: 14297C17 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/23/05
SDG #: IM87 Level III Page: 1 of 1
Laboratory: Analytical Resources, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Pentachlorophenol (EPA SW 846 Method 8041)

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	SW	Sampling dates: 8/30/04 - 9/3/04
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	LCV ≤ 15
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	SW	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	Silica clean-up performed
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: Tissue

1	LDW-T4-M-SF-FL-comp-1	11	MB-091205	21	
2	~~LDW-T1-M-SC-HP-comp-1~~	12		22	
3	LDW-T2-M-SC-HP-comp-1	13		23	
4	LDW-T2-M-SC-HP-comp-2	14		24	
5	~~LDW-T3-M-SC-EM-comp-2~~	15		25	
6	LDW-T4-M-SF-FL-comp-1MS	16		26	
7	LDW-T4-M-SF-FL-comp-1MSD	17		27	
8		18		28	
9		19		29	
10		20		30	

LDC #: 14297C17
SDG #: 1M87

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

All circled dates have exceeded the technical holding times.
Y N N/A Were all cooler temperatures within validation criteria?

METHOD: GC HPLC

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
1, 2	Tissue	frozen	8/30/04	9/12/05	9/20/05	1yr 13days	J/NJ/P
3, 4	↓	↓	8/31/04	↓	↓	1yr 12days	↓
~~5~~	↓	↓	9/3/04	↓	↓	1yr 9days	↓
			H.T. for frozen tissue = 1yr.				

TECHNICAL HOLDING TIME CRITERIA

VOLATILES:	Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
	Water preserved:	Both within 14 days of sample collection.
	Soils:	Both within 14 days of sample collection.
EXTRACTABLES:		
	Water:	Extracted within 7 days, analyzed within 40 days.
	Soil:	Extracted within 14 days, analyzed within 40 days.

LDC #: 14297c17
SDG #: 1M87

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: ✓ GC ___ HPLC

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

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?
(Y) N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y (N) N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	6+7	Pentachlorophenol	( )	( )	59.4 (50)	#1	J/UJ/A
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		